DPR250

PRODUCT MANUAL

DPR 250

DIGITAL STRIP CHART RECORDER

PRODUCT MANUAL

Ref. : US1I-6199

Issue : 6 **January 2004**

Copyright, Notices, and Trademarks

About This Document

Abstract

This manual describes the installation, configuration, operation, and maintenance of the Recorder.

Warranty

WARRANTY. THE FOLLOWING IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE.

a) Goods/Hardware

Except as otherwise hereinafter provided, Honeywell warrants goods of its manufacture to be free of defective materials and faulty workmanship and as conforming to applicable specifications and/or drawings. Commencing with date of shipment, Honeywell's warranty shall run for the period specified on the face hereof or, if none be mentioned, 18 months. If warranted goods are returned to Honeywell during this period of coverage, Honeywell will repair or replace without charge those items it finds defective.

Experimental devices (designated by the letter "X" or "E" within their part-number identification) are prototype, pre-production items that have yet to complete all phases of product-release testing; these items are sold "AS IS" WITH NO WARRANTY.

b) Software

Software, if listed on the face hereof and used within hardware and/or a system warranted by Honeywell, will be furnished on a medium that's free of defect in materials or workmanship under normal use for so long as the hardware and/or system is under warranty. During this period, Honeywell will replace without charge any such medium it finds defective. As for the quality or performance of any software or data, they are supplied "AS IS" WITH NO WARRANTY.

c) Services

Where hardware and/or a system is installed by Honeywell, such services are warranted against faulty workmanship for the same period (if any) as applies to the installed items. During this concurrently running period, Honeywell will correct without charge any workmanship it finds to be faulty.

Contacts

If you encounter any problem with your recorder, please contact your nearest Sales Office. (See the address list at the end of this manual).

An engineer will discuss your problem with you. **Please have your complete model number and serial number available.** Model number and serial number are located on the chassis nameplate.

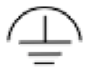
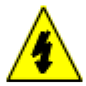
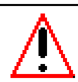
If it is determined that a hardware problem exists, a replacement instrument or part will be shipped with instructions for returning the defective unit. Do not return your instrument without authorization from your Sales Office or until the replacement has been received.

World Wide Web: http://www.honeywell.com

Corporate Industrial Measurement and Control: http://www.honeywell.com/imc/

Telephone: USA & Canada Honeywell:	**Technical Support:**	**1800-423-9883**
	TAC FACS:	**1888-423-9883**
	Service:	**1800-525-7439**

Symbol Meanings

Symbol	What it means
	Protective ground terminal. Provided for connection of the protective earth green (green or green/yellow) supply system conductor.
	Functional ground terminal. Used for non-safety purposes such as noise immunity improvement.
	WARNING. Risk of electric shock. This symbol warns the user of a potential shock hazard where voltages greater than 30 Vrms, 42.4 Vpeak, or 60 Vdc may be accessible.
	CAUTION. When this symbol appears on the product, see the user manual for more information. This symbol appears next to the required information in the manual.

CE conformity

This product conforms with the protection requirements of the following European Council Directives: 89/336/EEC, the EMC directive, and 73/23/EEC, the low voltage directive. Do not assume this product conforms with any other “CE Mark” Directive(s).

Attention

The emission limits of EN 61326-1 are designed to provide reasonable protection against harmful interference when this equipment is operated in an industrial environment. Operation of this equipment in a residential area may cause harmful interference. This equipment generates, uses, and can radiate radio frequency energy and may cause interference to radio and television reception when the equipment is used closer than 30 meters to the antenna(e). In special cases, when highly susceptible apparatus is used in close proximity, the user may have to employ additional mitigating measures to further reduce the electromagnetic emissions of this equipment.

Product model number:	
Serial number:	
Date code:	
Service department telephone number:	

TABLE OF CONTENTS

TABLE OF CONTENTS

Section 1

1.1 RECORDER OVERVIEW

1.1.1 INTRODUCTION

This recorder is a precision measuring instrument that offers many features.

- Up to 64 analog input channels,
- Compact size: 320 mm (12.60 ") depth,
  310 mm front face height x 387 mm width (12.21 " x 15.24 "),
  278 mm x 348 mm (10.95 " x 13.70 ") cutout,
- 250 mm chart in either roll or fanfold presentation,
- Universal power supply: 100 to 240 V ac/dc,
- IP55 front panel protection,
- Universal input with a wide choice of actuation/range,
- Option linear input,
- High accuracy: 0.05 % via field calibration,
- Easy interactive product configuration,
- Large, clear operator display,
- Fast scanning rate:

2 channels = 105 ms	24 channels = 1260 ms	48 channels = 2520 ms
4 channels = 210 ms	28 channels = 1470 ms	52 channels = 2730 ms
8 channels = 420 ms	32 channels = 1680 ms	56 channels = 2940 ms
12 channels = 630 ms	36 channels = 1890 ms	60 channels = 3150 ms
16 channels = 840 ms	40 channels = 2100 ms	64 channels = 3360 ms
20 channels = 1050 ms	44 channels = 2310 ms	52 channels = 2730 ms

- Configurable alphanumeric chart documentation,
- Up to 64 alarm setpoints with a wide choice of alarm types,
- Event alarm: End of chart paper, sensor burnout, clock battery low, etc.,
- Up to 64 customer messages of 64 characters each,
- Standard chart illumination,
- Product configuration, service diagnostic, software upgrading via PC interface,
- Chart zoning configurable,
- Complies with IEC348 and EN61010-1 safety requirements,
- EC mark: Conformity with 73/23/EEC low voltage directive and 89/336 EEC, EMC directives,
- CSA approval (certified) LR57938

OPTIONS:

- Up to 48 alarm relay outputs,
- Up to 48 digital inputs,
- Keylock,
- 32 Maths functions,
- Communication board,
- Up to 8 4/20 mA current outputs,
- PCMCIA board driver.

1.2 MODEL SELECTION GUIDE

This table helps you to identify correctly the unit in front of you. Please refer to the product label and verify that you have the right unit.
Select the desired key number. The mark to the right shows the selection available. A complete model number has the requested number of digits from each table as follows:

Instructions

- Select the desired Key Number. The arrow to the right marks the selection available.
- A dot denotes unrestricted availability. A letter denotes restricted availability.
- A complete Model Number must have the designated number of digits in each table.

Key Number	I	II	III	IV	V	VI	VII
D25	_ _ _ _ _ _ _ _	_ _ _ _ _ _ _ _	_ _ _	_	_ _ _ _	_ _	_

KEY NUMBER

Description		
250 mm Strip Chart Recorder	D25	↓

TABLE I - Lower Rack Analog Inputs

		Selection	Availability
Input Card 1 (Slot A)	None	0 _ _ _ _ _ _ _	•
	4 Linear Inputs (Channel 1 to 4)	L _ _ _ _ _ _ _	•
	4 Universal Inputs (Channel 1 to 4)	U _ _ _ _ _ _ _	•
Input Card 2 (Slot B)	None	_ 0 _ _ _ _ _ _	•
	4 Linear Inputs (Channel 5 to 8)	_ L _ _ _ _ _ _	•
	4 Universal Inputs (Channel 5 to 8)	_ U _ _ _ _ _ _	•
Input Card 3 (Slot C)	None	_ _ 0 _ _ _ _ _	•
	4 Linear Inputs (Channel 9 to 12)	_ _ L _ _ _ _ _	•
	4 Universal Inputs (Channel 9 to 12)	_ _ U _ _ _ _ _	•
Input Card 4 (Slot D)	None	_ _ _ 0 _ _ _ _	•
	4 Linear Inputs (Channel 13 to 16)	_ _ _ L _ _ _ _	•
	4 Universal Inputs (Channel 13 to 16)	_ _ _ U _ _ _ _	•
Input Card 5 (Slot E)	None	_ _ _ _ 0 _ _ _	•
	4 Linear Inputs (Channel 17 to 20)	_ _ _ _ L _ _ _	•
	4 Universal Inputs (Channel 17 to 20)	_ _ _ _ U _ _ _	•
Input Card 6 (Slot F)	None	_ _ _ _ _ 0 _ _	•
	4 Linear Inputs (Channel 21 to 24)	_ _ _ _ _ L _ _	•
	4 Universal Inputs (Channel 21 to 24)	_ _ _ _ _ U _ _	•
Input Card 7 (Slot G)	None	_ _ _ _ _ _ 0 _	•
	4 Linear Inputs (Channel 25 to 28)	_ _ _ _ _ _ L _	•
	4 Universal Inputs (Channel 25 to 28)	_ _ _ _ _ _ U _	•
Input Card 8 (Slot H)	None	_ _ _ _ _ _ _ 0	•
	4 Linear Inputs (Channel 29 to 32)	_ _ _ _ _ _ _ L	•
	4 Universal Inputs (Channel 29 to 32)	_ _ _ _ _ _ _ U	•

TABLE II - Upper Rack Digital Inputs/Outputs Analog Inputs/Outputs

		Selection	Availability D25
Slot J	None	0 _ _ _ _ _ _ _	•
	4 Linear Inputs (Channel 33 to 36)	L _ _ _ _ _ _ _	•
	4 Universal Inputs (Channel 33 to 36)	U _ _ _ _ _ _ _	•
	6 Alarm Relay Outputs (Alarm 1 to 6)	A _ _ _ _ _ _ _	•
	6 Digital Inputs (Digital 1 to 6)	D _ _ _ _ _ _ _	•
Slot K	None	_ 0 _ _ _ _ _ _	•
	4 Linear Inputs (Channel 37 to 40)	_ L _ _ _ _ _ _	•
	4 Universal Inputs (Channel 37 to 40)	_ U _ _ _ _ _ _	•
	6 Alarm Relay Outputs (Alarm 7 to 12)	_ A _ _ _ _ _ _	•
	6 Digital Inputs (Digital 7 to 12)	_ D _ _ _ _ _ _	•
Slot L	None	_ _ 0 _ _ _ _ _	•
	4 Linear Inputs (Channel 41 to 44)	_ _ L _ _ _ _ _	•
	4 Universal Inputs (Channel 41 to 44)	_ _ U _ _ _ _ _	•
	6 Alarm Relay Outputs (Alarm 13 to 18)	_ _ A _ _ _ _ _	•
	6 Digital Inputs (Digital 13 to 18)	_ _ D _ _ _ _ _	•
Slot M	None	_ _ _ 0 _ _ _ _	•
	4 Linear Inputs (Channel 45 to 48)	_ _ _ L _ _ _ _	•
	4 Universal Inputs (Channel 45 to 48)	_ _ _ U _ _ _ _	•
	6 Alarm Relay Outputs (Alarm 19 to 24)	_ _ _ A _ _ _ _	•
	6 Digital Inputs (Digital 19 to 24)	_ _ _ D _ _ _ _	•
Slot N	None	_ _ _ _ 0 _ _ _	•
	4 Linear Inputs (Channel 49 to 52)	_ _ _ _ L _ _ _	•
	4 Universal Inputs (Channel 49 to 52)	_ _ _ _ U _ _ _	•
	6 Alarm Relay Outputs (Alarm 25 to 30)	_ _ _ _ A _ _ _	•
	6 Digital Inputs (Digital 25 to 30)	_ _ _ _ D _ _ _	•
Slot P	None	_ _ _ _ _ 0 _ _	•
	4 Linear Inputs (Channel 53 to 56)	_ _ _ _ _ L _ _	•
	4 Universal Inputs (Channel 53 to 56)	_ _ _ _ _ U _ _	•
	6 Alarm Relay Outputs (Alarm 31 to 36)	_ _ _ _ _ A _ _	•
	6 Digital Inputs (Digital 31 to 36)	_ _ _ _ _ D _ _	•
Slot Q	None	_ _ _ _ _ _ 0 _	•
	4 Linear Inputs (Channel 57 to 60)	_ _ _ _ _ _ L _	•
	4 Universal Inputs (Channel 57 to 60)	_ _ _ _ _ _ U _	•
	6 Alarm Relay Outputs (Alarm 37 to 42)	_ _ _ _ _ _ A _	•
	6 Digital Inputs (Digital 37 to 42)	_ _ _ _ _ _ D _	•
	4 Current Outputs (Output 1 to 4)	_ _ _ _ _ _ C _	•
Slot R	None	_ _ _ _ _ _ _ 0	•
	4 Linear Inputs (Channel 61 to64)	_ _ _ _ _ _ _ L	•
	4 Universal Inputs (Channel 61 to 64)	_ _ _ _ _ _ _ U	•
	6 Alarm Relay Outputs (Alarm 43 to 48)	_ _ _ _ _ _ _ A	•
	6 Digital Inputs (Digital 43 to 48)	_ _ _ _ _ _ _ D	•
	4 Current Outputs (Output 5 to 8)	_ _ _ _ _ _ _ C	•

TABLE III - Options

		Selection	**D25**
Communications	None	0 _ _	•
	Universal Communication (RS232/422/485) ASCII/Modbus RTU	1 _ _	•
	Ethernet Interface	2 _ _	d
PCMCIA	None	_ 0 _	•
	PCMCIA Interface **(Note 6)**	_ A _	•
Math	None	_ _ 0	•
	Math Package	_ _ A	•

TABLE IV - Door and Case Options

Grey Door, Glass Window, with Latch, Standard Case	0	•
Grey Door, Glass Window, with Key Lock, Standard Case	1	•
Grey Door, Plastic Window, with Latch, Standard Case	2	•
Grey Door, Plastic Window, with Key Lock, Standard Case	3	•
Grey Door, Glass Window, with Latch, Black Case	A	•
Grey Door, Glass Window, with Key Lock, Black Case	B	•
Grey Door, Plastic WIndow, with Latch, Black Case	C	•
Grey Door, Plastic Window, with Key Lock, Black Case	D	•
Black Door, Glass Window, with Latch, Black Case	E	•
Black Door, Glass Window, with Key Lock, Black Case	F	•
Grey Door, Plastic Window, Latch and Black Portable Case	4	c

TABLE V - Miscellaneous

None		0 _ _ _	•
None		_ 0 _ _	•
Test Report (Calibration Certificate)	**(Note 5)**	_ A _ _	•
Certificate of Conformance		_ B _ _	•
None		_ _ 0 _	•
Product Configuration	**(Note 3)**	_ _ A _	•
Product Configuration with User Defined Actuation	**(Note 3)**	_ _ B _	•
User Defined Actuation	**(Note 3)**	_ _ U _	•
None		_ _ _ 0	•
CSA Approval/NRTL/C	**(Note 4)**	_ _ _ C	•

TABLE VI - Specials

None	00	•
Special ST # (Consult Ft. Washington)	XX	•

TABLE VII - Language/Prompts/Manuals

Product Information on CD	0	•
English	E	•
French	F	•
German	G	•
Italian Prompts/English Manual	I	•
Spanish	S	•

RESTRICTIONS

Restriction		Available Only With		Not Available With
Letter	**Table**	**Selection**	**Table**	**Selection**
c			V	_ _ _ C
d			II	_ _ _ _ _ _ _ L, _ _ _ _ _ _ _ U, _ _ _ _ _ _ _ A, _ _ _ _ _ _ _ D, _ _ _ _ _ _ _ C

DPR 250

Notes:

1. A 250 ohm resistor is required for ma input actuation's. Order the required quantity using Part Number 46181080-503. See Parts Price Book for pricing.

2. Consult Customer Services for pricing and availability.

3. Customer must complete "Configuration Worksheets" and attach to order or send to Customer Service. (Reference Product Manual)

4. NRTL/C indicates product safety compliance approval by a Nationally Recognized Testing Laboratory of which UL and CSA are both OSHA accredited NRTL's. Not available with Portable Case option.

5. It is recommended that the Product Configuration (Table V) option be ordered when ordering the Calibration Certificate otherwise the certificate will be based on the factory default configuration.

6. PCMCIA Flash Memory Cards must be ordered separately.
PCMCIA Memory Cards are ATA Type II compatible and stored data is accessible using SDA software (P/N 045501) or TrendManager Pro V5, TMPCON5.

TABLE OF CONTENTS

Section Page

2.1 WARNING

<table>
<tr><td colspan="2">WARNING
IMPROPER INSTALLATION</td></tr>
<tr><td>⚠</td><td>To avoid the risk of electrical shock that could cause personal injury, follow all safety notices in this documentation.</td></tr>
<tr><td>⏚</td><td>Protective earth terminal. Provided for connection of the protective earth supply system conductor.</td></tr>
<tr><td colspan="2">Failure to comply with these instructions could result in death or serious injury</td></tr>
</table>

☑ **POWER SUPPLY**
Ensure the source voltage matches the voltage of the power supply before turning on the power. (In the rear of the recorder, near to the connector of the power supply)

☑ **PROTECTIVE GROUNDING**
Make sure to connect the protective grounding to prevent an electric shock before turning on the power.
Do not operate the instrument when protective grounding or fuse might be defective.
To avoid a potential shock hazard, never cut off the internal or external grounding wire or disconnect the protective grounding terminal

☑ **NECESSITY OF PROTECTIVE GROUNDING**
To avoid a potential shock hazard, never cut off the internal or external protective grounding wire or disconnect the wiring of protective grounding terminal.

☑ **FUSE**
To prevent a fire, make sure to use the fuse with specified standard (current voltage, type). Before replacing the fuse, turn off the power and disconnect the power source. Do not use a different fuse or short-circuit the fuse holder.

☑ **DO NOT OPERATE IN AN EXPLOSIVE ATMOSPHERE**
Do not operate the instrument in the presence of flammable liquids or vapours. Operation of any electrical instrument in such an environment constitutes a safety hazard.

☑ **NEVER TOUCH THE INTERIOR OF THE INSTRUMENT**
Inside this instrument there are areas of high voltage; therefore, never touch the interior if the power supply is connected. This instrument has an internal changeable system; however, internal inspection and adjustments should be performed by qualified personnel only.

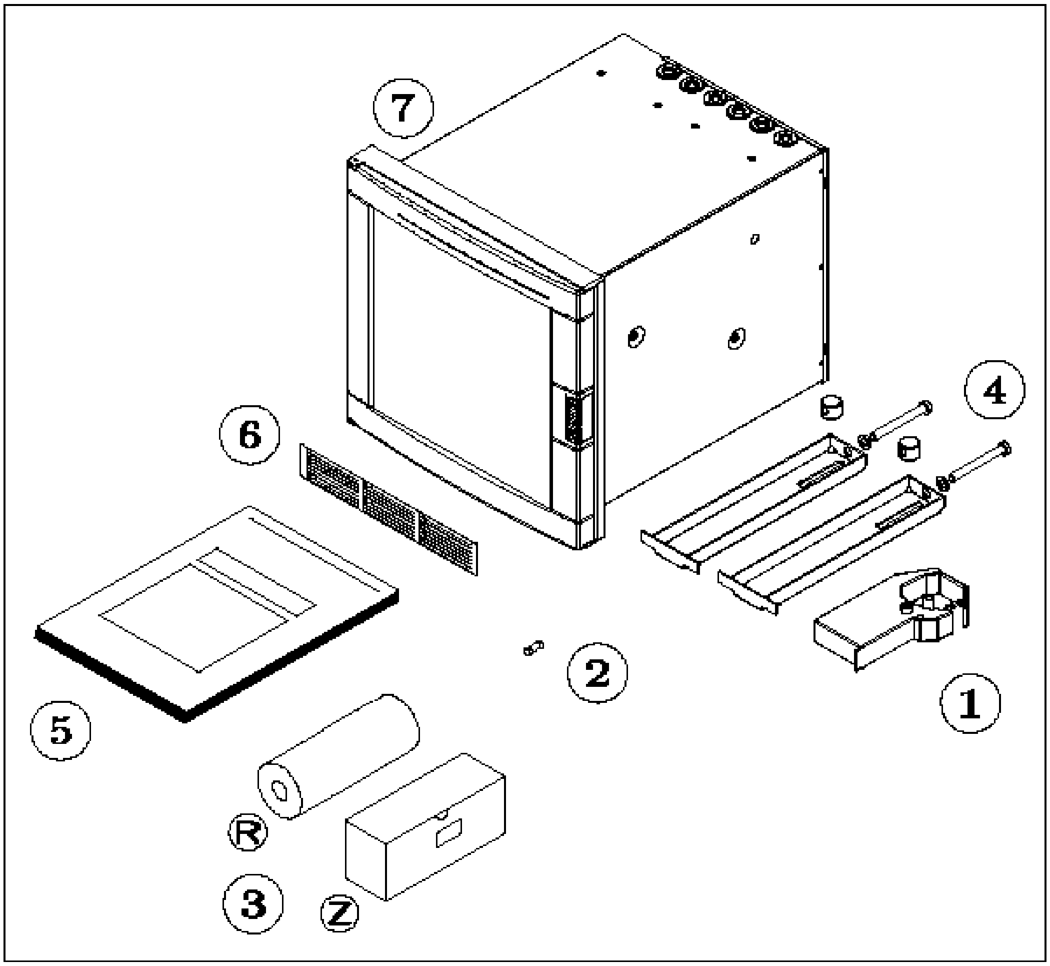
☑ If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

☑ Do not replace any component (or part) not explicitly specified as replaceable by your supplier.

☑ **INSTALL INDOOR ONLY**

2.2 UNPACKING

Remove the accessories and check them against the figure below.



1. Ribbon cartridge
2. Fuse (Spare) (Use only 3.15 A T. fuses for Europe or 3.2 A T. fuses for U.S.)
3. Roll (R) and fanfold (Z) chart
4. Mounting brackets with nuts
5. Product manual or CD
6. Front label
7. Recorder

NOTE: In the event that any items are missing, please contact your nearest sales office.

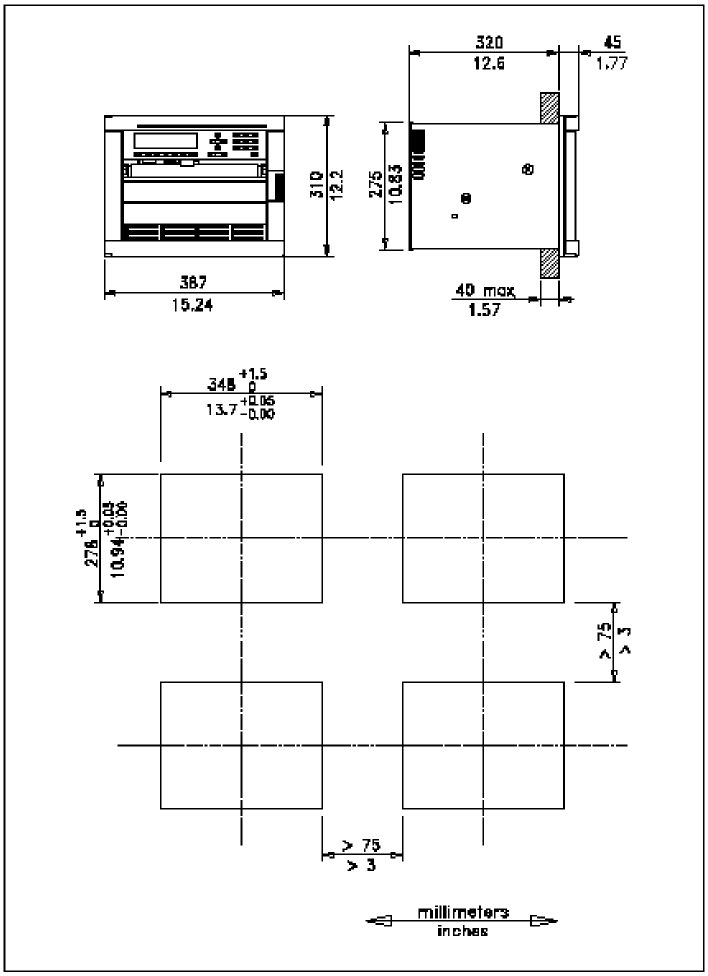
2.3 PANEL MOUNTING THE RECORDER

2.3.1 Recommendations

This recorder is designed to operate under specific conditions. If you need more information, refer to the product specification sheet.

2.3.2 External dimensions and cut-out

Prepare panel cut-out as detailed below:



Note: Maximum panel thickness 40 mm (1.5 ")

⚠	CAUTION
	The maximum temperature inside the cabinet should not exceed the ambient conditions specific for the recorders. The recorder must be mounted into a panel to limit operator access to the rear terminals.
	Failure to comply with these instructions may result in product damage

2.3.3 Installing the recorder

To install the recorder, follow the figures below:

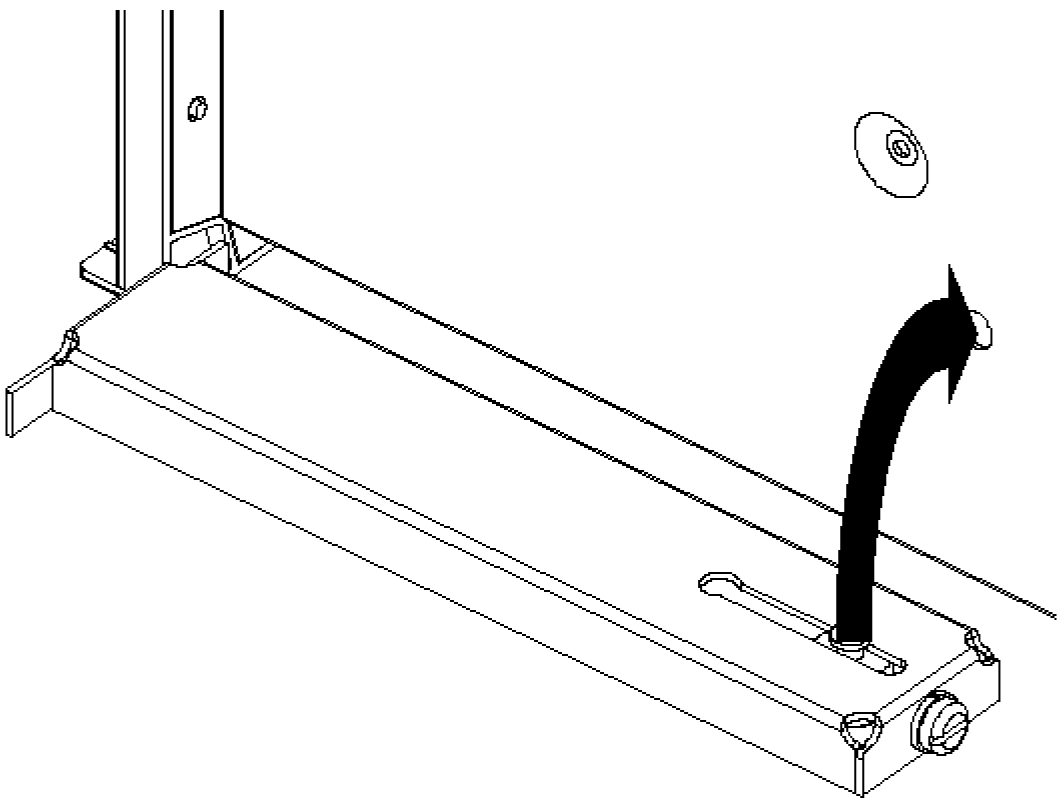
1. Remove rear cover and wire access holes.

2. Insert recorder through the panel cutout

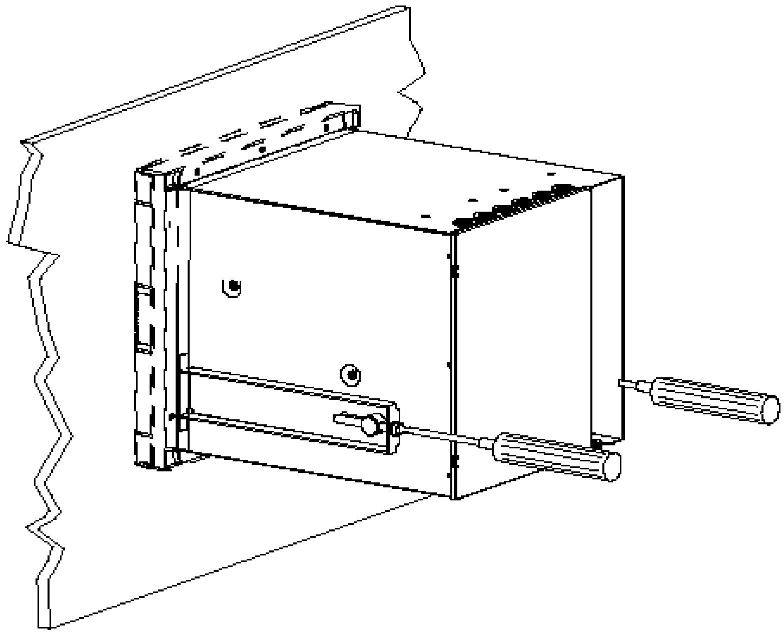
3. Attach mounting brackets to the sides of the recorder

4. Tighten the mounting screws

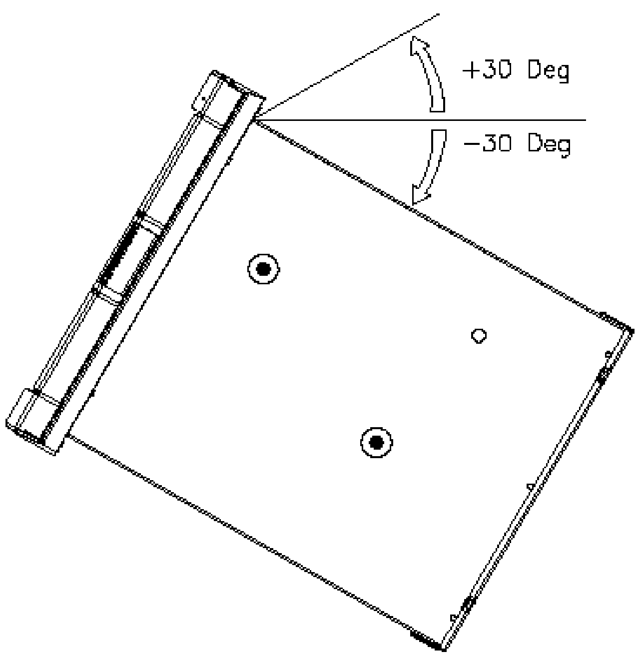
Bracket position



Mounting brackets



Mounting angle limits

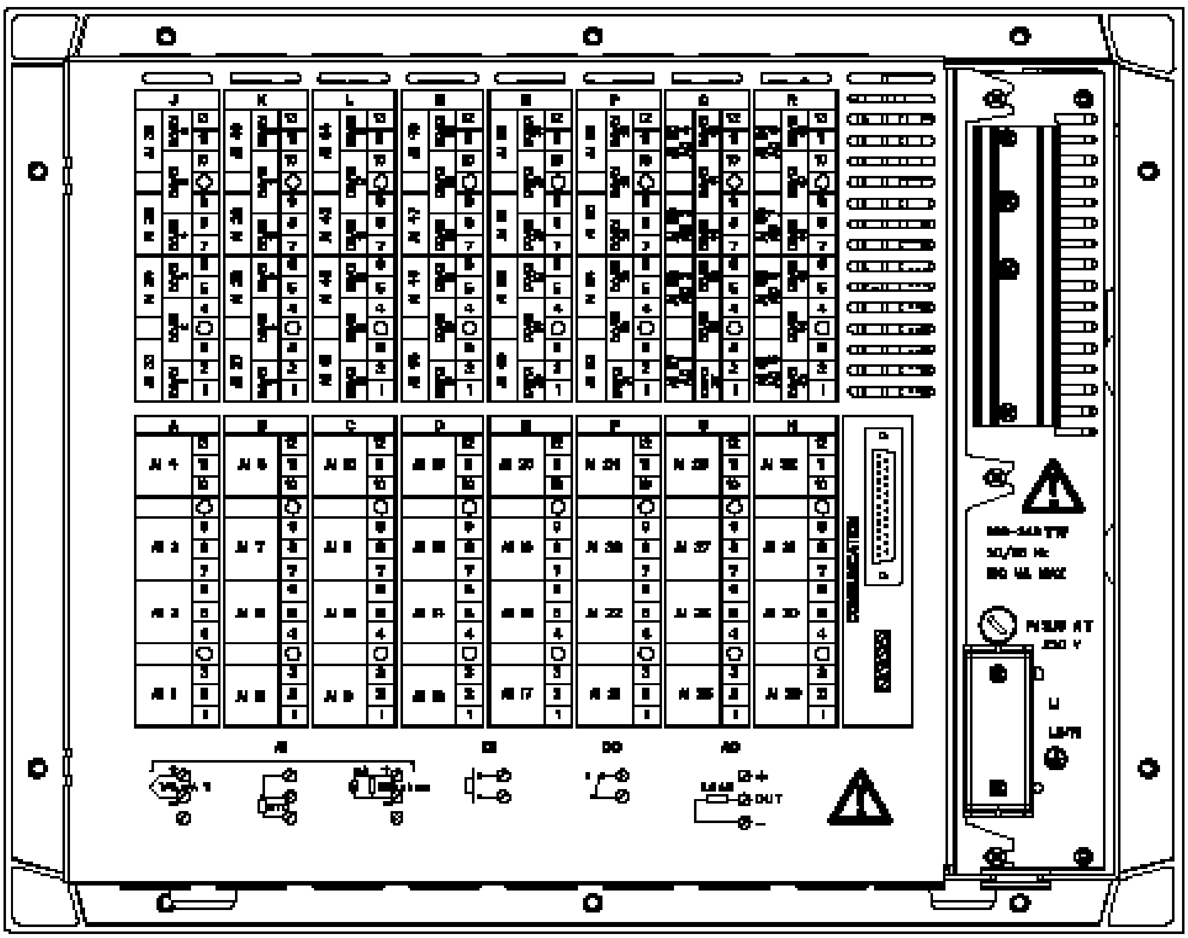


2.4 WIRING THE RECORDER

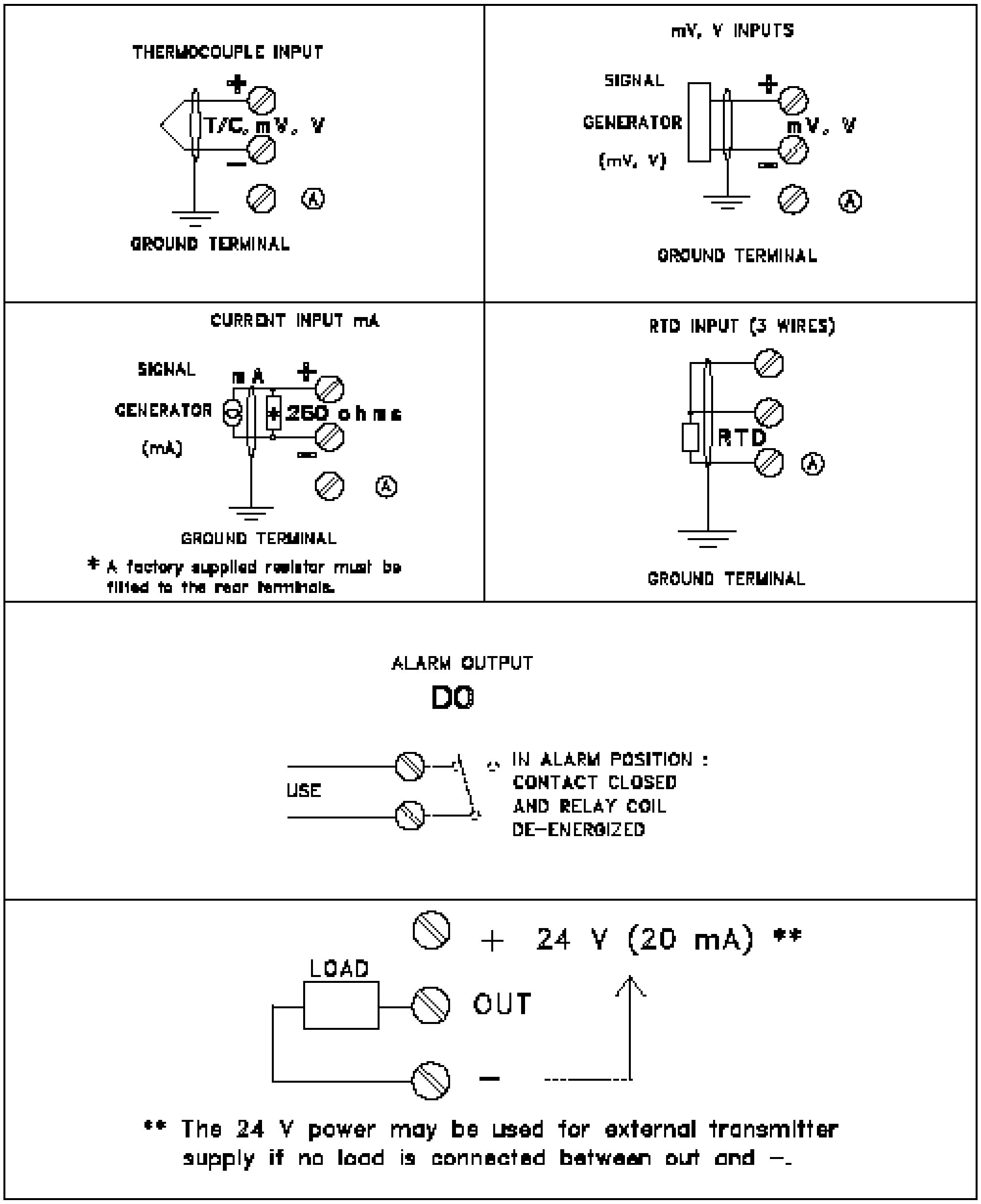
2.4.1 Recommendations

- All wiring must be in accordance with local electrical codes and should be carried out by authorized experienced personnel.
- **The ground terminal must be connected before any other wiring (and disconnected last).**
- **A switch in the main supply is recommended near the equipment.**
- **If an external fuse is used to protect the electrical circuit to the recorder, the fuse should match the recorder fuse rating (fuse type) as well as for the fuse holder.**
- Sensor wiring should be run as far as possible from power wiring. (motors, contactors, alarms, etc.)
- To reduce stray pick-up, we recommend the use of a twisted pair sensor wiring.
- **EMI effects can be further reduced by the use of shielded cable sensor wiring. The shield must be connected to the ground terminal.**
- The use of spade terminals on all wiring is recommended.

2.5 TERMINAL CONNECTIONS



	Positions
AI = Analog input AO = Auxiliary output DI = Digital input DO = Digital output (relay)	From A to H (Lower rack) and from J to R (Upper rack) From N to R (Upper rack) From J to R (Upper rack) From J to R (Upper rack)
Note: Terminal blocks can be removed from the board for easier wiring and board replacement	



Note: Terminal (A) is only used for RTD. (See diagrams above)

⚠	CAUTION
	Unwired configured channel terminals should be shorted.
	Failure to comply with these instructions may result in product damage

2.5.1 Digital input signals. (DI)

If an optional digital input board is installed, connect the wiring as shown in Figure 2-1.
Slot location X = J to P

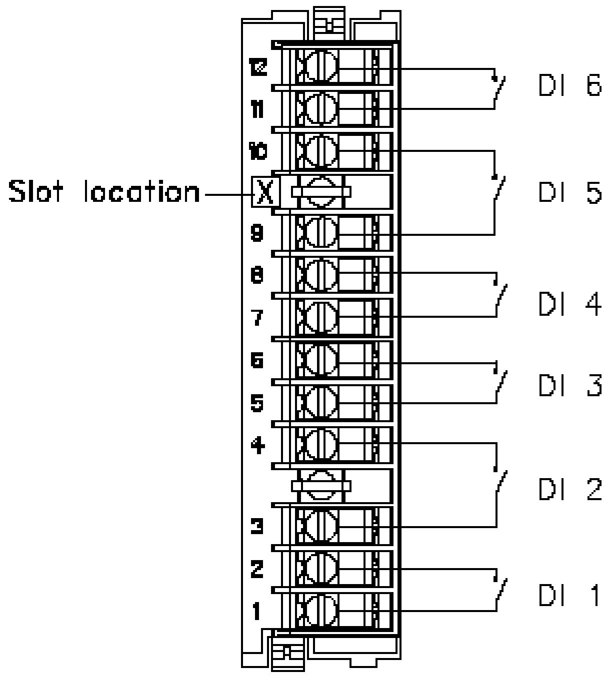


Figure 2-1 Digital input signal wiring (DI)

If 2 digital input boards are fitted, repeat the above procedure for the second board.

Note: Use dry contacts, voltage free, designed to switch 5 mA at 5 V.
Up to 36 digital inputs allowed.

2.5.2 Relay outputs. (DO)

If an optional relay board is installed, connect the wiring as shown in Figure 2-2.
Slot location X = J to P

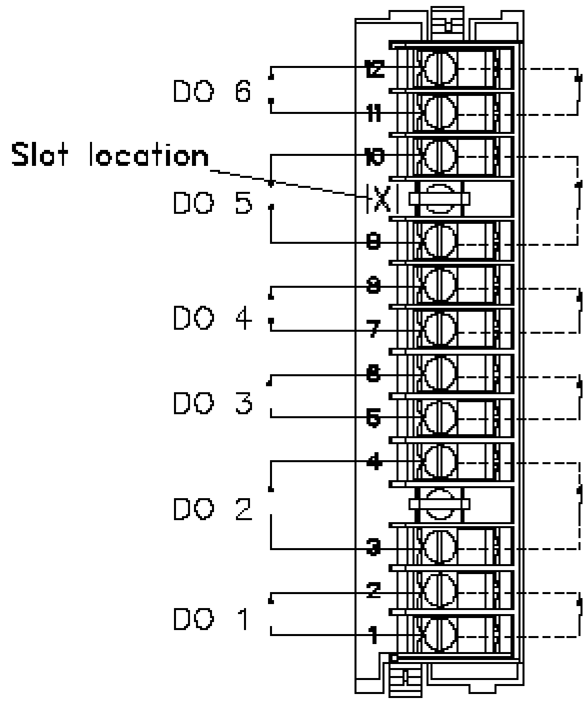


Figure 2-2 Relay output wiring (DO)

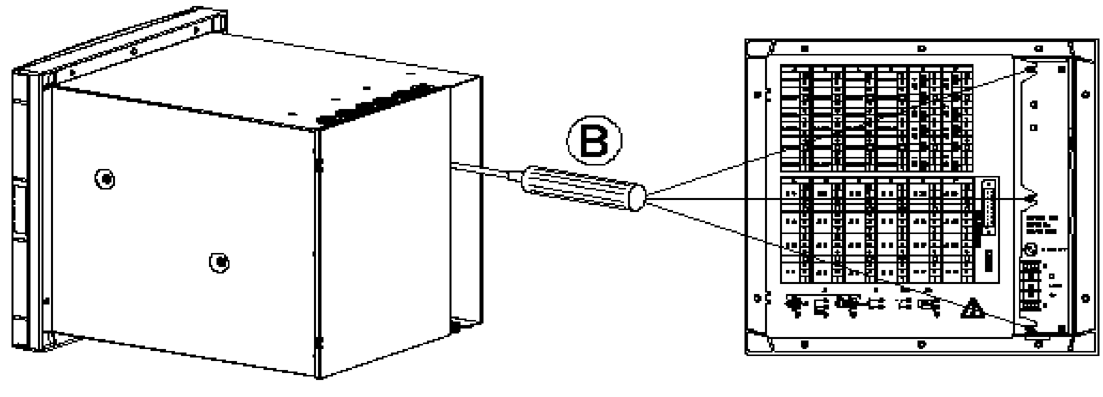
All the relays are factory configured **de-energized** in alarm. The contacts are factory configured **normally closed** by a jumper per output on the alarm relay board.

If you need to change this function for normally opened output:

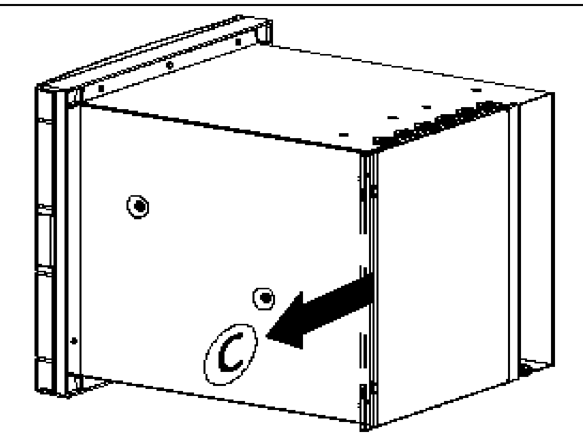
- Turn off power.
- Remove the rear terminal cover plate and remove the relay board, see page 2-11.
- Move the jumper from the location NC (for normally closed) to the location NO (for normally opened).
- Up to 36 alarm outputs allowed.

2.5.2.1 Removing the alarm card to change NC to NO contacts

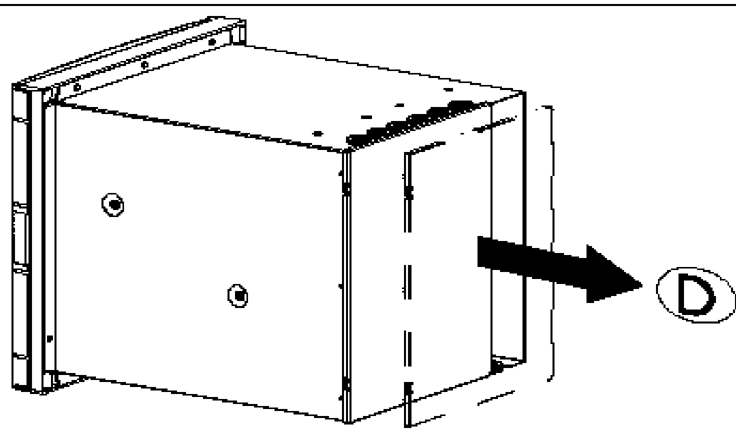
(A) Turn off power.



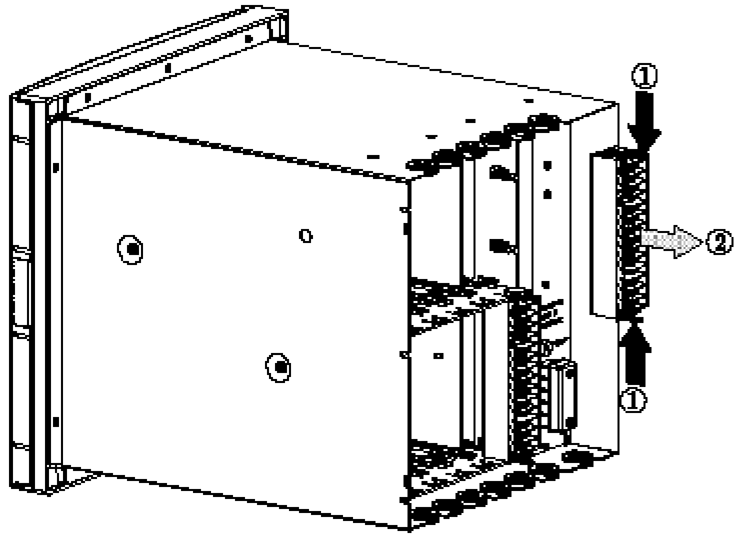
(B) Loosen screws holding rear cover



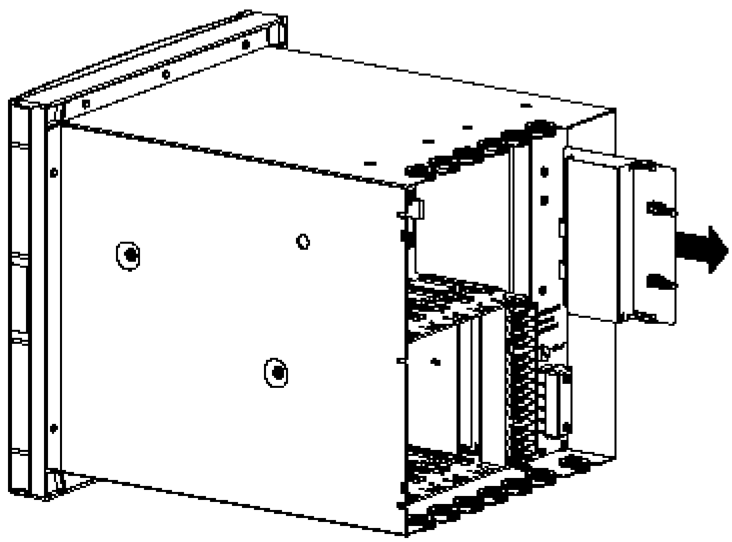
(C) Slide rear cover to the left



(D) Remove rear cover



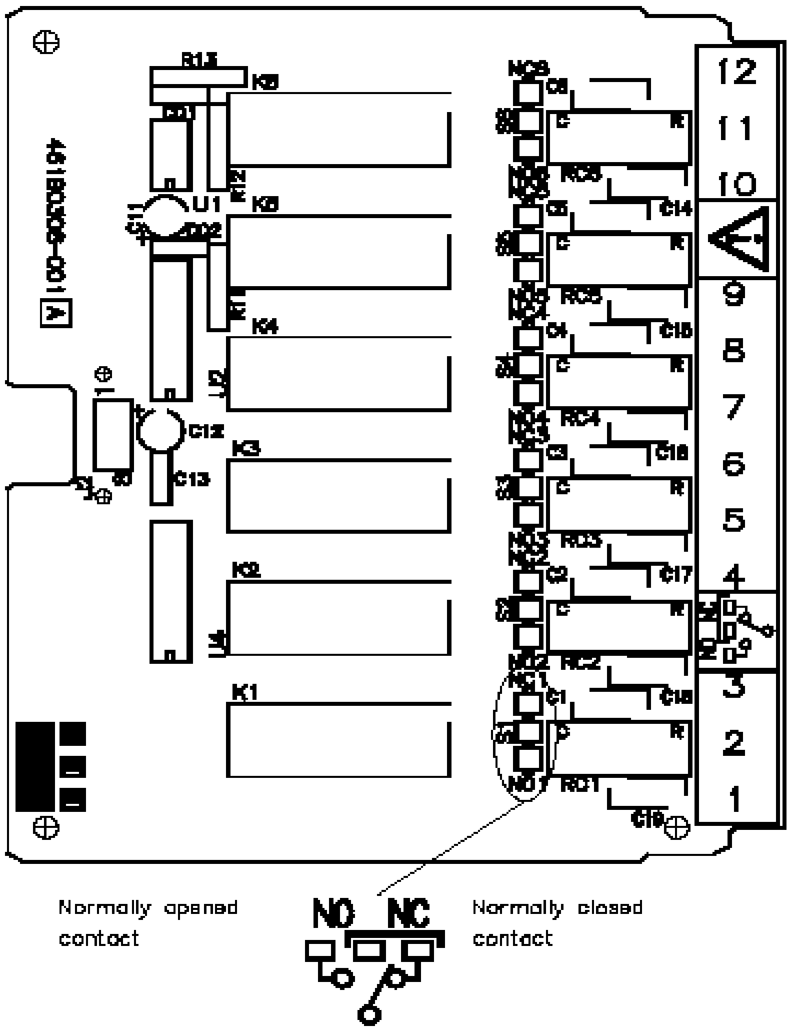
(1) Press down on terminal block clips
(2) Pull out to remove from board



Pull out on board to remove from recorder

Use ground strap to avoid electrostatic damage to board.

⚠	CAUTION
	Use ground strap to avoid electrostatic damage to board.
	Failure to comply with these instructions may result in product damage

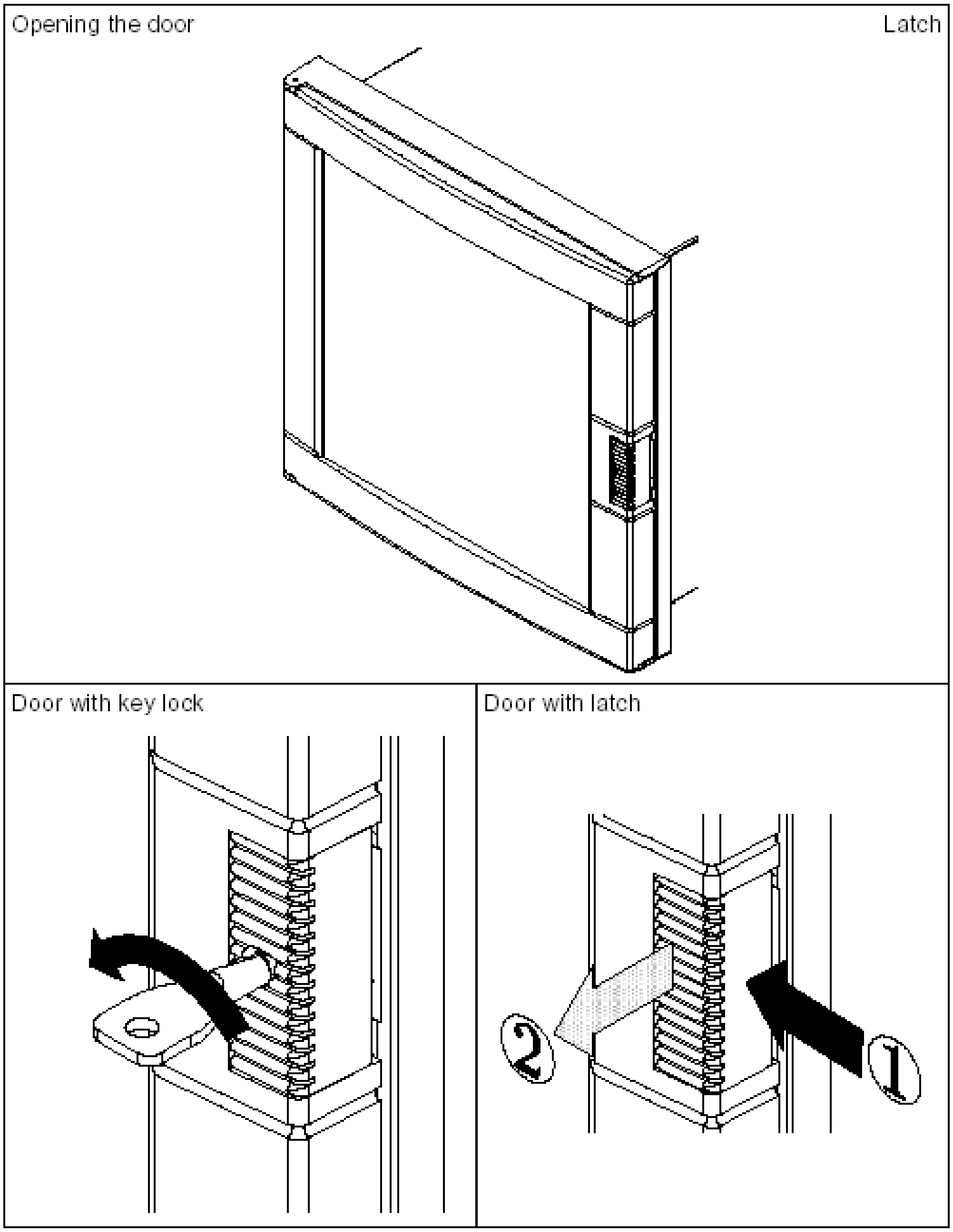


All the relays are factory configured **de-energized** in alarm. The contacts are factory configured **normally closed** by a jumper for each output on the alarm relay board.

If you need to change this function:

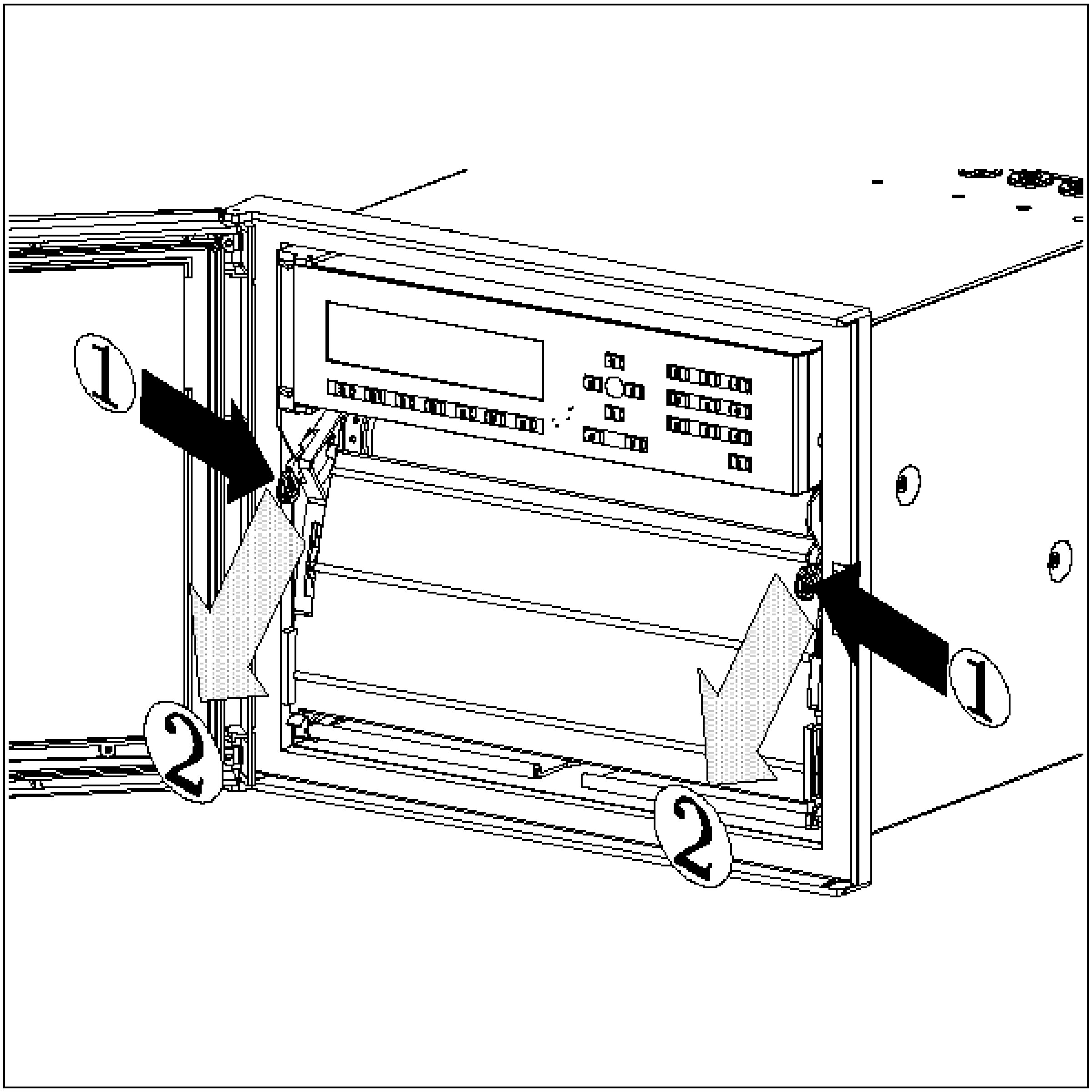
- Move the jumper from the location NC (for normally closed) to the location NO (for normally opened)

2.6 FITTING THE CHART



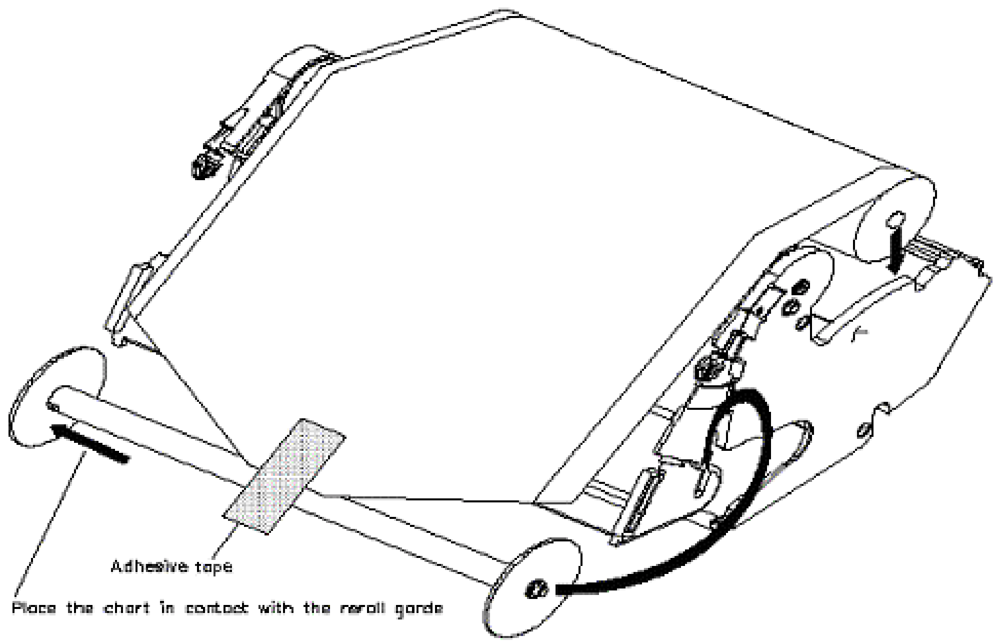
2.6.1 Chart cassette

Open the chart cassette as shown below and install the chart using the figure on the cassette.

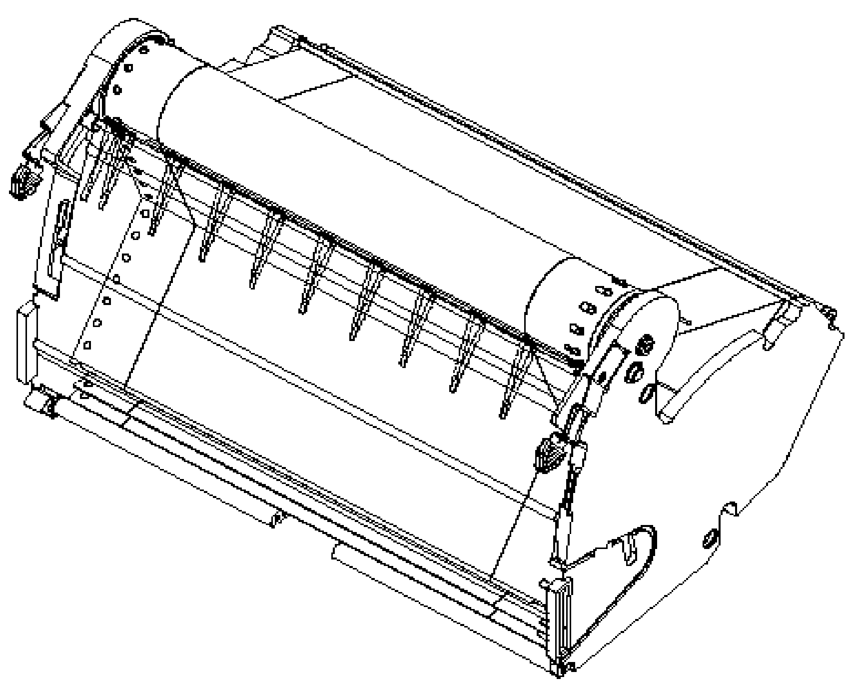


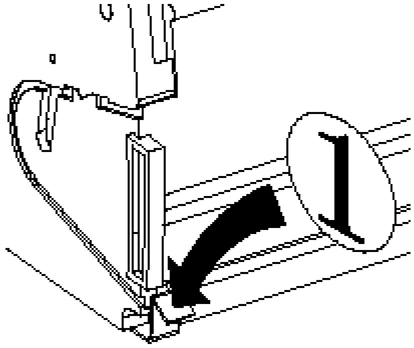
1 = First action - Press in on both tabs to release chart cassette
2 = Second action - Pull out on the tabs to remove cassette

Install chart roll



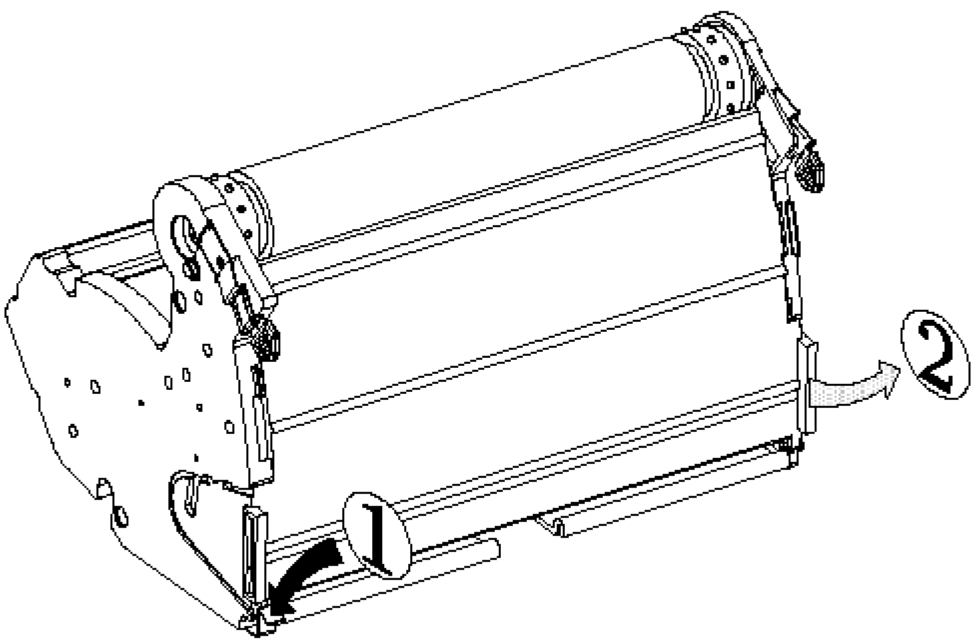
Install fanfold





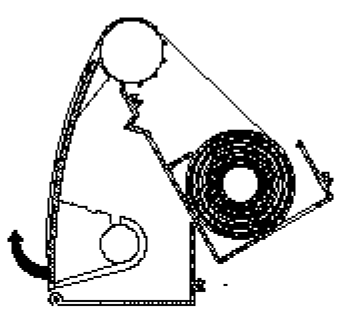
(1) Press down on the catch

Opening the chart cassette

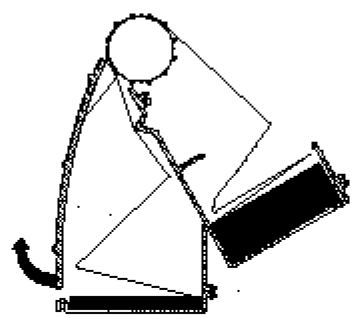


(2) Lift up the clear plastic shield until it latches

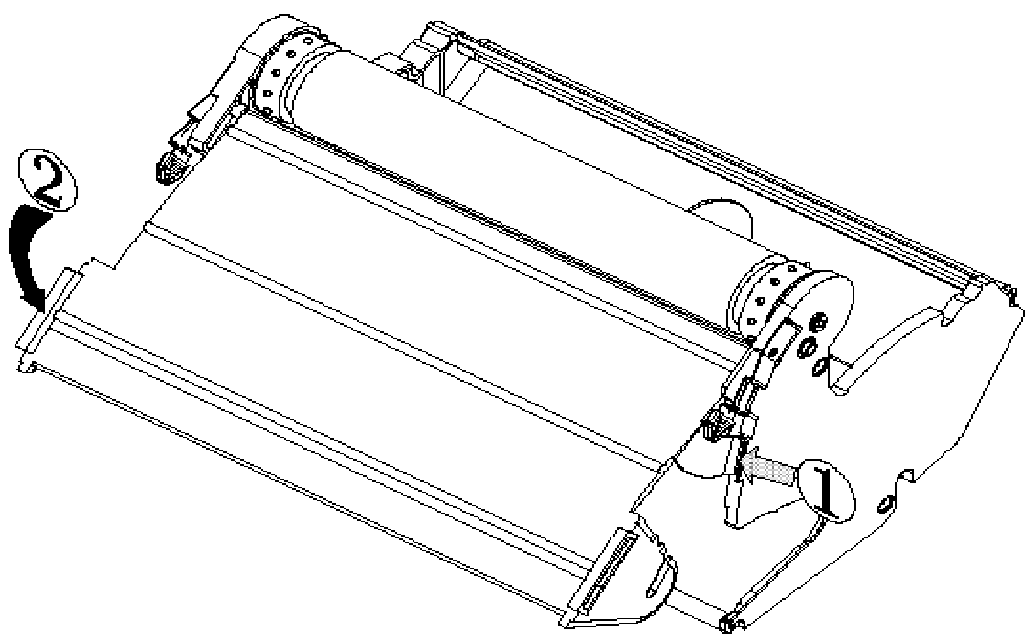
Roll chart



Fanfold chart

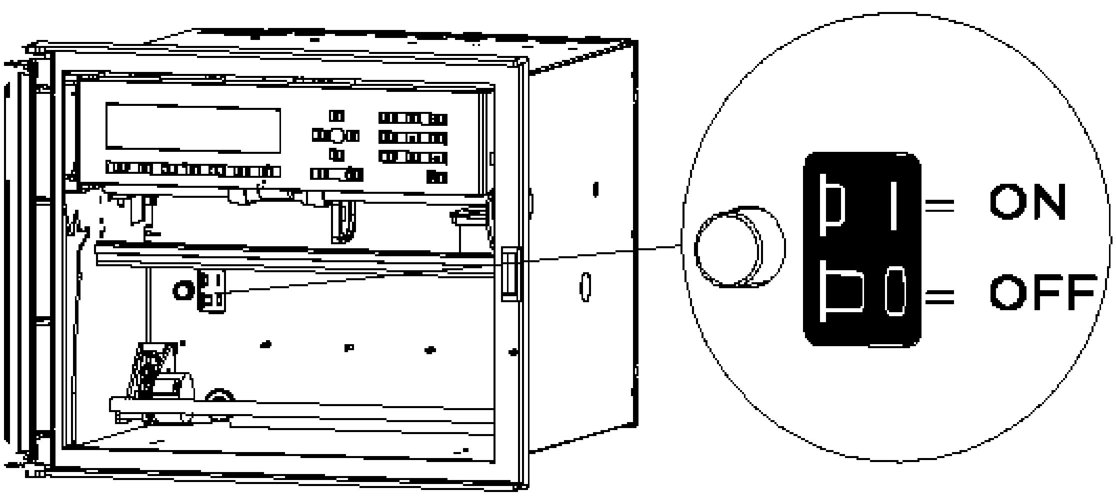


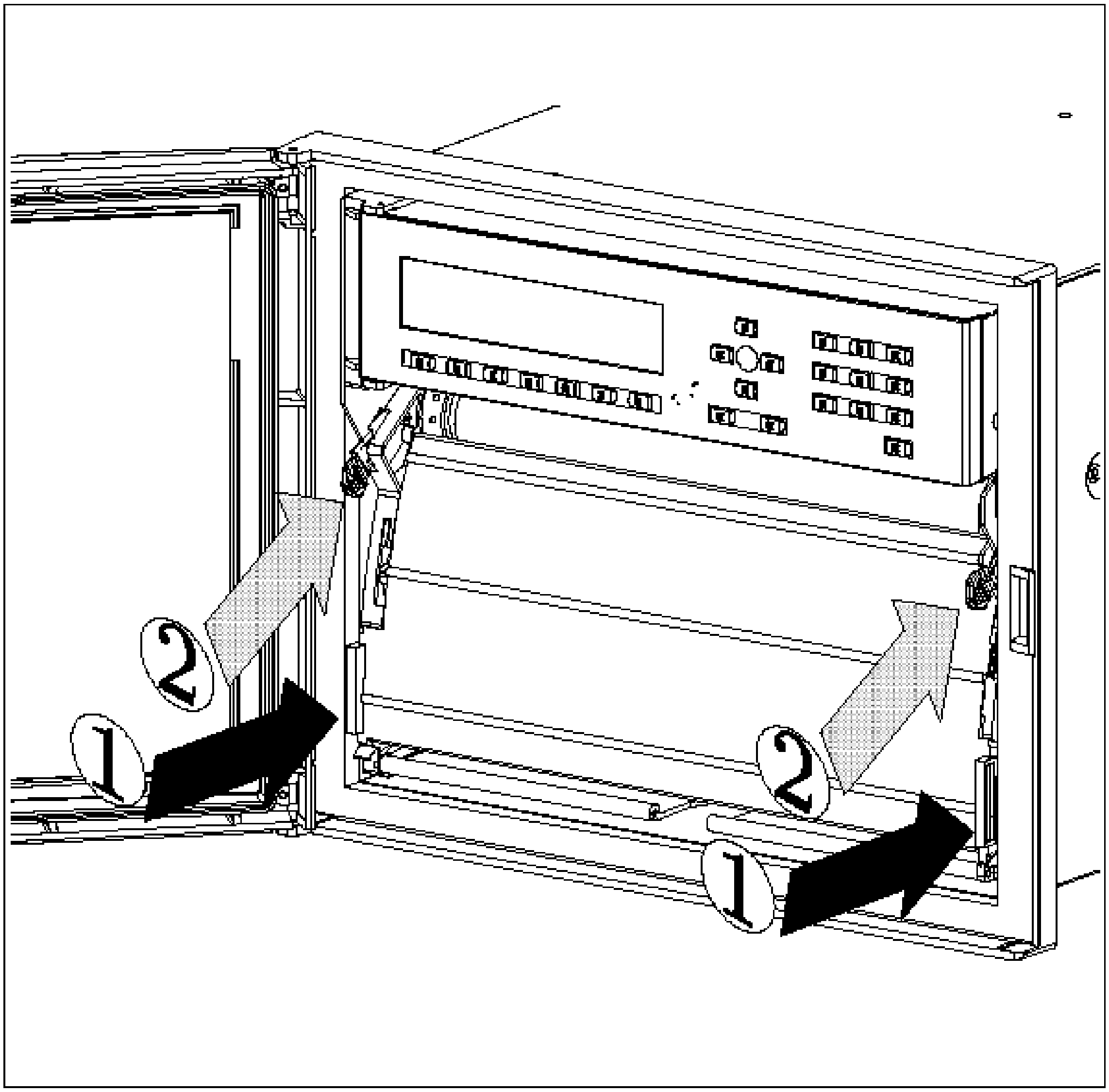
Closing the chart cassette



(1) Press the catch
(2) Push down to lock in position

Recorder mains Powerswitch - Located behind the chart cassette





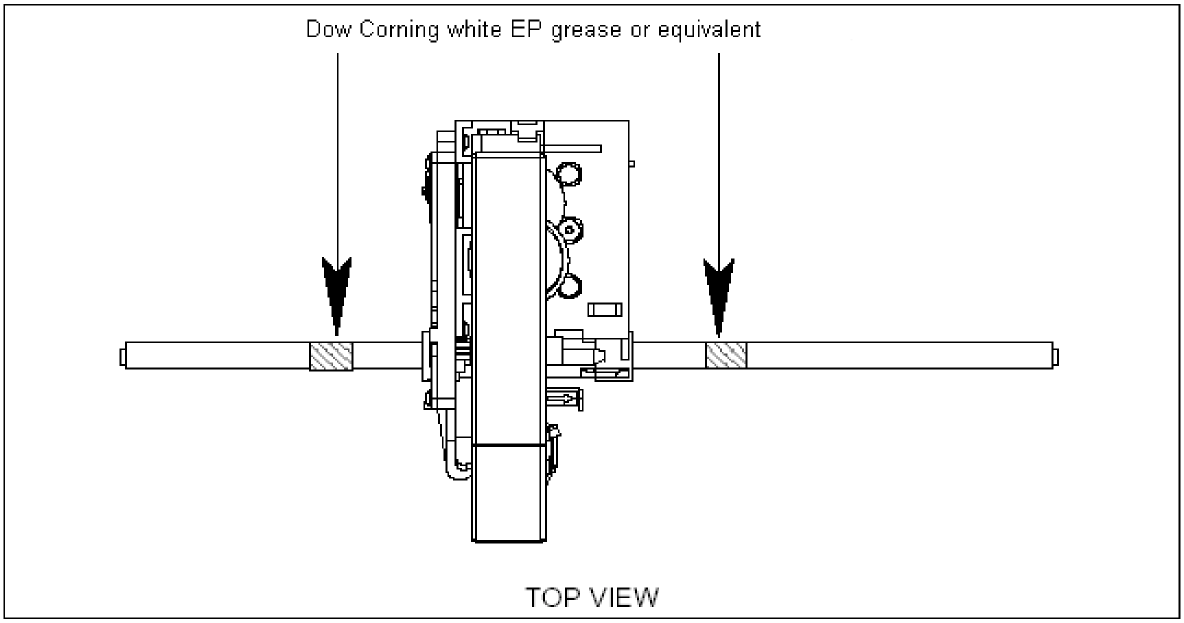
Note: If the recorder is powered, and the message "**NO PAPER**" is indicated on the display, carefully check again that the cassette assembly and chart are correctly installed.

NOTICE
Reset the paper length (if configured) after installing the new chart. See section 3.2 "OPERATOR INTERFACE". Length 35 m (115 ft) or less to provide sufficient warning that the paper is near its end.

2.6.2 Cleaning the rod and lubricating the carriage bushings

The print carriage bushings are factory lubricated and should not normally require further maintenance.

However, in a dusty environment, you should have to clean the print carriage rod periodically.
Also, whenever the print carriage rod is found sticky or dirty, you have to clean it.
The procedure for cleaning and lubricating is explained below:



1. Power off the recorder.

2. Clean the rod with a dry, lint free cotton cloth.

3. Move the carriage to the center of the rod.

4. Apply a thin ring of grease around the rod, at each side of the carriage (as shown above).

5. Move the carriage from right to left four or five times.

6. Wipe off any excess grease from the rod with a dry, lint free cotton cloth.

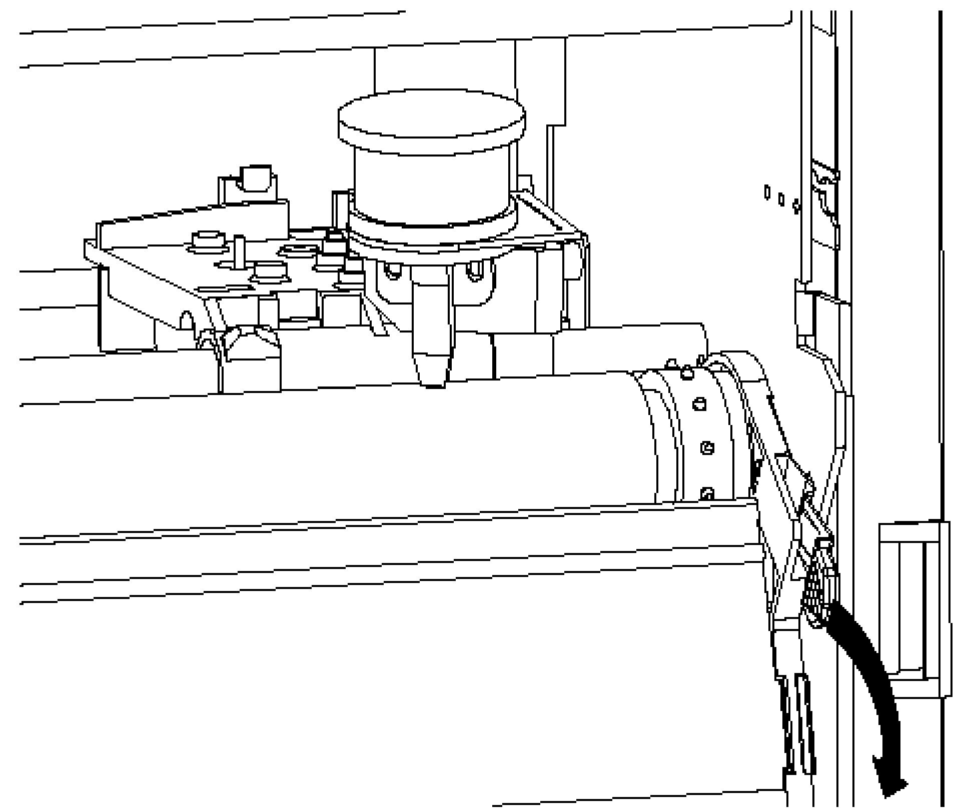
⚠	CAUTION
	Never use any solvent to clean the rod. Please, use only lubricant "Dow Corning white EP grease or equivalent" which may be ordered as part number: "Lubricant kit 46210096-501".
	Failure to comply with these instructions may result in product damage

NOTE:
The color ribbon axis (50 mm long), which keeps maintained the color ribbon, must be cleaned with a dry cotton cloth each time you replace the color ribbon.

2.7 INSTALLING THE PRINTING SYSTEM

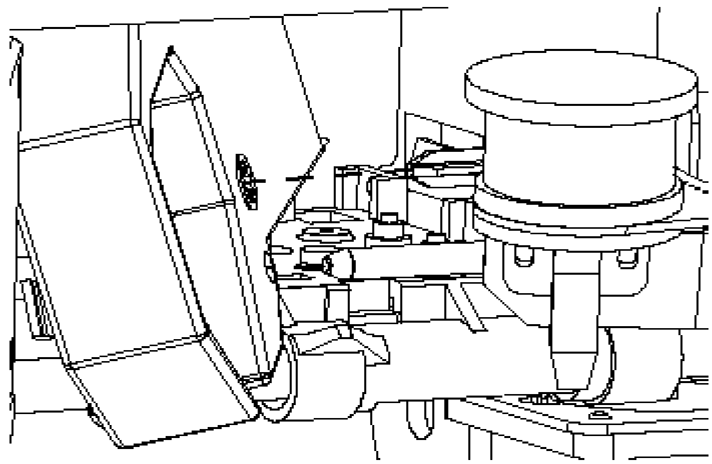
Before doing it, please remove the chart cassette from the chassis as indicated page 2-15.
The recorder automatically moves the print carriage to the correct position for the installation of the ink ribbon cartridge by:

Removing the cassette

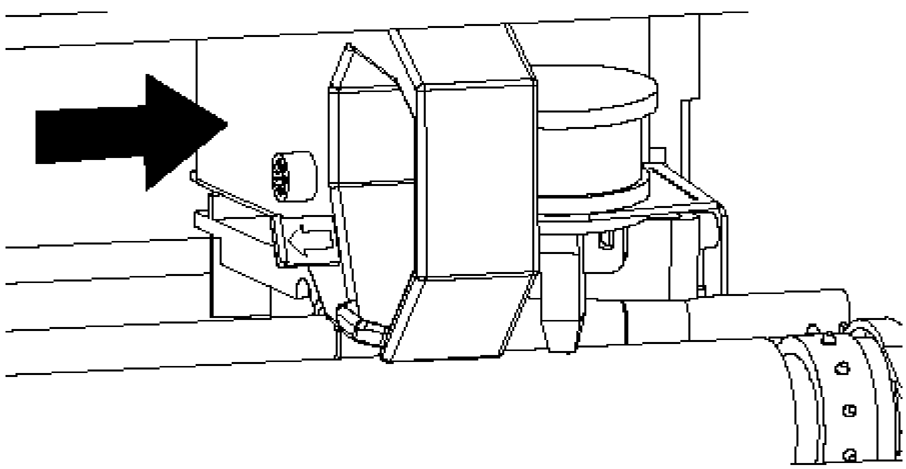


⚠	CAUTION
	Do not attempt to install the ribbon cartridge while the chart cassette is in place.
	Failure to comply with these instructions may result in product damage

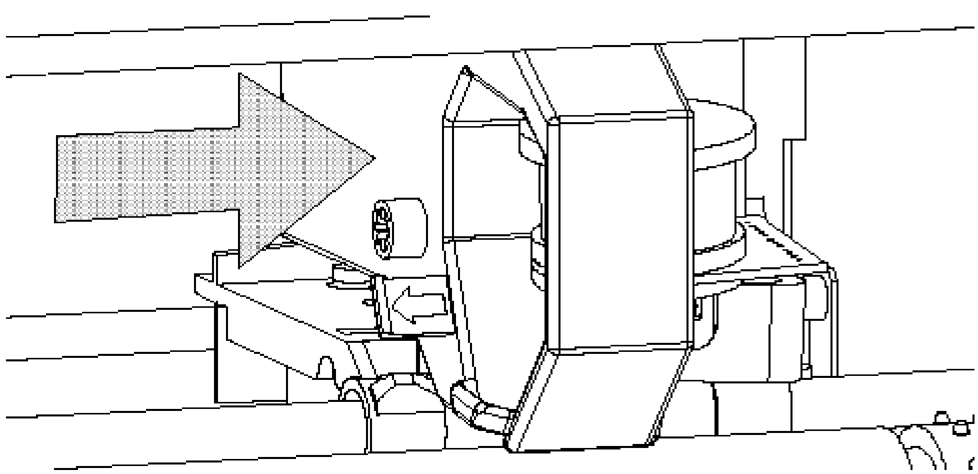
Locate the ink ribbon cartridge and align with the guide pin.
The guide pin should be cleaned at each replacement of the ribbon cartridge.



Insert the ink ribbon cartridge



Push the ink ribbon cartridge fully to the right until it stops



2.8 CHECK LIST

Your recorder should now be ready to configure and use. If you are having problems check the following

1. **Have you connected the ground terminal ?**
2. Have you connected the sensor(s) correctly? (Wire type, polarity, etc.)
3. Have you tightened all terminal screws?
4. Have you installed the ink ribbon cartridge? (See figures on page 2-22)
5. Have you installed the chart correctly? (See figures on page 2-15)
6. Have you closed the display?
7. Have you fitted the chart cassette in the recorder?
8. Have you replaced the rear cover?
9. Have you switched ON the power switch?

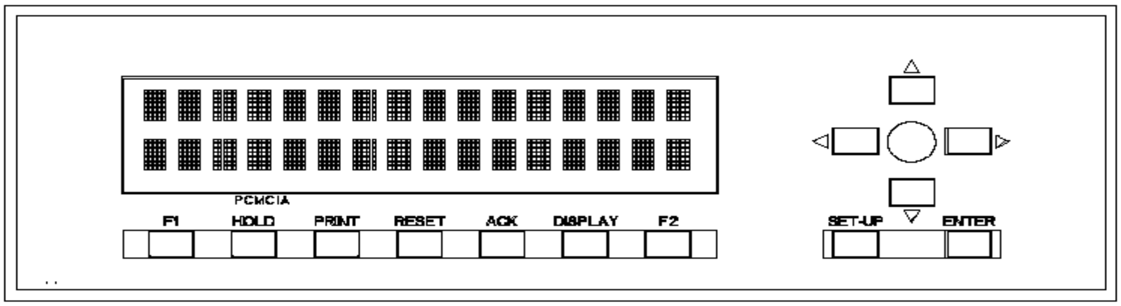
TABLE OF CONTENTS

Section Page

3.1 OPERATOR INTERFACE EXPLANATION

This section describes the various actions which an operator can initiate through the keyboard, and explains how to interpret the displays in the different modes of operation available.

3.2 OPERATOR INTERFACE



DISPLAY AND KEYPAD: The display gives a clear indication of action prompts by means of two lines of 16 characters and the keypad consists of 23 keys.

- 7 function keys that enable you to start immediate action. See table below.

FUNCTION KEYS						
F1	**HOLD**	**PRINT**	**RESET**	**ACK**	**DISPLAY**	**F2**
Immediate action key configurable	To hold the display on a current channel. Use ▲and ▼keys to change the channel.	To choose an Immediate printing action. The choices are: - Inhibit/Printing - Reset paper length - Change speed/ int 2 to speed/ int 1 - Print date & time - Snap shot trace - Chart advance - Change group B to A - Change group A+B to B - Snap shot logic - Snap shot math - Start archive/stop archive - Remove PCMCIA	- Math - Occurrence - Reset PCMCIA	To Acknowledge all latching alarm relays	To choose the display type in run mode or to escape from configuration to run mode	Immediate action key configurable

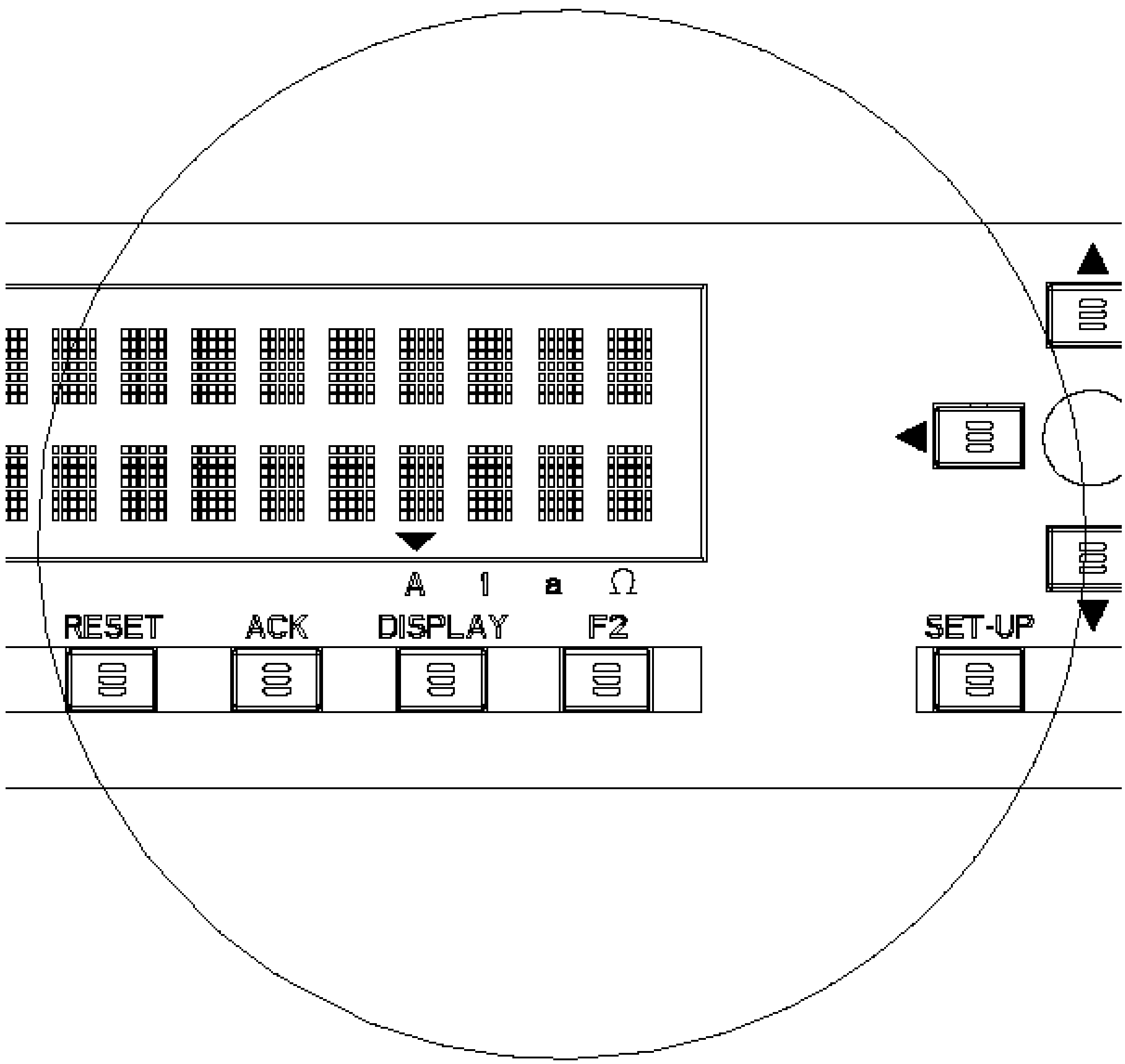
NOTE: The function keys are used in run mode and they control the contents of the display and other functions. In case of a power loss the configuration is unchanged.

- ◀▶▲▼ : THESE KEYS ARE USED FOR PRODUCT CONFIGURATION.
- **SET UP:** To move to configuration mode or to return from parameter configuration to the sub-matrix.
- **ENTER:** To confirm your selected action.
- An ALPHANUMERIC keypad with either capital and small print letters, digits or special characters**.**

The keypad is designed to simplify the way to configure your parameters.
Two kinds of parameters are possible:

1. Parameters in which you only have to enter digits (eg: CHART SPEED) or to enter a letter (COPY function). Both cases, the keyboard will automatically be configured correctly.

2. Parameters which need every possible ASCII characters defined in the recorder (eg: MESSAGE). When you confirm the action to enter configuration mode, a triangle in the right hand bottom corner of your display is lit. It indicates that you are in capital letter mode. Depending on the type of characters you wish to enter, you will have to press the F2 key. Then it will automatically shift to the next group of characters (digits, small print letters, special characters, capital letters) indicated on the display by a triangle. Then you will be able to select the way you wish to write the text.



You will find in the table below the different letters associated to each key:

Digits	Capital letters	Small print letters	Special characters					
1	ABC	abc	Ω	°	A Ampere	V Volt	C Celsius	F Fahrenheit
2	DEF	def	Ä	Ö	Ü	ñ	Ñ	Å
3	GHI	ghi	/	*	-	+	±	.
4	JKL	jkl	[	]	(	)	{	}
5	MNO	mno	.	,	;	:	!	?
6	PQR	pqr	=	≠	<	>	≤	≥
7	STU	stu	"	_	#	$	%	&
8	VWX	vwx	m milli	K kilo	µ micro	M mega	n nano	G giga
9	YZ	yz	\	√	∑	ϕ	∫	ˆ
0 , -	Space	Space	Space					

Note: The selection can also be made with the ▲ and ▼ keys in the same way as for parameters containing a list of choices.

3.3 POWER UP

WARNING	
!	Before powering up, check your recorder is correctly installed. See section 2, "INSTALLATION".
Failure to comply with these instructions could result in death or serious injury	

3.3.1 Power up display sequence

After powering up, check the messages appear on the displays in the following order:

3.3.1.1 Display test

Check that all dots for each character, commas and triangle marks are lit.

Upper display shows:

INITIALIZATION

If the communication board is present,

Upper display shows:

INITIALIZATION

Lower display shows:

COMMUNICATION

3.3.1.2 Measure initialization

Upper display shows:

INITIALIZATION

Lower display shows:

MEASURE

During a few seconds, the recorder reads and analyzes every inputs. After these operations of initialization, input values appear on the 2 displays in run mode.

3.4 SELECTING AND INTERPRETING RUN MODE DISPLAY

3.4.1 INTRODUCTION

The recorder allows you to choose between a lot of display types when in the normal scanning mode. At the end of the power display sequence (see section 3-5, "POWER UP"), the display will be in the scanning mode, in the display type you have selected in the configuration matrix of the display (Parameters: DISPLAY HI, DISPLAY LO).

To select another display type (for the lower and/or the upper display), use the **DISPLAY** key (See next section 3.4.2) or use the configuration mode.

3.4.2 How to select a display type

- The immediate action keys are not available if you are in configuration mode.
- The selection of the **DISPLAY** key is lost at the power off.
- Press the **DISPLAY** key. Then you can read:

DISPLAY HI

The upper display is flashing.

DISPLAY LO

- The ▲ and ▼ keys allow you to select the desired display. Confirm your choice by pressing the **ENTER** key.

According to your choice, you may obtain:

DISPLAY HI

ANALOG INPUTS	Electrical input signal

or

DISPLAY LO

ANALOG INPUTS	Electrical input signal

- The ▲ and ▼ keys allow you to select the desired display mode on the lower display.

NOTICE
In particular cases, you may be allowed to select a display type or a parameter only in the upper display. See section 3.4.3.3, "LOCK displays".

3.4.3 How to explain displays in run mode

3.4.3.1 For a selection either on the upper display and/or on the lower display

- **ANALOG INPUTS**

Analog input numbers, measured values and sensor engineering units will be displayed.

AN 0 1 1 2 4 . 2 °C

AN = mnemonic for analog input

- **Two printed channels on the same display**

0 1 2 4 . 2 & 2 4 . 3

01: channel number
24.2: channel value of channel 1
24.3: channel value of channel 2
Note that the second channel number is incremented by 1 from the first channel number.
If, for example, the first channel is not configured, no value will be displayed, e.g.

0 3 & 2 4 7 . 2

- COMMUNICATION CHANNELS

COM 0 1 2 5 4 . 9

- **COM =** mnemonic for communication channel

- **ALARMS**

For each operated alarm, alarm number, alarm state, relay number, relay state, channel type and channel number will be displayed.

AL 0 4 ■ - RL 0 6 _ - AN 1 1

AL 0 4 ■- RL 0 6 _ - MA 1 2

AL 0 4 ■- RL 0 6 _ - CO 0 1

■ active _ inactive ▪ = missing

AL = mnemonic for alarm
RL = mnemonic for relay
AN = mnemonic for analog input
MA = mnemonic for maths results
CO = mnemonic for comm. Channels

- **SPEED IN USE**

In the trend mode, speed number, value and unit will be displayed.

SP 1 1 5 0mm / h

SP 1 or SP 2 = mnemonic for speed 1 or speed 2
In tabular mode, interval name, time and unit will be displayed.

INT 1 1 0 m i n

INT1 or INT2 = mnemonic for interval 1 or interval 2

- **DATE AND TIME**

Day, month, year, hour "h" and minutes will be displayed.

2 5 FEB 9 6 1 1 h 1 3

3.4.3.2 Exception: For selections on the 2 displays with the same display type

In this case the upper display shows odd numbers and the lower one shows even numbers.
For example:

AN 0 1 1 2 4 . 2 °C
AN 0 2 5 4 4 . 7 °C

If a channel is not configured or does not exist, when previous or next channel is correct, then display mode and channel number are only displayed. See the examples below:

Only channel 01 is not correct:

AN 0 1
AN 02 1 4 . 1 °C

Only channel 06 is not correct:

AN 0 5 7 4 . 3 °C
AN 0 6

3.4.3.3 LOCK displays

In this case you are allowed to select a display mode only in the upper display.

- **MATHS RESULTS**

MA 2 0 TAG NAME
1 . 3 2 E + 1 2 UNITS

The upper display shows the tag name
The lower display shows the value and unit of maths results.
To display maths results, the maths option is required

- **TAG NAME AND TRACE**

LOCK displays mean that the 2 displays are necessary to keep information together.

TAG NAME

0 1   2 5 8 . 1   UNITS   _

The upper display shows the channel name.
The lower display shows number, value, unit and indicator of the alarm.

If the channel is in alarm status and if the alarm parameter (See EVENTS matrix, ONE ALARM ON parameter) is not valid, then the "A" indicator appears on the last digit of the display. On the contrary units are displayed and the alarm number is displayed just after, as follows
If ALARM and EVENTS are ON:

TAG   NAME   AL 1 2

0 1   2 5 8 . 1   U N I T S ■

- **TRACES IN ALARM**

The upper display shows the name of the display type "TRACE IN ALxx-yy" and the display interval of the lower display.

TRACE   IN   AL x x - y y

# # # # # # # # # # # # # # # # #

The lower display shows the trace status of alarm.
"**xx**" - "**yy**" takes values from "01 to 16" or "17 to 24".
= you may have:

■ active   _ inactive   . = missing

- **LOGICAL INPUT STATUS**

The 2 displays are necessary.

DI XX - - - > Y Y

# # # # # # # # # # # # # # # #

The upper display shows the name of the display type "DI" and the display interval of the lower display.
The lower display shows the digital input status.
"**xx**" - "**yy**" takes values from "01 to 16" or "17 to 24".
= you may have:

■ contact closed   _ contact opened   ▪ = missing

3.5 OPERATOR INITIATED ACTIONS

3.5.1 Hold display

The **HOLD** key allows you to stop the scanning action while displaying current value of the selected channel (upper display only).
The selection of the **HOLD** key is lost at the power off.
In case of locked displays, see section 3.4.3.3, "LOCK displays".

Then press **HOLD** key, the HOLD message appears on the upper display during a few seconds. And the current value is displayed with two lit triangle marks, as shown below:

HOLD

0 1 2 4 5 . 5 UNITS

▼ ▼

These two triangle marks allow you to scan the other channels.

NOTE: Some display types do not allow you to use the **HOLD** key, like DATE/TIME, SPEED.

3.5.2 Printer action

The **PRINT** key allows you to choose between various actions.
Press **PRINT** key and the upper display shows during a few seconds:

BASIC ACTION

and just after:

PRINT MENU

INHIBIT	or	PRINTING

RESET PAPER LENG

SPEED / INT 2	or	SPEED / INT 1

PRINT DATE & TIME

SNAP SHOT TRACE

CHART ADVANCE	The chart advances as long as the **ENTER** key is pressed.

CHG GROUP B	or	CHG GROUP A

CHG GROUP A + B	or	CHG GROUP B

SNAP SHOT LOGIC

SNAP SHOT MATH

START ARCHIVE	or	STOP ARCHIVE

REMOVE PCMCIA	Only when PCMCIA option is installed.

Press **ENTER** and use ▲ or ▼ to choose the display type.

3.5.3 RESET display

RESET MATH #	Only when MATH OPTION is configured.
RESET ALL MATHS	
RESET OCCURRENCE	
RESET ALL OCCUR	
RESET PCMCIA	Only when PCMCIA option is installed.

3.5.4 Alarm acknowledgment

Pressing **ACK** key is only allowed for alarms you have configured in acknowledgment mode.
This acknowledgment is only available

- f the lower display shows alternately:

REQUEST ACK NOW

and the display type,

- if the **ACK** key is active.

(See **ACK KEY** parameter in the MMI sub-matrix)

3.6 GLOSSARY OF OPERATING DISPLAY MESSAGES

- **ENTERING IN THE IMMEDIATE ACTION MODE**

BASIC ACTION

- **DISPLAY CHOICE**

DISPLAY HI

DISPLAY LO

- **DISPLAY MODE CHOICE**

ANALOG INPUTS	Electrical input signal
2 PVS TRACE	Process value in engineering unit
MATH RESULTS	Only when MATH OPTION is configured.
COMM RESULTS	Only when COMM OPTION is configured.
ALARM STATUS	
SPEED IN USE	

DATE & TIME

TRACE & TAG

TRACE IN ALARM

LOGIC STATES

- **ACK MESSAGES**

REQUEST ACKNOW

ACKNOWLEDGMENT

- **INFORMATION MESSAGES**

NO PAPER

END PAPER

BATTERY FAIL

ONE ALARM ON

BURNOUT

PRT INHIBIT

OVER FLOW SPEED

SHED TIME

Only when COMM option is configured.

PCMCIA FULL

PCMCIA BAD

PCMCIA NOT INIT

PCMCIA PENDING

REMOVE PCMCIA

Only when PCMCIA option is configured.

- **Diagnostic Messages**

BAD CARRIAGE DISP

BAD REFERENCE

BAD EEPROM BACKPLANE

TABLE OF CONTENTS

Section Page

4.1 INTRODUCTION

The recorder can be configured - using the front keyboard or by using the PC configurator and L.P.C.S. When using the keyboard there are two possible levels of password that can be configured. Password 1 provides limited configuration access as shown on the configuration sheet (See page 4-92). Password 2 provides full configuration of all parameters (See page 4-93).

Page 4-1 provides a key to each explanation for the individual parameters.
To begin configuration you only need to press **SET UP**. The recorder will indicate "CONFIGURATION", " ACCESS" and wait for a password to be entered if one has been programmed. If no password has been programmed the recorder will display the "READ/WRITE", "ANALOG INPUT" position (see programming matrix). You can now use the LEFT or RIGHT side arrows to select the sub-matrix you want to configure (i.e. ANALOG INPUT, CHART, ALARM etc.) or the UP or DOWN arrows to select the READ/WRITE, COPY, PRINT CONF or SERVICE matrices and then use the LEFT or RIGHT arrow to enter into one of these sub-matrices. When you have selected the sub-matrix that you want to configure you only need to press **ENTER** to begin configuration of this sub-matrix.
Each sub-matrix such as ANALOG INPUT has a number of parameters associated with it that need to be configured in order to set up that parameter and channel. Each parameter needs to be configured for each input. To exit from the configuration mode press **DISPLAY** or **SET UP** keys.

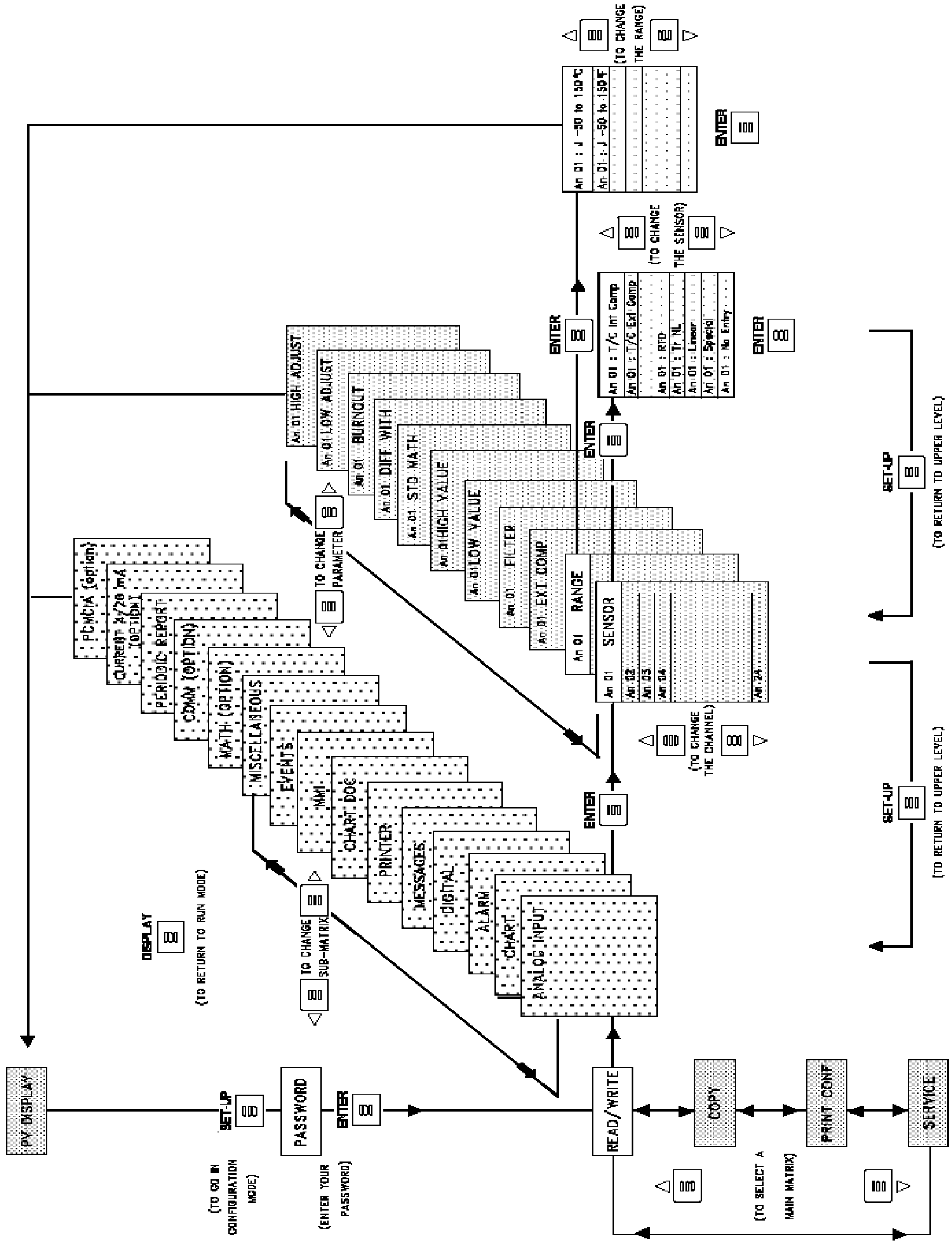
SUB-MATRIX	PARAMETER	CLASSIFICATION
NAME OF THE FUNCTION	**NAME OF THE PARAMETER**	**IMPORTANCE OF THE PARAMETER** **◆ CAN BE CHANGED IN RUN MODE** **◆◆ STOP OF ACQUISITIONS** **♣ WITH PASSWORD 1 OR 2** **♣♣ ONLY WITH PASSWORD 2**

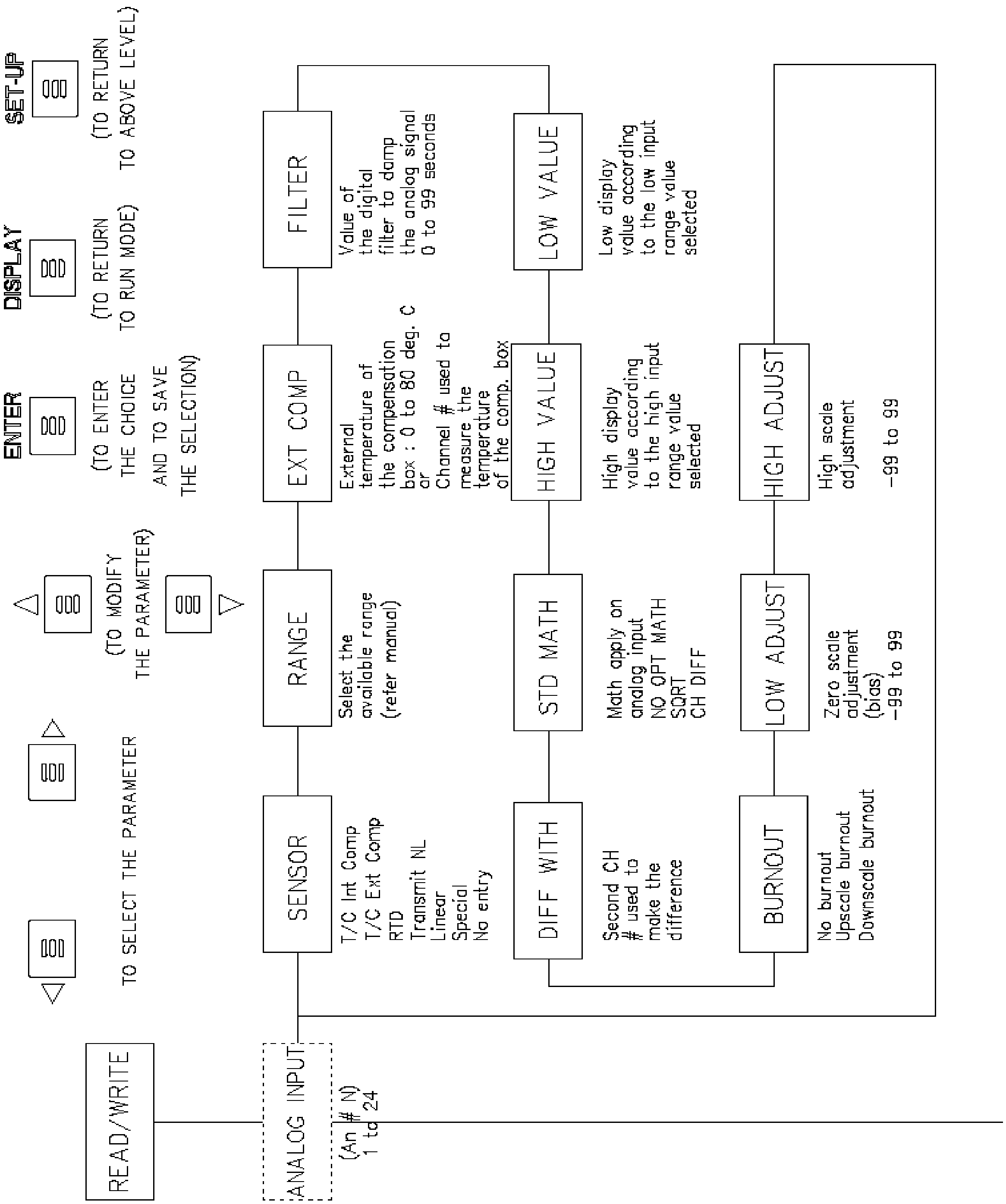
DEFINITION:	**EXPLAIN THE ROLE OF THE PARAMETER**
HOW TO MODIFY IT:	**BY SELECTING OR ENTERING A NEW VALUE I.E. USING THE ▼ ▲ KEYS**
POSSIBLE VALUES:	**LIST OF POSSIBLE VALUES OR LIMITS**
SEE ALSO:	
EXAMPLE:	
NOTE:	

NOTICE	The configuration of parameters with the classification "◆◆" stops the acquisition as well as the operation of alarm supervision. Leaving the configuration mode resets the memory buffer and the alarm status is defined again, and the chart speed changes back to the configured value. Occurrence value is reset.

4.2 PARAMETERS LIST

4.3 PRINCIPLE OF CONFIGURATION





TO SELECT THE PARAMETER
(TO MODIFY THE PARAMETER)
ENTER
(TO ENTER THE CHOICE AND TO SAVE THE SELECTION)
DISPLAY
(TO RETURN TO RUN MODE)
SET-UP
(TO RETURN TO ABOVE LEVEL)
READ/WRITE
ANALOG INPUT
(An # N) 1 to 24
SENSOR
T/C Int Comp
T/C Ext Comp
RTD
Transmit NL
Linear
Special
No entry
RANGE
Select the available range (refer manual)
EXT COMP
External temperature of the compensation box : 0 to 80 deg. C
or
Channel # used to measure the temperature of the comp. box
FILTER
Value of the digital filter to damp the analog signal
0 to 99 seconds
DIFF WITH
Second CH # used to make the difference
STD MATH
Math apply on analog input
NO OPT MATH
SQRT
CH DIFF
HIGH VALUE
High display value according to the high input range value selected
LOW VALUE
Low display value according to the low input range value selected
BURNOUT
No burnout
Upscale burnout
Downscale burnout
LOW ADJUST
Zero scale adjustment (bias)
-99 to 99
HIGH ADJUST
High scale adjustment
-99 to 99

SUB - MATRIX

ANALOG INPUT

Configuration of analog input parameters

PARAMETERS

SUB-MATRIX	PARAMETER	CLASSIFICATION
ANALOG INPUT	**SENSOR**	◆◆ ♣♣

DEFINITION: Basic*:* sensor type used on each channel.

HOW TO MODIFY IT: Select a new sensor. Press **ENTER.** With keys ▲ ▼ select the right sensor type and press **ENTER**

POSSIBLE VALUES:

T/C INT COMP: The sensor is a directly connected thermocouple and the cold junction compensation of the recorder is used.

T/C EXT COMP: Thermocouple sensor is directly connected to a remote temperature compensation box *.

* See parameter **EXT COMP** to configure temperature or analog channels (see page 4-14) used to measure the external cold junction.

RTD: Sensor is a directly connected RTD or variable resistance device.

TR NL 0-5V: Sensor is a temperature transmitter signal range of 0-5V which is not linear with temperature.

TR NL 1-5V: Sensor is a temperature transmitter signal range of 1-5V which is not linear with temperature.

TR NL 0-20mA : Sensor is a temperature transmitter signal range of 0-20mA which is not linear with temperature.

TR NL 4-20mA: Sensor is a temperature transmitter signal range of 4-20mA which is not linear with temperature.

LINEAR: Sensor is a transmitter output which is linear with process variable.

SPECIAL: Special sensor connected. Must be specified by special order,
or created using PC application software.

NO ENTRY: No sensor connected or unused input.

SEE ALSO: **RANGE** to select the required input range.

NOTE: Changing the sensor type will automatically change **RANGE, LOW VALUE, HIGH VALUE** into predefined values.
Which is dependent on:
1) The type of analog input board installed (linear or universal)
2) If the input type is a directly connected temperature sensor.

The access to all sensors is possible only with an universal input board.
T/C INT COMP and **RTD** sensors are not accessible with a linear input board.

SUB-MATRIX	PARAMETER	CLASSIFICATION
ANALOG INPUT	**RANGE**	◆◆ ♣♣

DEFINITION:

DISPLAY ACTUATION RANGE
For directly connected temperature sensors and non-linear temperature transmitters, the actuation selection defines the linearization routine used to produce a linear chart scale. For linear transmitters, the selection simply defines the transmitter's range/span.
The choice of actuation offered by the recorder during configuration will depend upon sensor selected. The ranges allowed will depend on whether you have selected Thermocouple, Linear or Non Linear or RTD.

HOW TO MODIFY IT:

Select a new actuation using the ▲ or ▼arrows and press **ENTER**

POSSIBLE VALUES:

Depends on the type of sensor connected. Possible selections are listed below.

AVAILABLE RANGES

LINEAR		RTD / OHMS			
DISPLAY	**RANGE**	**DISPLAY**	**RANGE**	**DISPLAY**	**RANGE**
mV:	mV:	Pt 100 Ω at 0 °C	Pt 100 Ω at 0 °C:	JIS:	JIS:
0/10 mV	0, 10 mV	-50/150 C	-50, 0, 150°C	-50/150 C	-50, 0, 150°C
-10/10 mV	-10, 0, 10 mV	-58/302 F	-58, 0, 302°F	-58/302 F	-58, 0, 302°F
0/ 20 mV	0, 20 mV	0/100 C	0, 100°C**	0/100 C	0, 100°C**
-20/20 mV	-20, 0, 20 mV	32/212 F	32, 212°F**	32/212 F	32, 212°F**
0/50 mV	0, 50 mV	0/200 C	0, 200°C	0/200 C	0, 200°C
-50/50 mV	-50, 0, 50 mV	32/392 F	32, 392°F	32/392 F	32, 392°F
10/50 mV	10, 50 mV	0/400 C	0, 400°C	0/400 C	0, 400°C
0/100 mV	0, 100 mV	32/752 F	32, 752°F	32/752 F	32, 752°F
-100//100 mV	-100, 0, 100 mV	-200/800 C	-200, 0, 800°C	-200/500 C	-200, 0, 500°C
0/500 mV	0, 500 mV	-328/1472 F	-328, 0, 1472°F	-328/932 F	-328, 0, 932°F
-500/500 mV	-500, 0, 500 mV				
		Ni 50 ohms:	Ni 50 ohms:		
Volt:	Volt:	320 C	-80, 0, 320°C		
0/1 V	0, 1 V	608 F	-112, 0, 608°F		
-1/1 V	-1, 0, 1 V				
0/2 V	0, 2 V	Ni 508 ohms:	Ni 508 ohms:		
-2/2 V	-2, 0, 2 V	150 C	-80, 0, 150°C		
0/5 V	0, 5 V	302 F	-112, 0, 302°F		
-5/5 V	-5, 0, 5 V				
1/5 V	1, 5 V	Cu 10 ohms:	Cu 10 ohms:		
0/10 V	0, 10 V	250 C	-20, 0, 250°C***		
-10/10 V	-10, 0, 10 V	482 F	-4, 0, 482°F***		
mA:	mA:	Ohms:	Ohms:		
0/20 mA	0, 20 mA*	0/200 Ω	0, 200 Ω		
4/20 mA	4, 20 mA*	0/2000 Ω	0, 2000 Ω		

*** The mA inputs have to be connected on a 250 Ω input resistor across the input terminals.**
**** Accuracy: 0.25 %**
***** Accuracy: 0.5 %**

AVAILABLE RANGES *(continued)*

THERMOCOUPLES						
DISPLAY	RANGE	DISPLAY	RANGE	DISPLAY	RANGE	
J:	J:	S:	S:	U:	U:	
-50/150 C	-50, 0, 150°C	0/1600 C	0, 1600°C	50/150 C	50, 0, 150°C	
-50/150 C	-50, 0, 150°C	0/1600 C	0, 1600°C	-50/150 C	-50, 0, 150°C	
-58/302 F	-58, 0, 302°F	32/2912 F	32, 2912°F	-58/302 F	-58, 0, 302°F	
0/400 C	0, 400°C	-20/1760 C	-20, 0, 1760°C	0/150 C	0, 150°C	
32/752 F	32, 752°F	-4/3200 F	-4, 0, 3200°F	32/302 F	32, 302°F	
-200/870 C	-200, 0, 870°C			50/150 C	50, 150°C	
-328/1598 F	-328, 0, 1598°F	N:	N:	122/302 F	122, 302°F	
		0/400 C	0, 400°C	-200/400 C	-200, 0, 400°C	
L:	L:	32/752 F	32, 752°F	-328/752 F	-328, 0, 752°F	
-50/150 C	-50, 0, 150°C	0/800 C	0, 800°C			
-58/302 F	-58, 0, 302°F	32/1472 F	32, 1472°F	NiMo:	NiMo:	
0/400 C	0, 400°C	0/1200 C	0/1200°C	0/1400 C	0, 1400°C	
32/2552 F	32, 2552°F	32/752 F	32, 752°F	32/2192 F	32, 2192°F	
-200/870 C	-200, 0, 870°C	-200/1300 C	-200, 0,1300°C			
-328/1598 F	-328, 0, 1598°F	-328/2372 F	-328, 0, 2372°F	Moco:	Moco:	
				0, 1400 C	0, 1400°C	
K:	K:	T:	T:	32/2552 F	32, 2552 °F	
0/400 C	0, 400°C	-50/150 C	-50, 0, 150°C			Reference
32/752 F	32, 752°F -	58/302 F	-58, 0, 302°F	W-W26:	W-W26:	Range
0/800 C	0, 800°C	0/150 C	0, 150°C	-20/2320 C	-20, 0, 2320°C	500, 2100°C
32/1472 F	32, 1472°F	32/302 F	32, 302°F	-4/4208 F	-4, 0, 4208 °F	932, 3812 °F
0/1200 C	0, 1200°C	50/150 C	50, 150°C			
32/2192 F	32, 2192°F	122/302 F	122, 302°F	W5-W26:	W5-W26:	
		-200/400 C	-200, 0, 400°C	-20/2320 C	-20, 0, 2320°C	0, 1800°C
-200/1370 C	-200, 0, 1370°C	-328/752 F	-328, 0, 752°F	-4/4208 F	-4, 0, 4208°F	32, 3272°F
-328/2498 F	-328, 0, 2498°F					
				PR20-40:	PR20-40:	
R:	R:					
-20/1760 C	-20, 0, 1760°C			PR20 1800C	0, 1800°C	600, 1800°C
-4/3200 F	-4, 0, 3200°F			PR20 3272 F	32, 3272°F	1110, 3300°F
				B:	B:	
				40/1820 C	400, 1820 °C	400, 1820 °C
				104/3308 F	752, 3308°F	752, 3308 °F

SUB-MATRIX	PARAMETER	CLASSIFICATION
ANALOG INPUT	**RANGE**	◆◆ ♣♣

NOTE: For non-linear signals TR NL 0 - 5 V, 1 - 5 V, 0 - 20 mA, 4 - 20 mA, 1 to 5 VDC or 4 to 20 mA or 0 to 5 VDC or 0 to 20 mA, the transmitter range must be identical to the range shown in the previous tables.

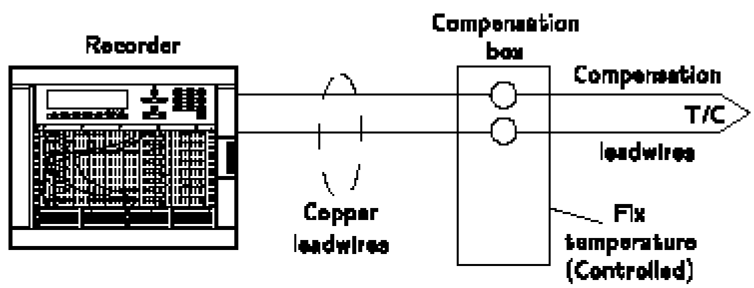
NOTICE **F is used for °Fahrenheit ; C is used for °Celsius.**

SUB-MATRIX	PARAMETER	CLASSIFICATION
ANALOG INPUT	**EXT COMP**	◆◆ ♣♣

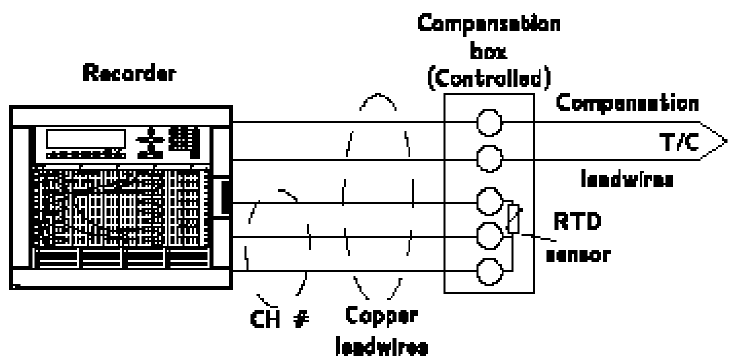
DEFINITION:

The thermocouple sensor is directly connected to a remote temperature compensation box. Then the connections are made with copper lead wires. Two types of wiring are possible:
1) At a fixed temperature compensation box with temperature configurable from 0 up to 80°C (32 to 176°F).
2) On variable temperature compensation box. We use 1 channel to measure the temperature of the box.

1) Fixed temperature compensation box



2) Variable temperature compensation box



HOW TO MODIFY IT:

1) Fixed Temperature: Enter a new temperature value in engineering unit. Choose between VALUE 0 and 80.
2) Variable Temperature: Select the channel used to measure the temperature of the box.

NOTICE

This parameter is just taken into account if the corresponding channel is configured with T/C EXT COMP. For T/C INT COMP, RTD and LINEAR, this parameter has no effect whatever the entered value.

SUB-MATRIX	PARAMETER	CLASSIFICATION
ANALOG INPUT	**FILTER**	◆◆ ♣

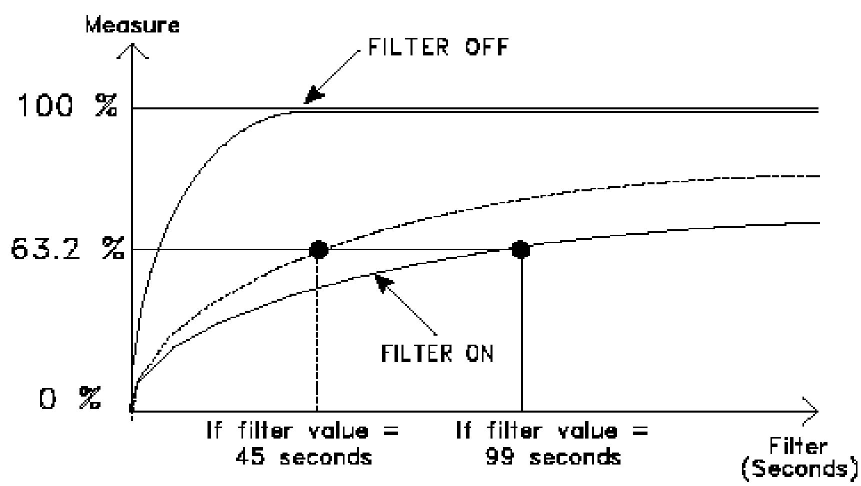
DEFINITION: You may wish to apply a filter to noisy signals. However if pulses, square waves or other rapidly changing inputs are to be displayed and recorded without damping, choose 0 filter value.

HOW TO MODIFY IT: Enter a numeric value.

POSSIBLE VALUES: **0-99 seconds**

0 = No filter

10 = 10 seconds



NOTICE

All the alarms or maths functions configured on a filtered analog input are affected by the filter delay. Be mindful with the filter action for the channels on which a "rate of change" alarm is configured: the filter can suppress the alarm action.

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
ANALOG INPUT	**LOW VALUE**	◆◆ ♣

DEFINITION: Engineering value corresponding to low limit of the selected input actuation range.

HOW TO MODIFY IT: Enter a numeric value.

POSSIBLE VALUES: **Up to 4 digits plus optional sign.**
[-9999 ... 9999]

NOTICE

Modification is not allowed for any directly connected temperature sensors, as this would adversely affect the linearization.
Modification is only possible when the sensor is:
- LINEAR or SPECIAL
- RTD and the range is 0, 200 Ohms or 0, 2000 Ohms

NOTICE

For linear and non-linear transmitters choose the value in engineering units, which corresponds to the low range limit of the transmitter.

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
ANALOG INPUT	**HIGH VALUE**	◆◆ ♣

DEFINITION: Engineering value corresponding to high limit of the selected input actuation range.

HOW TO MODIFY IT: Enter a numeric value.

POSSIBLE VALUES: **Up to 4 digits plus optional sign.**
[-9999 ... 9999]

NOTICE

Modification is not allowed for any directly connected temperature sensors, as this would adversely affect the linearization.
Modification is only possible when the sensor is:
- LINEAR or SPECIAL
- RTD and the range is 0, 200 Ohms or 0, 2000 Ohms

NOTICE

For linear and non-linear transmitters choose the value in engineering units, which corresponds to the low range limit of the transmitter.

SUB-MATRIX	PARAMETER	CLASSIFICATION
ANALOG INPUT	**STD MATH**	◆◆ ♣♣

DEFINITION: 2 mathematical functions are included as standard in the recorder.
These functions apply only to analog inputs.

HOW TO MODIFY IT: Select the maths function.

POSSIBLE CHOICES: **NO OPT MATH:** No maths function configured.

SQUARE ROOT: Square root applies to analog input.

CHANNEL DIFF: Difference between the current analog input and the one configured in "**DIFF WITH**".

SEE ALSO: **DIFF WITH** in this sub-matrix for **CHANNEL DIFF**.

NOTE: 1) For **SQUARE ROOT** the formula is:

$$PV = \sqrt{\frac{(S - Smin)(HIGH\ VAL^2 - LOW\ VAL^2)}{(Smax - Smin)} + LOW\ VAL^2}$$

Smin = min. sensor input value
Smax = max. sensor input value
S = current sensor input value
Available for linear inputs

2) For **CHANNEL DIFF**, the formula is:
PV = PVA **- PV**B
A and B are any analog input.

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
ANALOG INPUT	**DIFF WITH**	◆◆ ♣♣

DEFINITION:	Second channel used when **STD MATH = CHANNEL DIFF**
HOW TO MODIFY IT:	Select a new value.
POSSIBLE CHOICES:	**ANALOG # i (i = 1 ... 64)** **NONE**
NOTE:	The software will only allow selection of pre-configured input. For the difference between 2 channels, it is recommended to take first the highest channel reference and subtract from the other channel. Example: You want to make a difference between channels 7 and 12: make ch12 minus ch7.

SUB-MATRIX	PARAMETER	CLASSIFICATION
ANALOG INPUT	**BURNOUT**	◆◆ ♣♣

DEFINITION: Allows you to define the safety backup position to activate alarms (if configured) in case of sensor burnout. The trace can go either on the right (high) or on the left (low).

HOW TO MODIFY IT: Select new text.

POSSIBLE CHOICES:

NO BURNOUT: No burnout.

B OUT LOW: Burnout configured low scale. Display shows [-9999]

B OUT HIGH: Burnout configured high scale. Display shows [9999]

FIX LOW: Value fixed low. (mA) Not configurable

FIX HIGH: Value fixed high. (RTD/OHMS) Not configurable

FIX NONE: Undefined value. Not configurable (Linear sensors)
0 to 10 V / - 5 to 5 V / -1 to 1 V / -500 to 500 mV

NOTE:

- For some sensors (mA, RTD, Volts), burnout is not configurable but fixed and display will show **FIX LOW**, **FIX HIGH** or **FIX NONE.**
The value will be out of range (low, high or undefined). The "BURNOUT" event is only activated with the **B OUT LOW** or **B OUT HIGH** configuration.
- For RTD/OHMS sensors, a third wire burnout cannot be detected: the output value will be undefined.

⚠ **CAUTION**

For configurable burnout, be aware that a current pulse of 0.125 mA will occur regularly as part of the burnout detection and may disturb other devices connected to the same sensor. For an application with another controller connected on the same current loop, please remove the burnout detection on your recorder.

Failure to comply with these instructions may result in product damage

SUB-MATRIX	PARAMETER	CLASSIFICATION
ANALOG INPUT	**LOW ADJUST** **HIGH ADJUST**	◆◆ ♣

DEFINITION:

Zero adjust and span adjust are values used to calibrate a temperature loop.
Otherwise choose 0 Value = Factory Calibration
Adjustments are made directly in Engineering unit to the input range.
(ex.: 5 = 5^{o}C)

HOW TO MODIFY IT:

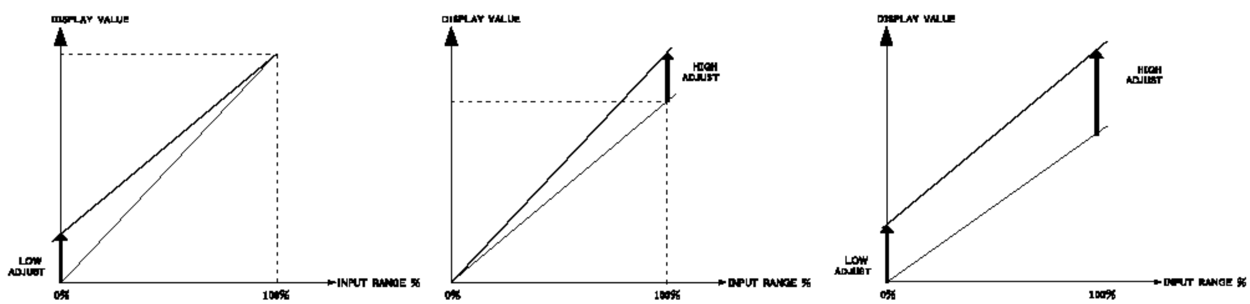
Enter a numeric value.

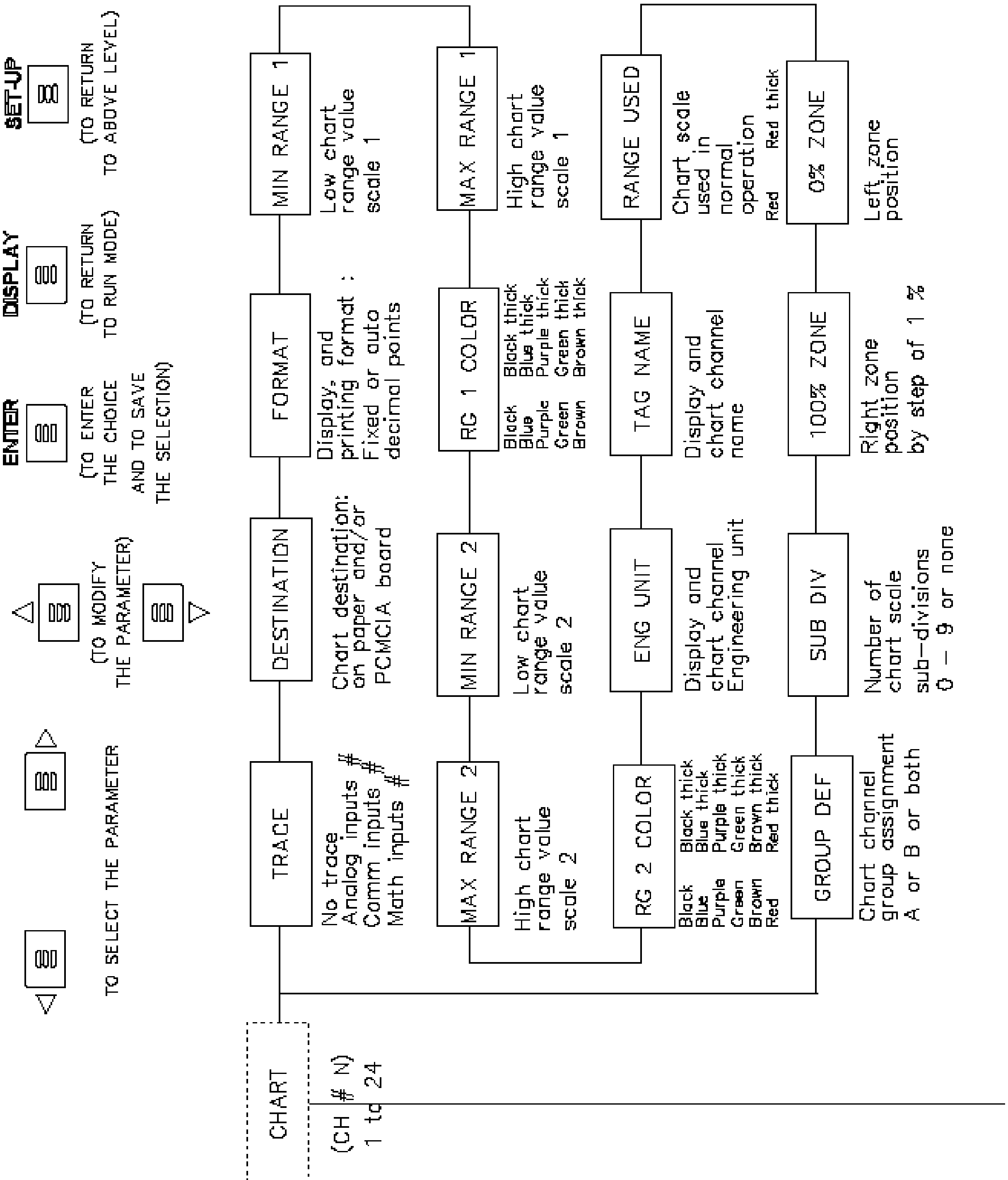
POSSIBLE CHOICES:

Up to 3 digits including negative sign and decimal point.
[-99 ... +99]

EXAMPLE:

LOW ADJUST will be added to the 0% of the considered range.
HIGH ADJUST will be added to the 100% of the considered range, so the calibration is changed.




TO SELECT THE PARAMETER
(TO MODIFY THE PARAMETER)
ENTER
(TO ENTER THE CHOICE AND TO SAVE THE SELECTION)
DISPLAY
(TO RETURN TO RUN MODE)
SET-UP
(TO RETURN TO ABOVE LEVEL)
CHART
(CH # N) 1 to 24
TRACE
No trace
Analog inputs #
Comm inputs #
Math inputs #
DESTINATION
Chart destination: on paper and/or PCMCIA board
FORMAT
Display, and printing format : Fixed or auto decimal points
MIN RANGE 1
Low chart range value scale 1
MAX RANGE 1
High chart range value scale 1
RG 1 COLOR
Black Blue Purple Green Brown
Black thick Blue thick Purple thick Green thick Brown thick
MIN RANGE 2
Low chart range value scale 2
MAX RANGE 2
High chart range value scale 2
RG 2 COLOR
Black Blue Purple Green Brown Red
Black thick Blue thick Purple thick Green thick Brown thick Red thick
ENG UNIT
Display and chart channel Engineering unit
TAG NAME
Display and chart channel name
RANGE USED
Chart scale used in normal operation
Red Red thick
GROUP DEF
Chart channel group assignment A or B or both
SUB DIV
Number of chart scale sub-divisions 0 – 9 or none
100% ZONE
Right zone position by step of 1 %
0% ZONE
Left zone position

SUB – MATRIX PARAMETERS

CHART

Configuration of chart range and format

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
CHART	**TRACE**	◆◆ ♣♣

DEFINITION: Defines the variable to be printed on the chart or stored on the PCMCIA memory card (None, Analog input 1... 24, Comm input 1 ... 24, maths input 1 ... 24).

HOW TO MODIFY IT: Select a new value.

POSSIBLE CHOICES: **NO TRACE**

ANALOG # i (i = 1 ... 64)
COMM # i (i = 1 ... 32)
MATH # i (i = 1 ... 32)

NOTICE The software will only allow selection of a pre-configured analog input.

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
CHART	**DESTINATION**	◆◆ ♣♣

DEFINITION: Determines where to print or copy charts.

HOW TO MODIFY IT: Select a new value.

POSSIBLE CHOICES: **ON PAPER**
ON FILE *
PAPER & FILE *

* **FILE**: this corresponds to the trace storage on a PCMCIA memory card.

DEFAULT VALUE: **ON PAPER**

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
CHART	**FORMAT**	◆ ♣♣

DEFINITION: Format used for the printing of trend, range and information, and the display of trace value.

POSSIBLE CHOICES:
XXXXX (no decimal point) 10000
XXX.X (1/10) 100.0
XX.XX (1/100) 10.00
X.XXX (1/1000) 1.000
AUTOMATIC: Automatically displays and prints the measured value based on the accuracy of the recorder and the available number of digits on the display. IE ACCURACY = 0.1% on selected ranges.

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
CHART	**MIN RANGE 1**	◆◆ ♣

DEFINITION: Lower limit of chart range 1.

HOW TO MODIFY IT: Enter a numeric value.

POSSIBLE VALUES: **Up to 8 digits for analog inputs, maths results and comm. results. Including negative sign and decimal point.**

EXAMPLE:

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
CHART	**MAX RANGE 1**	◆◆ ♣

DEFINITION: Upper limit of chart range 1

HOW TO MODIFY IT: Enter a numeric value.

POSSIBLE VALUES: **Up to 8 digits for analog inputs, maths results and comm. results. Including negative sign and decimal point.**

EXAMPLE:

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
CHART	**RG1 COLOR**	◆ ♣

DEFINITION: Color of range 1.

HOW TO MODIFY IT: Select a new color

POSSIBLE VALUES:

BLACK
BLUE
PURPLE
GREEN
BROWN
RED
BLACK THICK
BLUE THICK
PURPLE THICK
GREEN THICK
BROWN THICK
RED THICK

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
CHART	**MIN RANGE 2**	◆◆ ♣

DEFINITION: Lower limit of chart range 2.

HOW TO MODIFY IT: Enter a numeric value.

POSSIBLE VALUES: **Up to 8 digits for analog inputs, maths results and comm. results. Including negative sign and decimal point.**

EXAMPLE:

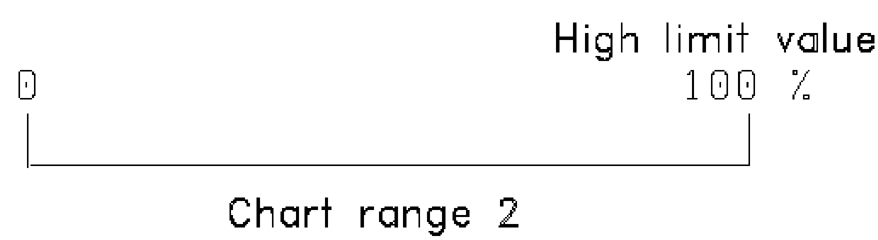
SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
CHART	**MAX RANGE 2**	◆◆ ♣

DEFINITION: Upper limit of chart range 2

HOW TO MODIFY IT: Enter a numeric value.

POSSIBLE VALUES: **Up to 8 digits for analog inputs, maths results and comm. results. Including negative sign and decimal point.**

EXAMPLE:



SUB-MATRIX	PARAMETER	CLASSIFICATION
CHART	**RG2 COLOR**	◆ ♣

DEFINITION: Color of range 2.

HOW TO MODIFY IT: Select a new color

POSSIBLE VALUES:
BLACK
BLUE
PURPLE
GREEN
BROWN
RED
BLACK THICK
BLUE THICK
PURPLE THICK
GREEN THICK
BROWN THICK
RED THICK

SUB-MATRIX	PARAMETER	CLASSIFICATION
CHART	**ENG UNIT**	◆ ♣

DEFINITION: Chart channel units.

HOW TO MODIFY IT: Enter a text.

POSSIBLE CHOICES: **5 alpha numerical characters max.**

EXAMPLES:
- mm/h
- Deg F
- Deg C
- PSI
- BAR
- µA

NOTICE

When PCMCIA option is configured any modifications of ENG UNIT parameter will be forbidden while storage is running.
Refer to the PCMCIA Option Manual for more details.

SUB-MATRIX	PARAMETER	CLASSIFICATION
CHART	**TAG NAME**	◆ ♣

DEFINITION: Name of the chart channel.

HOW TO MODIFY IT: Enter a text.

POSSIBLE CHOICES: **8 alpha numerical characters.**

EXAMPLES:

- **REACTOR**
- **FURNACE**
- **AUTOCLAV**

NOTICE

When PCMCIA option is configured any modifications of TAG NAME parameter will be forbidden while storage is running.
Refer to the PCMCIA Option Manual for more details.

SUB-MATRIX	PARAMETER	CLASSIFICATION
CHART	**RANGE USED**	◆◆♣♣

DEFINITION: You may select whether the input channel will be printed normally (range 1 or 2) or on alarm (with range 1 or 2).

HOW TO MODIFY IT: Select a new value.

POSSIBLE CHOICES:

	NOTE:
WITH RG1 **WITH RG2**	Select the range used in normal printing.
RG1 ON ALARM **RG2 ON ALARM**	Only if you have selected " **PRINT ON AL**" in sub-matrix **ALARM** you have to select the **RG1 ON ALARM** or **RG2 ON ALARM**

SEE ALSO:
Parameter **ACTION** in **ALARM** sub-matrix.
Parameter **ACTION** in **DIGITAL** sub-matrix.
Parameter **GROUP DEF** in **CHART** sub-matrix.

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
CHART	**0% ZONE** **100% ZONE**	◆◆♣

DEFINITION: Defines chart zone for printing.

HOW TO MODIFY IT: Enter a new value.

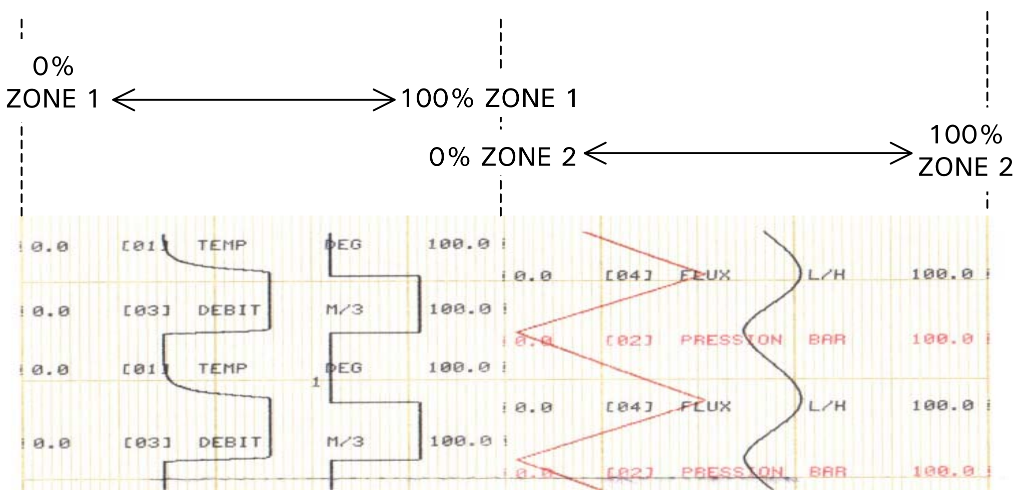
POSSIBLE CHOICES: **0...100% - - - - > 0...80% for 0% zone of paper - - - - > 20...100% for 100% zone**
The choice of parameters for 0% and 100% zone allows you to define the datum such that the width of the chart paper is less than the calibrated width of the paper.
This function permits the segregation of input traces into zones to avoid the problem of input signals using the same paper scale and having the same values printed on top of each other.
The minimum width per zone is 20% of the chart.

NOTE: The zoning is only possible in **TREND** mode.

SEE ALSO: **PRINTER** matrix and **PRINT MODE** parameter.
SUB DIV = **NO DIVISION** when zoning is < 100%

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
CHART	**0% ZONE** **100% ZONE**	◆◆♣

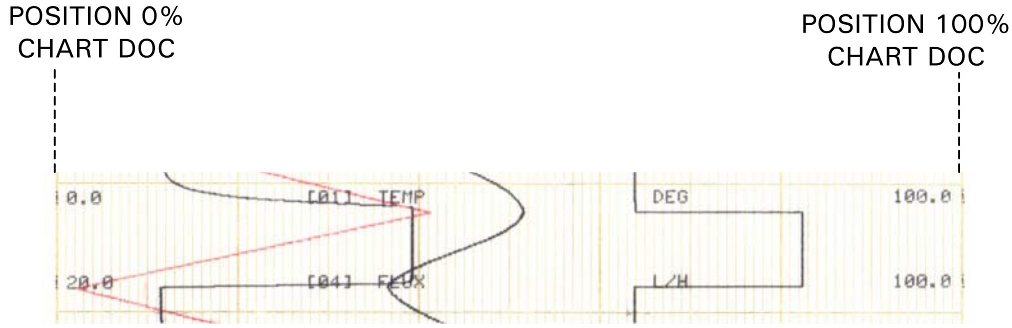
EXAMPLE:



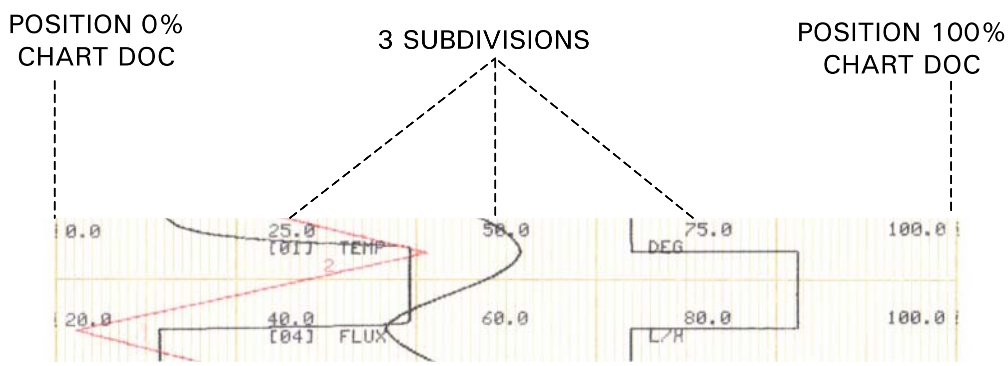
SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
CHART	**SUB DIV**	◆♣

DEFINITION: This parameter allows the visualization of a scale on the paper in addition to the classic **RANGE** message.
Refer to the **CHART DOC** matrix, **INFORMATION** # parameter.

POSSIBLE CHOICES: **NO DIVISION:** Standard **RANGE** message.
Example: Chart scale printed in 1 line.



DIVISION: Subdivisions (Configurable from 0 to 9) to be printed in **RANGE** scale printing.
Example: Chart scale printed in 2 lines. 3 subdivisions, 2 lines printing.



SEE ALSO: See **INFORMATION** parameter in **CHART DOC** sub-matrix, with **RANGE** choice.

NOTICE In **ZONING** mode (**0% ZONE** ! 0 and **100% ZONE** ! 100), the **SUB DIV** parameter is considered as equivalent to **NO DIVISION**.

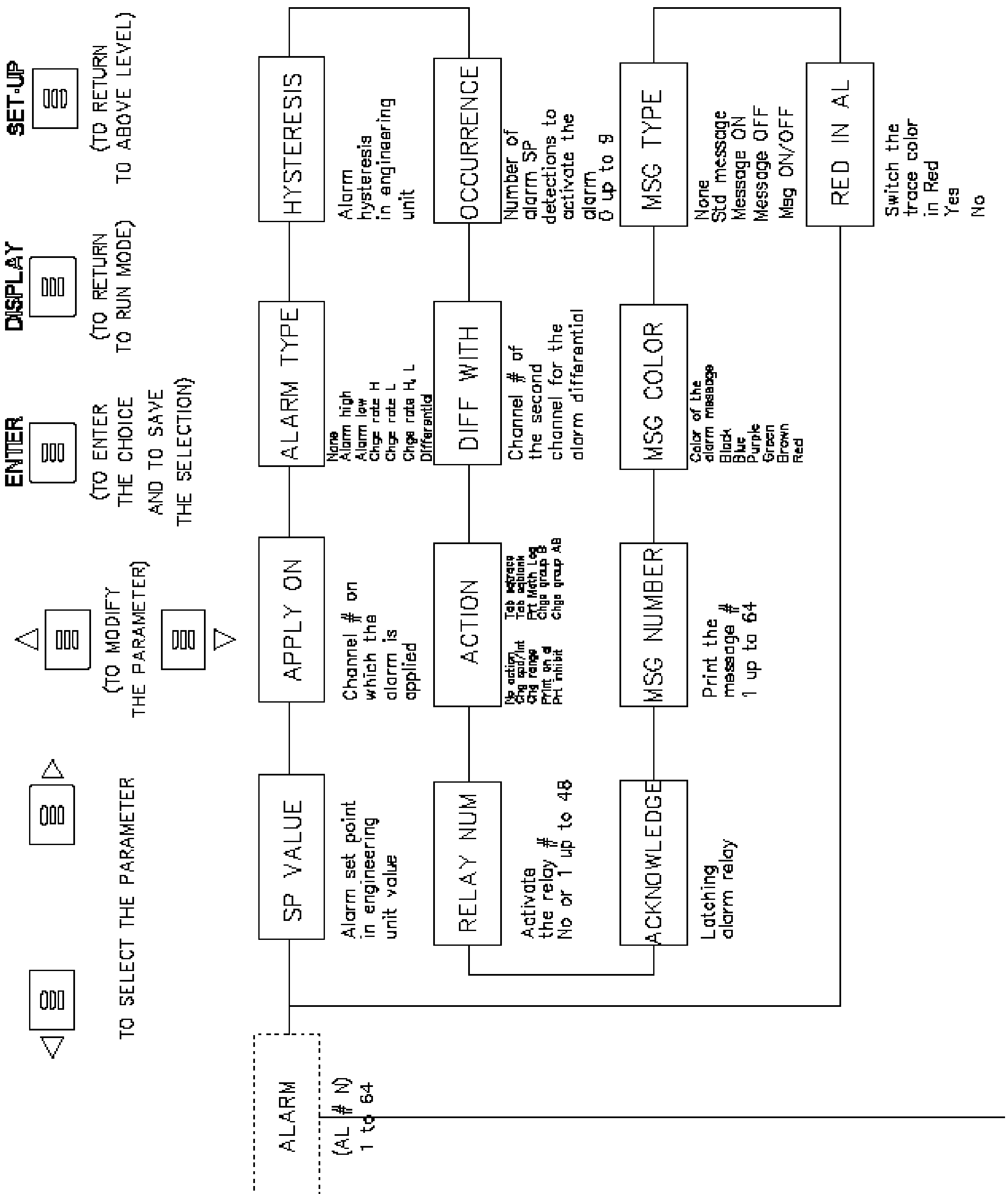
SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
CHART	**GROUP DEF**	◆◆♣♣

DEFINITION: This defines two separate groups of channels that will be printed together as a group

POSSIBLE CHOICES:
NO GROUP: Trace not affected by **CHG GROUP** action.
Prints all configured channels
GROUP A: Trace affected by **CHG GROUP** action.
Channels only in GROUP A
GROUP B: Trace affected by **CHG GROUP** action.
Channels only in GROUP B

SEE ALSO: See **ALARM** and **DIGITAL INPUTS** sub-matrices, **ACTION** parameter, **PRINT GROUP** choice.

.


TO SELECT THE PARAMETER
(TO MODIFY THE PARAMETER)
ENTER
(TO ENTER THE CHOICE AND TO SAVE THE SELECTION)
DISPLAY
(TO RETURN TO RUN MODE)
SET-UP
(TO RETURN TO ABOVE LEVEL)
ALARM
(AL # N) 1 to 64
SP VALUE
Alarm set point in engineering unit value
APPLY ON
Channel # on which the alarm is applied
ALARM TYPE
None
Alarm high
Alarm low
Chge rate H
Chge rate L
Chge rate H, L
Differential
HYSTERESIS
Alarm hysteresis in engineering unit
RELAY NUM
Activate the relay # No or 1 up to 48
ACTION
No action
Chg spd/int
Chg range
Print on d
Prt inhibit
Tab enhance
Tab enblank
Prt Math Log
Chge group B
Chge group AB
DIFF WITH
Channel # of the second channel for the alarm differential
OCCURRENCE
Number of alarm SP detections to activate the alarm
0 up to 9
ACKNOWLEDGE
Latching alarm relay
MSG NUMBER
Print the message #
1 up to 64
MSG COLOR
Color of the alarm message
Black
Blue
Purple
Green
Brown
Red
MSG TYPE
None
Std message
Message ON
Message OFF
Msg ON/OFF
RED IN AL
Switch the trace color in Red
Yes
No

SUB – MATRIX

ALARM

Configuration of alarm set point with its action

PARAMETERS

SUB-MATRIX	PARAMETER	CLASSIFICATION
ALARM	**SP VALUE**	◆♣

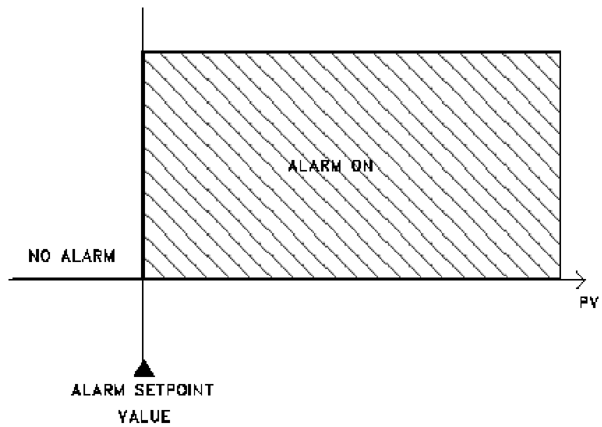
DEFINITION: The alarm switches from OFF to ON when the SP value is reached.

HOW TO MODIFY IT: Enter a numeric value.

POSSIBLE VALUES: **Up to 7 digits plus optional sign and decimal point in various engineering units, depending on the channel type.**
[-9999999 ... 9999999]
3 digits after the decimal point available

SEE ALSO: **ALARM TYPE** in the same sub-matrix.

EXAMPLE: High alarm type:



SUB-MATRIX	PARAMETER	CLASSIFICATION
ALARM	**APPLY ON**	◆◆♣♣

DEFINITION: Channel on which the alarm is applied (Analog 1 ... 64, Comm 1 ... 32, maths 1 ... 32).

POSSIBLE CHOICES: Select a new value.

SEE ALSO: **ANALOG # i (i = 1 ... 64)**
COMM # i (i = 1 ... 32)
MATH # i (i = 1 ... 32)

SUB-MATRIX	PARAMETER	CLASSIFICATION
ALARM	**ALARM TYPE**	◆◆♣♣

DEFINITION: Type of alarm

HOW TO MODIFY IT: Select a new alarm type.

POSSIBLE VALUES:

NONE: Select "none" for unused alarms.

ALARM HIGH: Alarm to occur when the value equals or exceeds the alarm setpoint.

ALARM LOW: Alarm to occur when the value equals or is below the alarm setpoint.

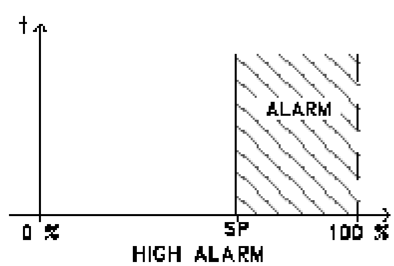
CHG RATE H: Alarm to occur if the trace increases quicker than the alarm setting. The SP value used is the absolute value of the input value. (setpoint is given in engineering unit/second)

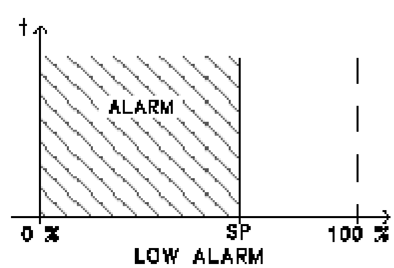
CHG RATE L: Alarm to occur if the trace decreases quicker than the alarm setting. The SP value used is the absolute value of the input value. (setpoint is given in engineering unit/second)

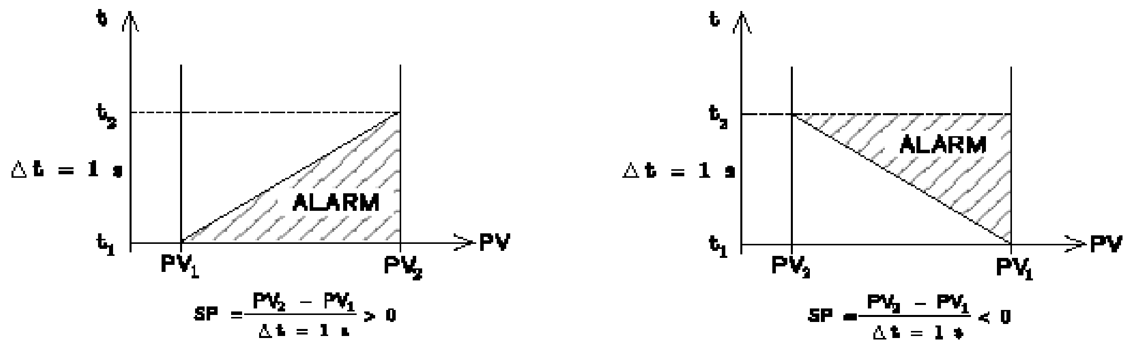
CHG RATE H, L: Alarm to occur if the trace increases/decreases quicker than the alarm setting. The SP value used is the absolute value of the input value. (setpoint is given in engineering unit/second)

DIFFERENTIAL: Occurs if the absolute difference between the values of the specified channel and a second channel exceeds the absolute value of the alarm setpoint.

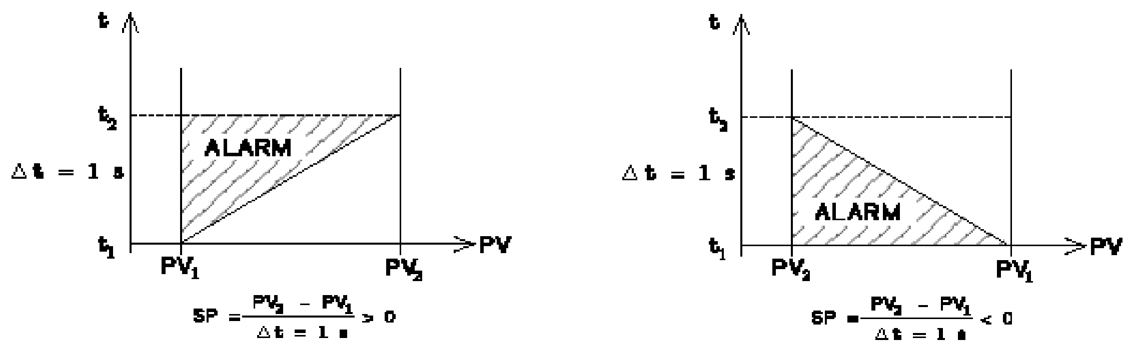
SEE ALSO: **DIFF WITH** for **DIFFERENTIAL** in this sub-matrix.



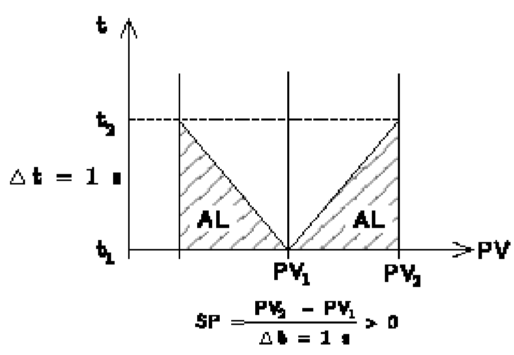




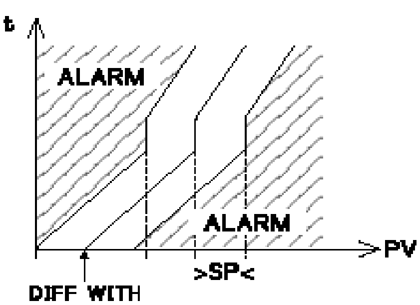
CHG RATE HIGH



CHG RATE LOW



CHG RATE H, L



DIFFERENTIAL

SUB-MATRIX	PARAMETER	CLASSIFICATION
ALARM	**HYSTERESIS**	◆♣

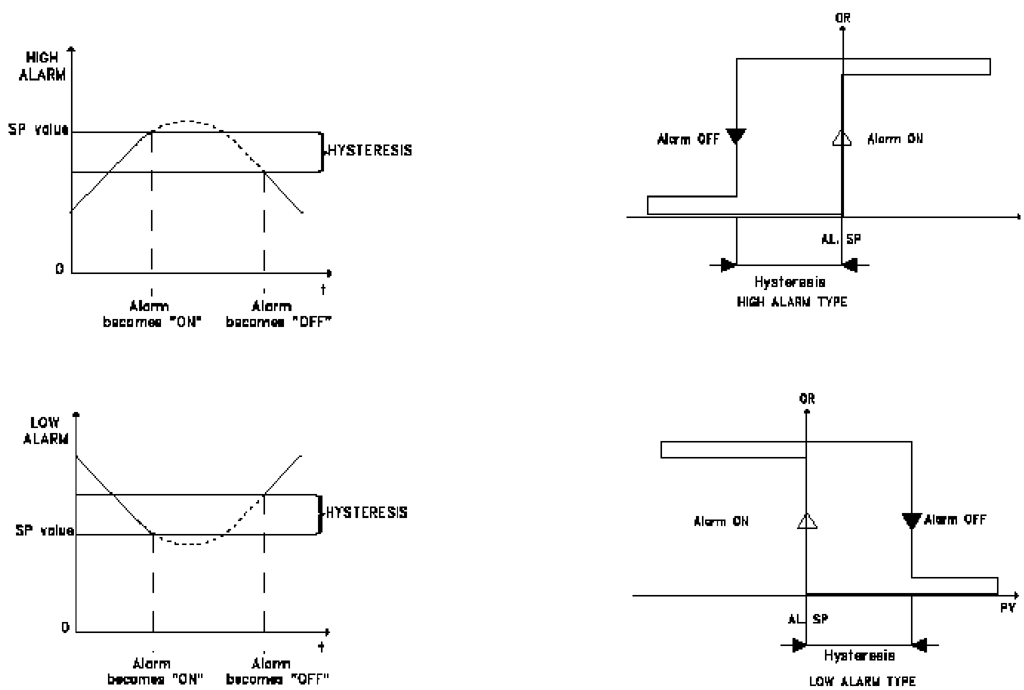
DEFINITION: Establishes the alarm hysteresis. Alarms switch ON at set point but switch OFF value depends on the hysteresis setting.

Hysteresis is expressed in Engineering units and is added to low alarm and subtracted from high alarm set points to establish the alarm release value.

HOW TO MODIFY: Enter a numeric value of up to 3 digits, with optional decimal point.

POSSIBLE VALUES **[0.0 ... 999]** (including decimal point)
3 digits after the decimal point available

EXAMPLE:



NOTE: With CHG rate type, this parameter is expressed in Engineering units.

SUB-MATRIX	PARAMETER	CLASSIFICATION
ALARM	**OCCURRENCE**	◆◆♣♣

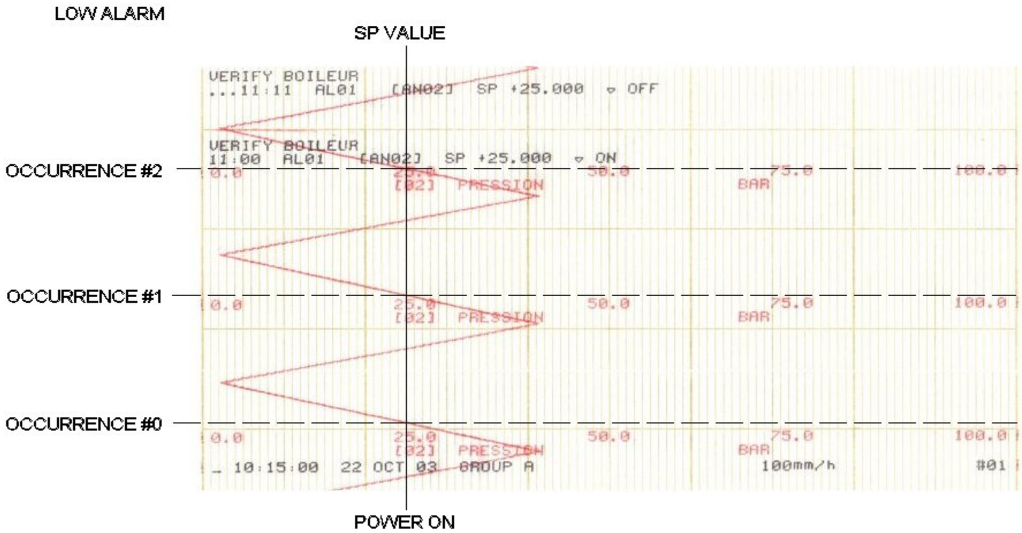
DEFINITION: Defines the number of alarm occurrences that must occur after power on before alarm activation can actually operate. This acts as a filter for the alarm activation.

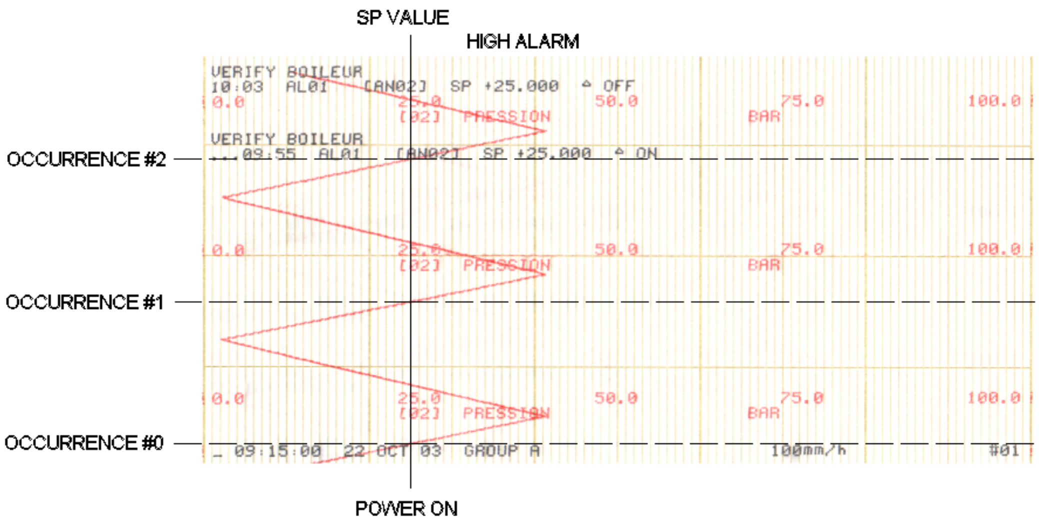
HOW TO MODIFY IT: Select a new value.

POSSIBLE VALUES:
[0 ... 9]
0 = No alarm occurrence (ie: normal alarm activation)
1 = 1 alarm occurrence
2 = 2 alarm occurrences
.
.
.
9 = 9 alarm occurrences

EXAMPLE:
High alarm type configured with alarm occurrence = 1
At start up (power on) PV < SP, the alarm is inactive.
The first alarm (occurrence #1) is disregarded, the second alarm causes the alarm to be activated.

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
ALARM	**OCCURRENCE**	◆◆♣♣





Occurrence value is reset to the configured value after:

- Power on
- Entering in configuration mode (selection of any parameter marked with ♣♣, see page 4-2).
- An immediate action RESET OCCURRENCE

SUB-MATRIX	PARAMETER	CLASSIFICATION
ALARM	**DIFF WITH**	◆◆♣♣

DEFINITION: Second channel used if alarm type is differential.

HOW TO MODIFY IT: Select a new value.

POSSIBLE VALUES:
The same as those for alarm channel.
ANALOG # i (i = 1 ... 64)
COMM # i (i = 1 ... 32)
MATH # i (i = 1 ... 32)

NOTE: For the difference between 2 channels, it is recommended to take first the highest channel reference and subtract from the other channel.
Example:
You want to make a difference between channels 7 and 12: make ch12 minus ch7.

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
ALARM	**ACTION**	◆◆♣♣

DEFINITION: Action on printer in case of alarm.

HOW TO MODIFY IT: Select a new alarm action.

POSSIBLE VALUES:

NO ACTION: No effect on printing.

CHG SPD/INT: Change chart speed/print interval.

CHG RANGE: Change to range 2 if **RANGE USED** = with R1 and to range 1 if **RANGE USED** = with R2

PRINT ON AL: Prints the channel trace when alarm condition occurs.

PRT INHIBIT: Stop all printing without data acquisition.

TAB SQTRACE: Print one tabular snapshot of values superimposed on traces.

TAB SQBLANK: Print one tabular snapshot of values on blank paper.

PRT MATH LOG: Print one tabular snapshot of maths results.

CHG GROUP B:
CHG GROUP A to B: Print groups # i of channels defined in **CHART** sub-matrix.
When the alarm turns ON, the group B is printed.
When the alarm turns OFF, the group A is printed.

CHG GROUP AB:
CHG GROUP A to A + B: Print groups # i of channels defined in **CHART** sub-matrix.
When the alarm turns ON, groups A and B are printed.
When the alarm turns OFF, the group A is printed.

SEE ALSO:

RANGE USED in **CHART** sub-matrix for **PRINT ON AL** and **CHG GROUP**

GROUP DEF in **CHART** sub-matrix for **CHG GROUP**

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
ALARM	**RELAY NUM**	◆◆♣♣

DEFINITION: Selection of the relay to activate in alarm condition.

HOW TO MODIFY IT: Select a new relay number.

POSSIBLE CHOICES: **NO RELAY**

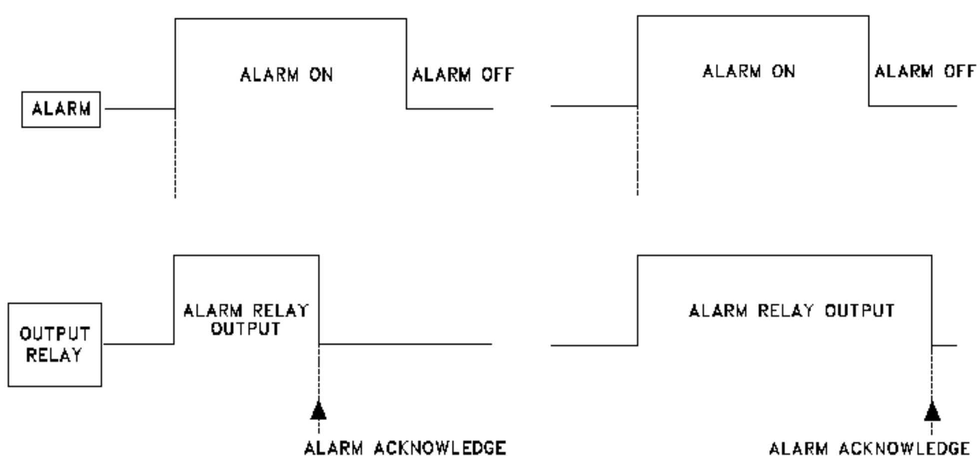
RELAY # i (i = 1 ... 48)

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
ALARM	**ACKNOWLEDGE**	◆◆♣♣

DEFINITION: To acknowledge all alarm relay outputs.

POSSIBLE CHOICES: **ENABLE:** Requires alarm acknowledgment to release all alarm relays
DISABLE: Normal alarm relay operation (no latching relay)

EXAMPLE: Of alarm relay operation with Alarm acknowledge enable



NOTICE If **ACKNOWLEDGE** is ENABLE, the parameter **ACK KEY** must also be enabled in sub-matrix **MMI**.

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
ALARM	**MSG NUMBER**	◆♣♣

DEFINITION: Selection of the alarm message to be printed.

HOW TO MODIFY IT: Select a new message number.

POSSIBLE VALUES: **MESSAGE # i (i = 1 ... 64)**

SEE ALSO: **MSG TYPE** in this sub-matrix

NOTICE

Be sure the selected message is already configured.
(See Matrix Message)

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
ALARM	**MSG COLOR**	◆♣♣

DEFINITION: Color of alarm message.

HOW TO MODIFY IT: Select a new color.

POSSIBLE VALUES:

BLACK
BLUE
PURPLE
GREEN
BROWN
RED

SUB-MATRIX	PARAMETER	CLASSIFICATION
ALARM	**MSG TYPE**	◆♣♣

DEFINITION: Defines when the alarm message is printed.

HOW TO MODIFY IT: Select a new message type.

POSSIBLE CHOICES:

NONE: The standard message (time, alarm type ...), and the operator message are not printed.

STD MESSAGE: The standard message (time, alarm type...) is printed at alarm activation, at alarm release, but operator message is not printed.

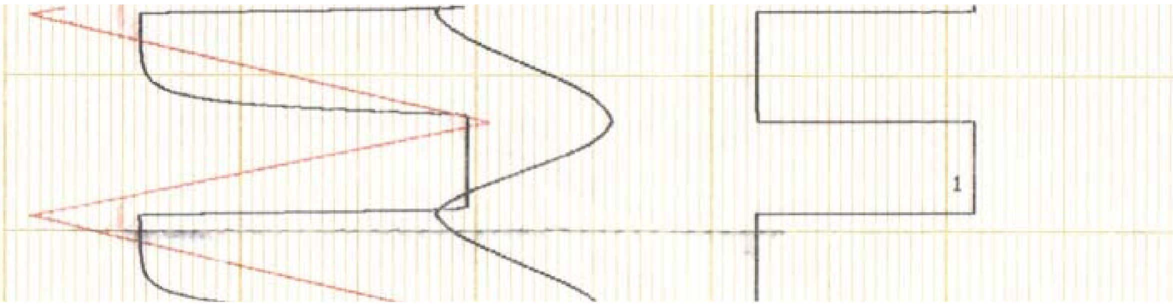
MESSAGE ON: Standard operator message is printed at alarm occurrence only.

MESSAGE OFF: Standard operator message is printed at alarm release only.

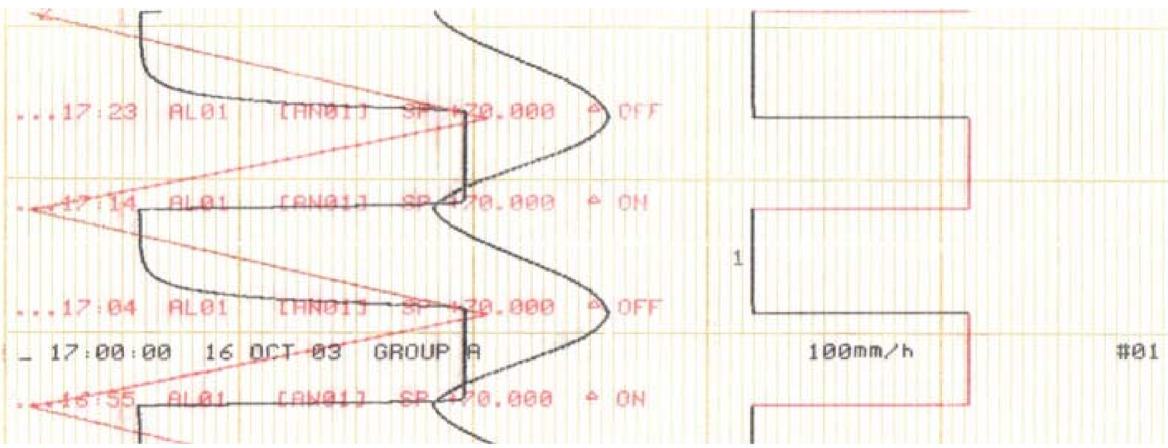
MSG ON/OFF: Standard operator message is printed at alarm activation and at alarm release.

SEE ALSO: **MESSAGE** in **MESSAGES** sub-matrix

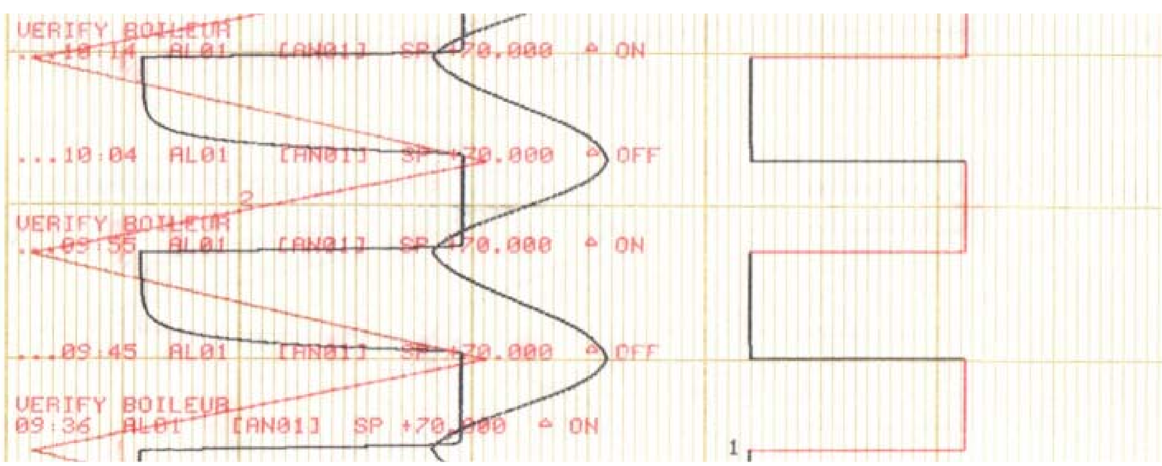
NOTE: The selection of **NONE** does not prevent the printing of functional messages such as, messages of range, speed and group change, these are configurable by the **CHART DOC** sub-matrix **FUNCT MSG** parameters.
In case of many **MESSAGES** the printing order can be changed.



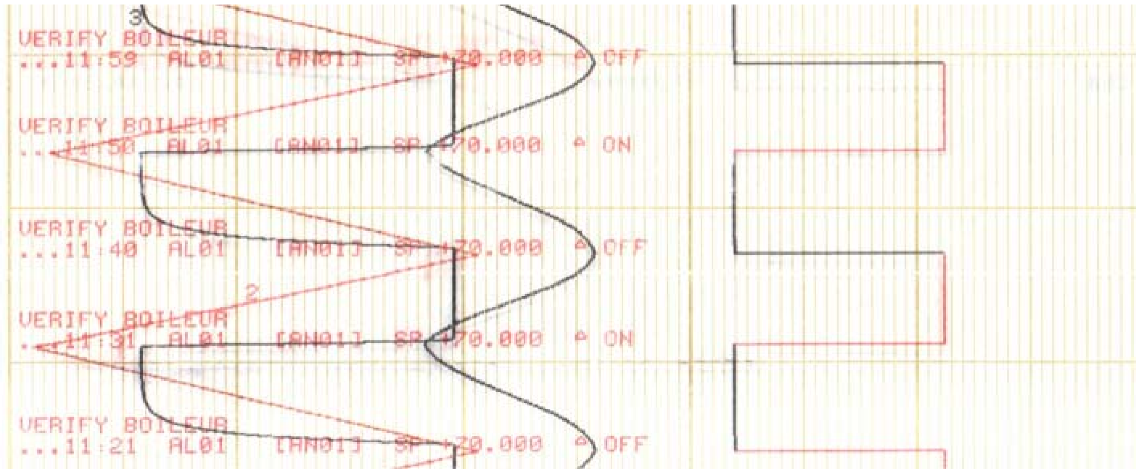
NONE



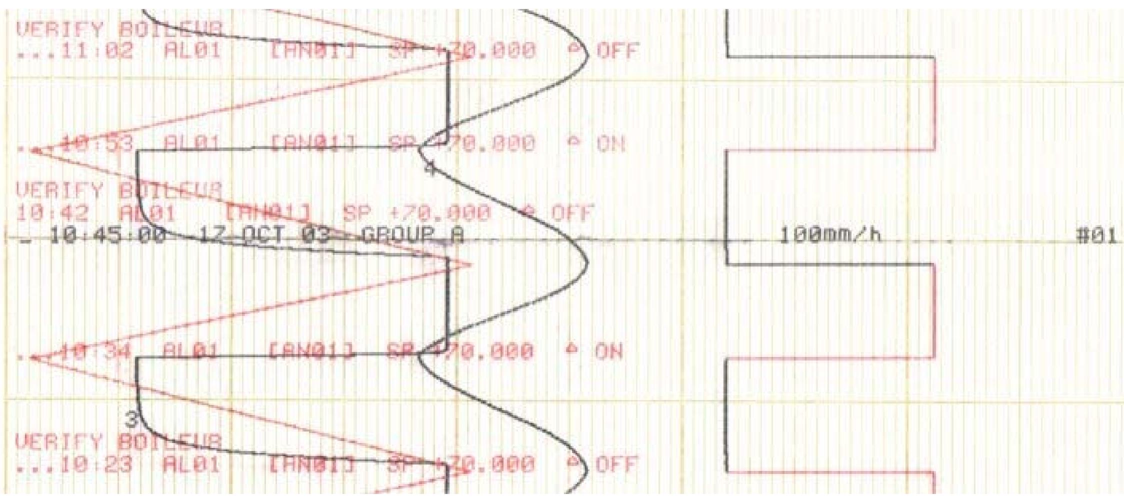
STD MESSAGE



MESSAGE ON



MESSAGE OFF



MESSAGE ON/OFF

SUB-MATRIX	PARAMETER	CLASSIFICATION
ALARM	**RED IN AL**	◆◆♣♣

DEFINITION: Specifies if the trend trace will be printed in red during alarm condition.

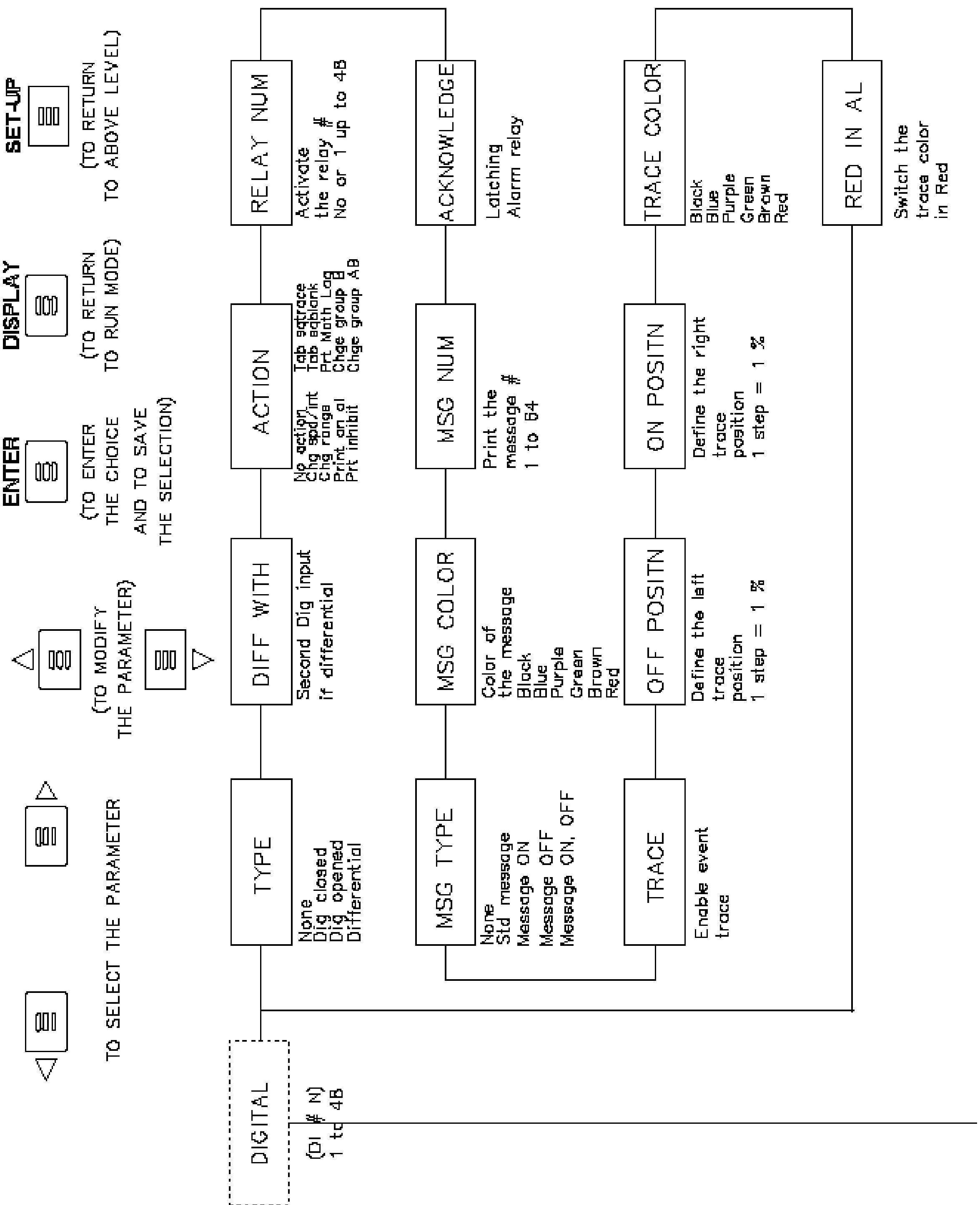
HOW TO MODIFY IT: Choose a new selection.

POSSIBLE CHOICES:

NO

YES

SEE ALSO: If **RED IN AL** is selected, do not configure the trace color in red as normal printing.


TO SELECT THE PARAMETER
(TO MODIFY THE PARAMETER)
ENTER
(TO ENTER THE CHOICE AND TO SAVE THE SELECTION)
DISPLAY
(TO RETURN TO RUN MODE)
SET-UP
(TO RETURN TO ABOVE LEVEL)
DIGITAL
(DI # N) 1 to 48
TYPE
None
Dig closed
Dig opened
Differential
DIFF WITH
Second Dig input if differential
ACTION
No action
Chg spd/int
Chg range
Print an al
Prt inhibit
Tab sqtrace
Tab sqblank
Prt Math Log
Chge group B
Chge group AB
RELAY NUM
Activate the relay # No or 1 up to 48
MSG TYPE
None
Std message
Message ON
Message OFF
Message ON, OFF
MSG COLOR
Color of the message
Black
Blue
Purple
Green
Brown
Red
MSG NUM
Print the message # 1 to 64
ACKNOWLEDGE
Latching Alarm relay
TRACE
Enable event trace
OFF POSITN
Define the left trace position 1 step = 1 %
ON POSITN
Define the right trace position 1 step = 1 %
TRACE COLOR
Black
Blue
Purple
Green
Brown
Red
RED IN AL
Switch the trace color in Red

SUB – MATRIX

DIGITAL

Configuration of digital input parameters with their actions

PARAMETERS

SUB-MATRIX	PARAMETER	CLASSIFICATION
DIGITAL	**TYPE**	◆◆♣♣

DEFINITION: Type of digital input.

HOW TO MODIFY IT: Select a new digital input type.

POSSIBLE CHOICES:

NONE: Select "none" for no action on digital inputs and no standard message**.**

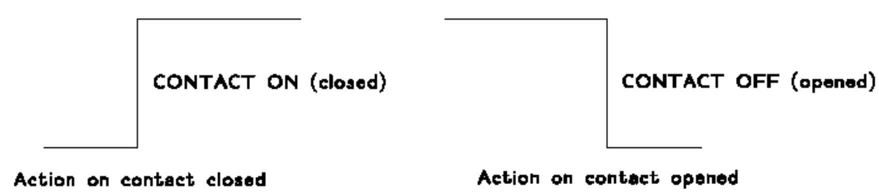
DIG CLOSED: Action to occur when digital input is ON (contact closed).

DIG OPENED: Action to occur when digital input is OFF (contact opened).

DIFFERENTIAL: Action to occur when digital input changes to a different state from another specified digital input. (Function XOR)

SEE ALSO: **DIFF WITH** for **DIFFERENTIAL** in this sub-matrix.

EXAMPLE:



SUB-MATRIX	PARAMETER	CLASSIFICATION
DIGITAL	**DIFF WITH**	◆◆♣♣

DEFINITION: Second digital input to be used if the first digital input type is differential.

HOW TO MODIFY IT: Select a new value.

POSSIBLE CHOICES: **DIGITAL # i (i = 1 ... 48)**

NOTE: For the difference between 2 channels, it is recommended to take first the highest channel reference and subtract from the other channel.
Example:
You want to make a difference between channels 7 and 12:
make ch12 minus ch7.

SUB-MATRIX	PARAMETER	CLASSIFICATION
DIGITAL	**ACTION**	◆◆♣♣

DEFINITION: Action on printer in case of digital input change.

HOW TO MODIFY IT: Select a new action.

POSSIBLE CHOICES:

NO ACTION: No effect on printing.

CHG SPD/INT: Change chart speed/print interval.

CHG RANGE: Change to range 2 if **RANGE USED** = with R1 and to range 1 if **RANGE USED** = with R2

PRINT ON AL: Print the channel in alarm condition.

PRT INHIBIT: Stop all printing without data memorization.

TAB SQTRACE: Print one tabular snapshot of values superposed on traces.

TAB SQBLANK: Print one tabular snapshot of values on blank paper.

PRT MATH LOG: Print one tabular snapshot of maths results.

CHG GROUP B:
CHG GROUP A to B: Print groups # i of channels defined in chart sub-matrix
When the alarm turns ON, the group B is printed.
When the alarm turns OFF, the group A is printed.

CHG GROUP AB:
CHG GROUP A to A + B: Print groups # i of channels defined in chart sub-matrix.
When the alarm turns ON, groups A and B are printed.
When the alarm turns OFF, the group A is printed.

SEE ALSO: **RANGE USED** in **CHART** sub-matrix for **PRINT ON AL** and **CHG GROUP**
GROUP DEF in **CHART** sub-matrix for **CHG GROUP**

WARNING: This **ACTION** parameter is taken into account only if **NORMAL** is selected for the **SELECTION** parameter of the **DIGITAL** sub-matrix.

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
DIGITAL	**RELAY NUM**	◆◆♣♣

DEFINITION: Selection of the relay activated with digital input.

HOW TO MODIFY IT: Select a new relay number

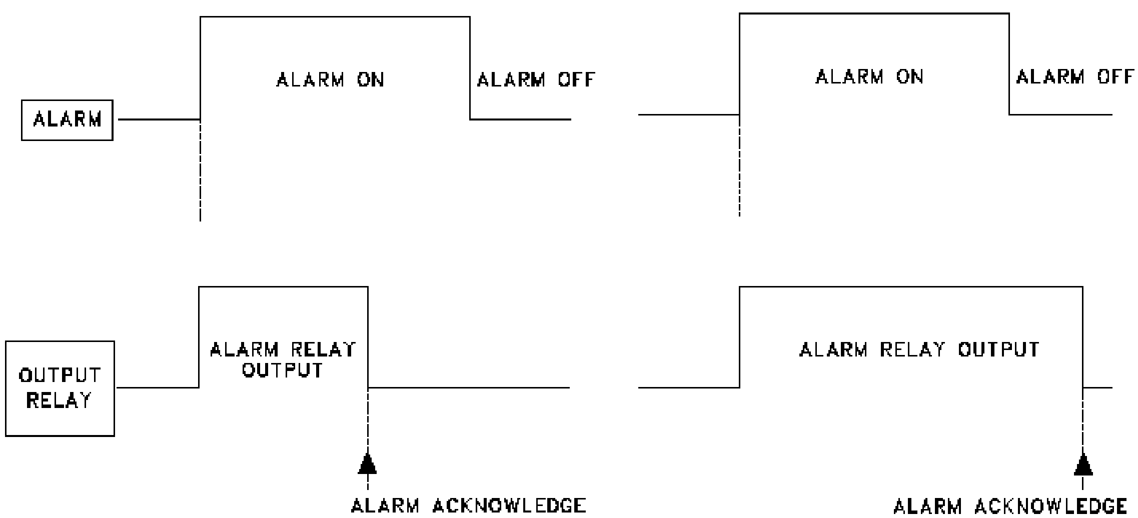
POSSIBLE CHOICES:
NO RELAY
RELAY # i (i = 1 ... 48)

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
DIGITAL	**ACKNOWLEDGE**	◆◆♣♣

DEFINITION: To acknowledge all alarm latching relay outputs.

POSSIBLE CHOICES:
ENABLE: Requires alarm acknowledgment to release all alarm relays.
DISABLE: Normal alarm relay operation (no latching relay).

EXAMPLE:



NOTICE

If **ACKNOWLEDGE** is ENABLE, the parameter **ACK KEY** must also be enabled in sub-matrix **MMI**.

SUB-MATRIX	PARAMETER	CLASSIFICATION
DIGITAL	**MSG NUM**	◆♣♣

DEFINITION: Selection of the message to be printed.

HOW TO MODIFY IT: Select a new message number.

POSSIBLE CHOICES: **MESSAGE # i (i = 1 ... 64)**

SEE ALSO: **MSG TYPE** in this sub-matrix
Without message # only the standard message is printed.

SUB-MATRIX	PARAMETER	CLASSIFICATION
DIGITAL	**MSG COLOR**	◆♣♣

DEFINITION: Color of the message.

HOW TO MODIFY IT: Select a new color.

POSSIBLE CHOICES:
BLACK
BLUE
PURPLE
GREEN
BROWN
RED

SUB-MATRIX	PARAMETER	CLASSIFICATION
DIGITAL	**MSG TYPE**	◆♣♣

DEFINITION: Defines when the digital message is printed.

HOW TO MODIFY IT: Select a new **MSG TYPE.**

POSSIBLE CHOICES: **NONE:** The standard message (date, time, alarm type ...), and the operator message are not printed.

STD MESSAGE: The standard message (date, time, alarm type...) is printed at alarm activation, at alarm release, but operator message is not printed.
MESSAGE ON: Standard operator message is printed when the digital contact is closed.

MESSAGE OFF: Standard operator message is printed when the digital contact is opened.

MSG ON/OFF: Standard operator message is printed when the digital contact is closed and opened.

SEE ALSO: **MESSAGE** in **MESSAGES** sub-matrix

WARNING: The selection of **NONE** does not prevent the printing of functional messages such as, messages of range, speed and group change, these are configurable by the **CHART DOC** sub-matrix **FUNCT MSG** parameters.
In case of many **MESSAGES** the printing order can be changed.

SUB-MATRIX	PARAMETER	CLASSIFICATION
DIGITAL	**TRACE**	◆◆♣♣

DEFINITION: Enable/disable the digital trace.

POSSIBLE CHOICES: **ENABLE**

DISABLE

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
DIGITAL	**OFF POSITN**	◆◆♣♣

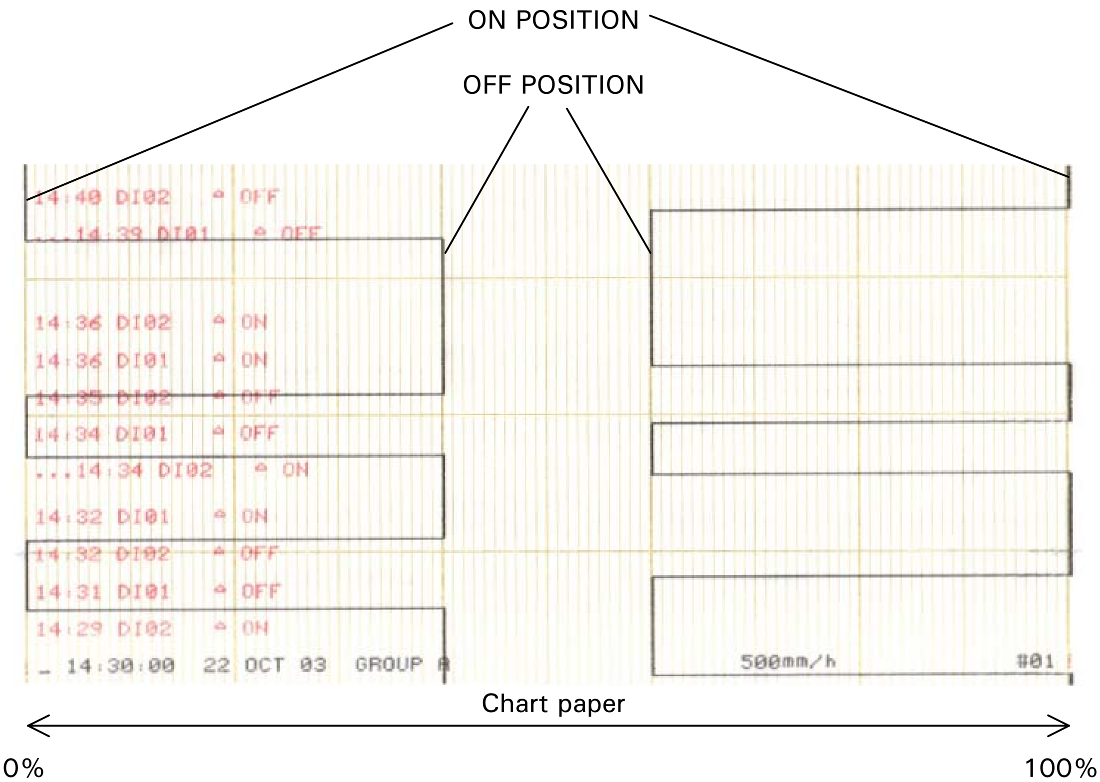
DEFINITION: Defines the trace position (DI = OFF) on the chart. (in %)
One increment = 1%.

EXAMPLE: See example on next page.

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
DIGITAL	**ON POSITN**	◆◆♣♣

DEFINITION: Defines the trace position (DI = OFF) on the chart. (in %)
One increment = 1%.

EXAMPLE:



SUB-MATRIX	PARAMETER	CLASSIFICATION
DIGITAL	**TRACE COLOR**	◆♣♣

DEFINITION: Defines the color of the digital trace.

HOW TO MODIFY IT: Select a new color.

POSSIBLE CHOICES:
BLACK
BLUE
PURPLE
GREEN
BROWN
RED

SUB-MATRIX	PARAMETER	CLASSIFICATION
DIGITAL	**RED IN AL**	◆◆♣♣

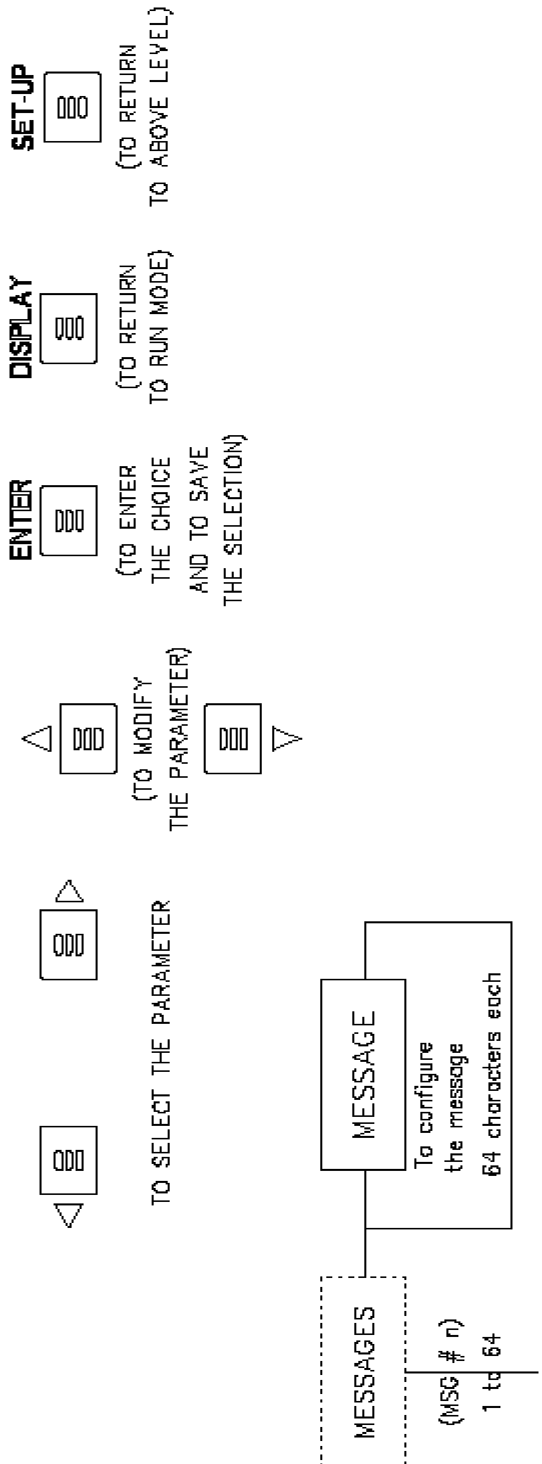
DEFINITION: Specifies if the digital input trace will be printed in red with digital action.

HOW TO MODIFY IT: Select a new value.

POSSIBLE CHOICES: **NO**

YES

NOTICE If **RED IN AL** is selected: do not configure the trace in red as normal printing.


SET-UP
(TO RETURN
TO ABOVE LEVEL)
DISPLAY
(TO RETURN
TO RUN MODE)
ENTER
(TO ENTER
THE CHOICE
AND TO SAVE
THE SELECTION)
(TO MODIFY
THE PARAMETER)
TO SELECT THE PARAMETER
MESSAGES
(MSG # n)
1 to 64
MESSAGE
To configure
the message
64 characters each

SUB – MATRIX

MESSAGES

Configuration of customer messages

PARAMETER

MESSAGE

page 4-58

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
MESSAGES	**MESSAGE**	◆♣

DEFINITION: To configure the messages (1 to 64).

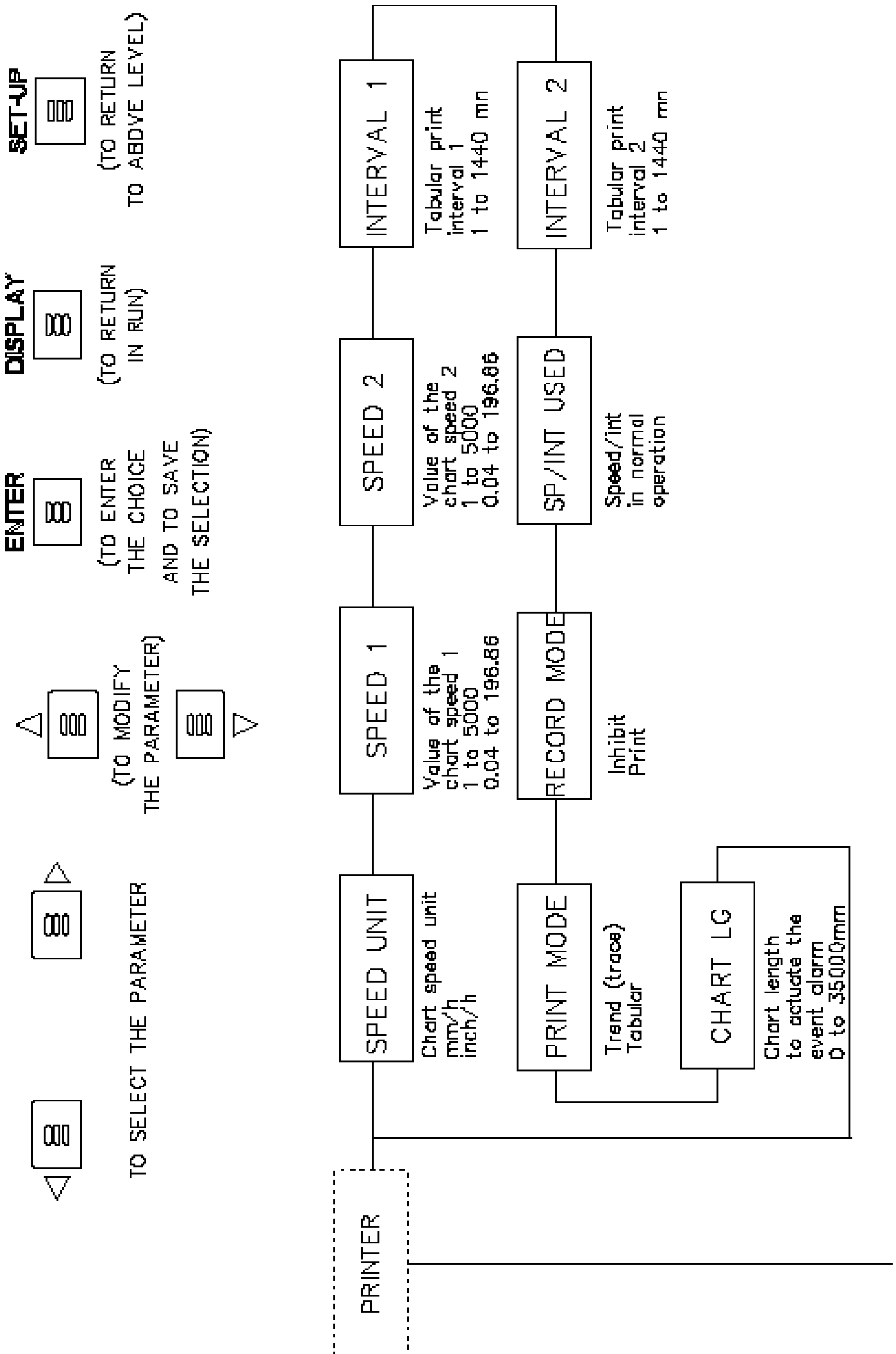
HOW TO MODIFY IT: Enter text digit by digit with the ▲ and ▼ keys

POSSIBLE CHOICES: **64 alpha numerical characters**

NOTICE

If the message is larger than 64 characters, the last digit takes the place of the first one, giving a wrong message

NOTE: Configuration of message 1 when used with the tabular printout will create a header message (This is for software version AM or later). The frequency of the message being printed is determined via the chart documentation print interval.


SET-UP
(TO RETURN TO ABOVE LEVEL)
DISPLAY
(TO RETURN IN RUN)
ENTER
(TO ENTER THE CHOICE AND TO SAVE THE SELECTION)
(TO MODIFY THE PARAMETER)
TO SELECT THE PARAMETER
PRINTER
SPEED UNIT
Chart speed unit mm/h inch/h
SPEED 1
Value of the chart speed 1 1 to 5000 0.04 to 196.86
SPEED 2
Value of the chart speed 2 1 to 5000 0.04 to 196.86
INTERVAL 1
Tabular print interval 1 1 to 1440 mn
PRINT MODE
Trend (trace) Tabular
RECORD MODE
Inhibit Print
SP/INT USED
Speed/int in normal operation
INTERVAL 2
Tabular print interval 2 1 to 1440 mn
CHART LG
Chart length to actuate the event alarm 0 to 35000mm

SUB – MATRIX

PRINTER

Configuration of the printer operation.

PARAMETERS

SUB-MATRIX	PARAMETER	CLASSIFICATION
PRINTER	**SPEED UNIT**	◆◆♣

DEFINITION: Speed unit

HOW TO MODIFY IT: Select a new value.

POSSIBLE CHOICES:

UNIT = mm/h
or
UNIT = inch/h

NOTE: When the unit is switched from mm/h to inch/h or reverse the chart speed 1 and 2 are converted to the nearest value.

.

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
PRINTER	**SPEED 1**	◆♣

DEFINITION: Value of speed 1 when PRINT MODE is TREND.

HOW TO MODIFY IT: Enter a numeric value based on speed unit selected.

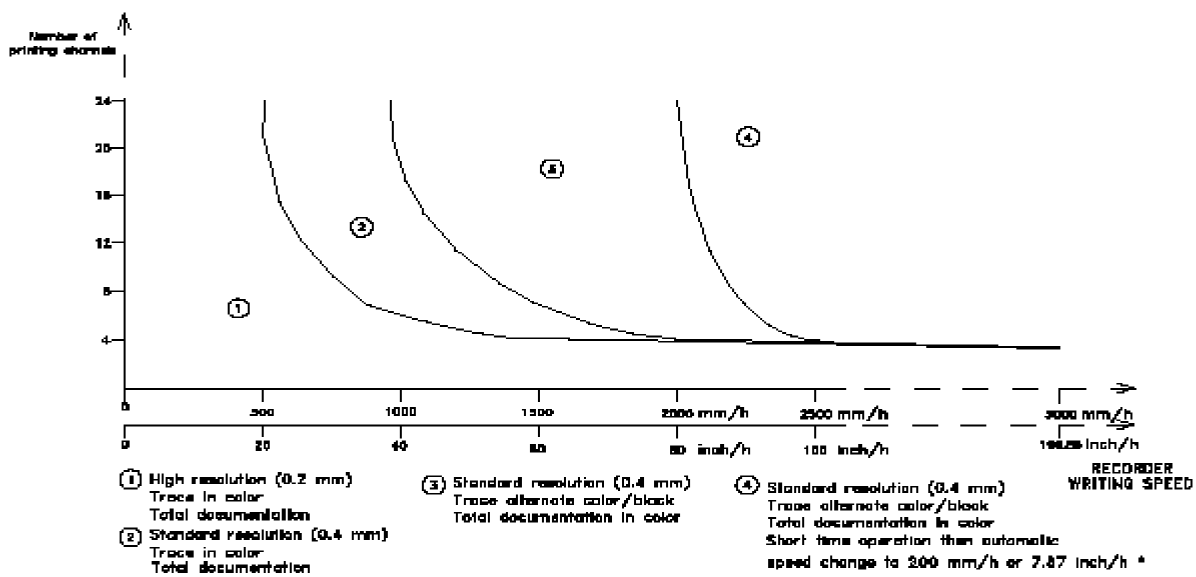
POSSIBLE CHOICES:
With mm/h unit:
[1 ... 5000]
or
With inch/h unit:
[0.04 ... 196.86]

Refer to **SPEED UNIT** to know the speed unit in use.

NOTICE

The following elements may affect the printing performances:
- A fast chart speed.
- A large span printing
- Color arrangements printing

(See chart below for typical worst case)



* The return to the configured speed can be done by executing a PRT INHIBIT or by switching the recorder off and on or by changing the configuration mode, see page 4-2.

SUB-MATRIX	PARAMETER	CLASSIFICATION
PRINTER	**SPEED 2**	◆♣

DEFINITION: Value of speed 2.

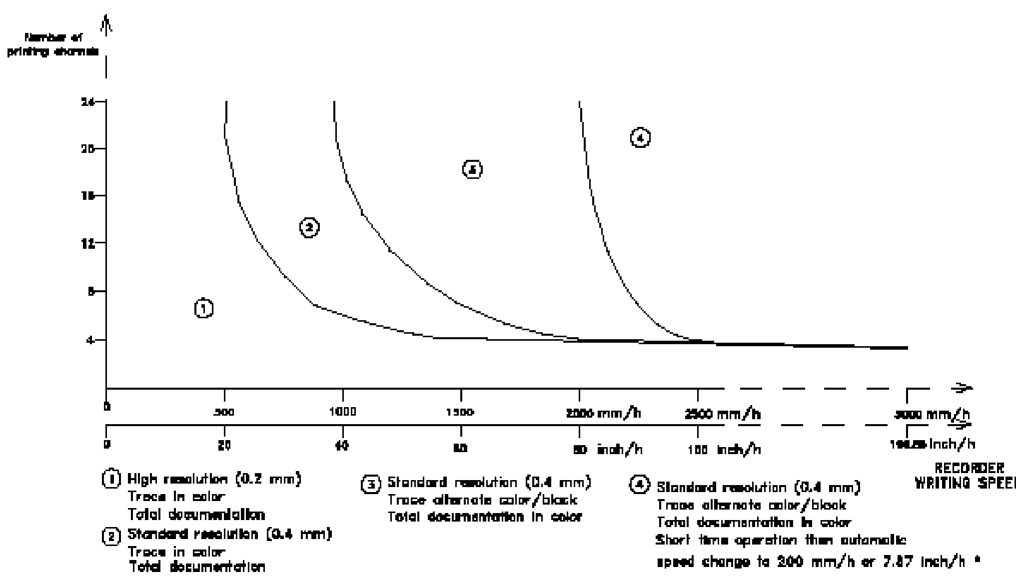
HOW TO MODIFY IT: Enter a numeric value based on speed unit selected.

POSSIBLE CHOICES:
With mm/h unit:
[1 ... 5000]
or
With inch/h unit:
[0.04 ... 196.86]

Refer to **SPEED UNIT** to know the speed unit in use.

NOTICE

The following elements may affect the printing performances:
- A fast chart speed.
- A large span printing
- Color arrangements printing
(See chart below for typical worst case)



The return to the configured speed can be done by executing a PRT INHIBIT or by switching the recorder off and on or by changing the configuration mode, see page 4-2.

SUB-MATRIX	PARAMETER	CLASSIFICATION
PRINTER	**INTERVAL 1**	◆♣

DEFINITION: Tab 1 prints interval. (In minutes)

HOW TO MODIFY IT: Select a new time.

POSSIBLE CHOICES: **to 1440 minutes**

SEE ALSO: **PRINT MODE** in this sub-matrix.

SUB-MATRIX	PARAMETER	CLASSIFICATION
PRINTER	**INTERVAL 2**	◆♣

DEFINITION: Tab 2 prints interval. (In minutes)

HOW TO MODIFY IT: Select a new time.

POSSIBLE CHOICES: **to 1440 minutes**

SEE ALSO: **PRINT MODE** in this sub-matrix.

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
PRINTER	**SP / INT USED**	◆♣

DEFINITION: Defines speed in use in alarm off.

HOW TO MODIFY IT: Select a new speed.

POSSIBLE CHOICES:

SPEED 1

SPEED 2

NOTE: If printing mode (**PRINT MODE**) is TABULAR**, SPEED 1, SPEED 2** is understood to be **INTERVAL 1, INTERVAL 2.**

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
PRINTER	**RECORD MODE**	◆◆♣♣

DEFINITION: Recording mode allows you to print normally or to stop the printer.

HOW TO MODIFY IT: Select a new value.

POSSIBLE CHOICES:

INHIBIT

PRINT

NOTICE The selection of **INHIBIT** takes priority over **PRINT INHIBIT** requested on **ALARM** or with **BASIC ACTIONS**.

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
PRINTER	**PRINT MODE**	◆◆♣♣

DEFINITION: Under this heading you must choose whether recording will be in **TREND** mode or **TABULAR** mode.

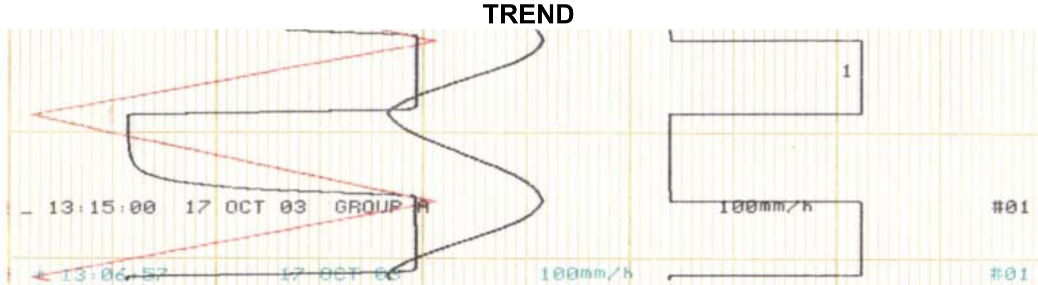
HOW TO MODIFY IT: Select a new printing mode.

POSSIBLE CHOICES:
TREND: All channels recorded as trends.
TABULAR: All channels recorded in tabular format.
TREND WITH HEADING: All channels recorded as trends and in tabular form.

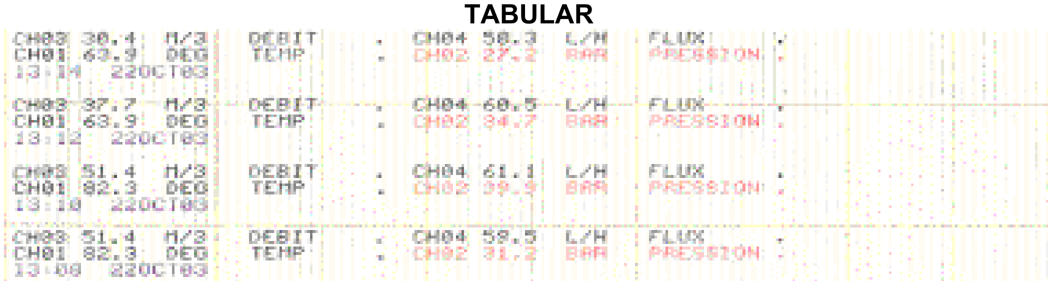
NOTE: In tabular mode, you define the time interval between 2 print-outs (chart speed being defined in trend mode).
In trend with heading mode, the header needs to be specified in message number one. The frequency that header info appears on the tabualr chart can be adjusted by chart-doc print interval.

EXAMPLE:

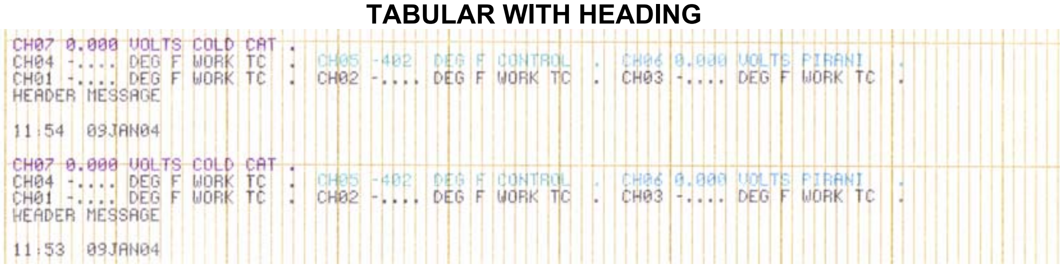
TREND



TABULAR



TABULAR WITH HEADING



SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
PRINTER	**CHART LG**	◆♣

DEFINITION:

Specifies the chart length of the chart roll or fanfold which actuates the event alarm.
This is used with the recorder **EVENTS** to signal when the chart paper has reached the pre-configured chart length.

HOW TO MODIFY IT:

Enter length value chart.

POSSIBLE CHOICES:

[0...35000] mm

[0...1378] inch

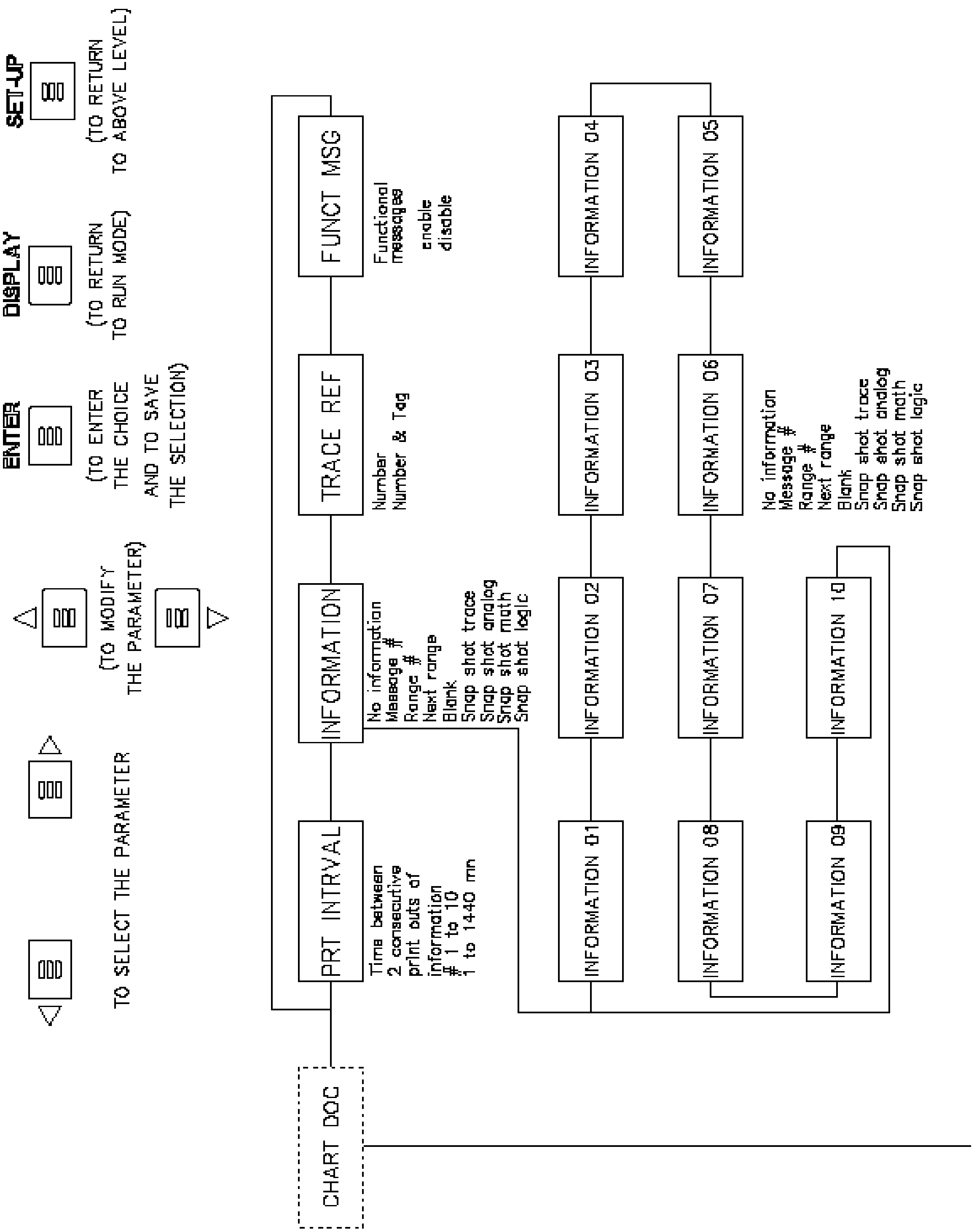
Refer to SPEED UNIT in this matrix to know the unit in use. (See page 4-61)

SEE ALSO:

EVENT TYPE in **EVENTS** sub-matrix. (See page 4-85)

NOTICE

The maximum length value of chart paper is 35 m. (115 ft.)



TO SELECT THE PARAMETER
(TO MODIFY
THE PARAMETER)
ENTER
(TO ENTER
THE CHOICE
AND TO SAVE
THE SELECTION)
DISPLAY
(TO RETURN
TO RUN MODE)
SET-UP
(TO RETURN
TO ABOVE LEVEL)
CHART DOC
PRT INTRVAL
Time between
2 consecutive
print outs of
information
1 to 10
1 to 1440 mn
INFORMATION
No information
Message #
Range #
Next range
Blank
Snap shot trace
Snap shot analog
Snap shot math
Snap shot logic
TRACE REF
Number
Number & Tag
FUNCT MSG
Functional
messages
enable
disable
INFORMATION 01
INFORMATION 02
INFORMATION 03
INFORMATION 04
INFORMATION 05
INFORMATION 06
No information
Message #
Range #
Next range
Blank
Snap shot trace
Snap shot analog
Snap shot math
Snap shot logic
INFORMATION 07
INFORMATION 08
INFORMATION 09
INFORMATION 10

SUB – MATRIX

CHART DOC

Configuration of periodic chart information

PARAMETERS

SUB-MATRIX	PARAMETER	CLASSIFICATION
CHART DOC	**PRT INTERVAL**	◆♣

DEFINITION: Separation between two consecutive information print outs # 1 to 10 printed on the chart.

HOW TO MODIFY IT: Select a new printing interval.

POSSIBLE CHOICES: **[1 ... 1440] mn**
mn = minute

NOTICE

Printing **CHART DOC** is printed over the **TRACE**.
When **SPEED** is too slow and **PRT INTRVAL** is too short, the **PRT INTRVAL** is automatically adapted to have messages printed just one after the other.

Select the chart speed to be able to print all documentation during the selected time

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
CHART DOC	**INFORMATION 01, …10**	◆◆♣

DEFINITION: Next information is printed at a distance which depends on **PRT INTRVAL** value and print speed.

HOW TO MODIFY IT: Select a new value.

POSSIBLE CHOICES:

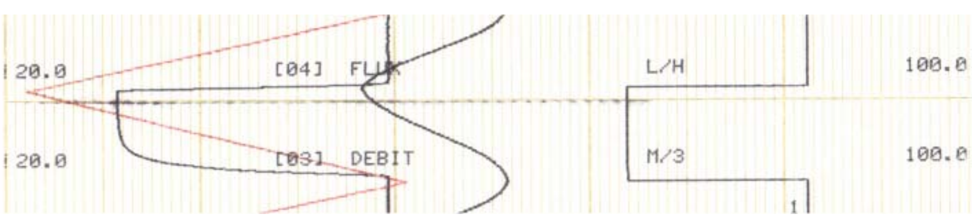
NO INFORMATION: Jump to next information
MESSAGE # i (i = 1 ... 64)
RANGE # i and chart certification * : Specific chart number
NEXT RANGE
BLANK: No printed information
SNAP SHOT TRACE: Trace snapshot of selected printing traces
SNAP SHOT ANALOG
SNAP SHOT MATH: Table of maths results
SNAP SHOT LOGIC

* If **"SUB DIV"** in the **CHART** sub-matrix is different from **NO DIVISION**, 2 lines are printed.

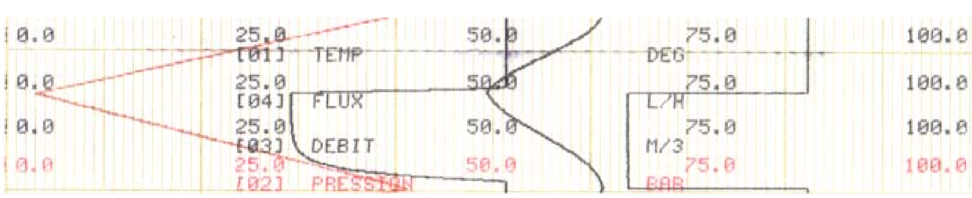
EXAMPLES:

RANGE # i and chart certification. To jump to a specific range #. Ranges are printed with the same color as the corresponding traces.

(NO DIVISIONS)



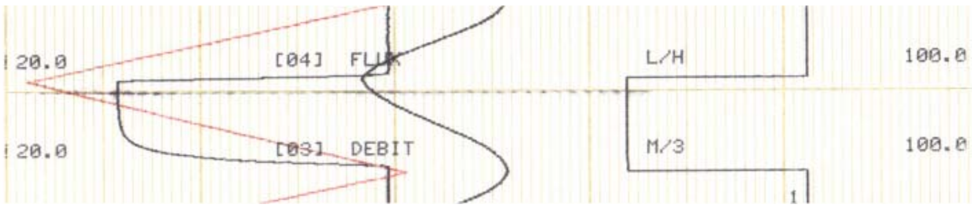
(SUB DIVISIONS)



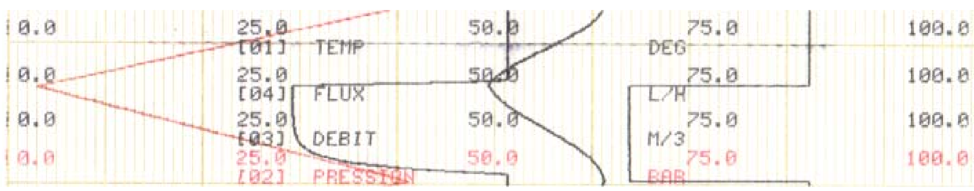
SUB-MATRIX	PARAMETER	CLASSIFICATION
CHART DOC	**INFORMATION 01, …10**	◆♣

EXAMPLE: **NEXT RANGE** prints the next range # with chart certification

(NO DIVISIONS)



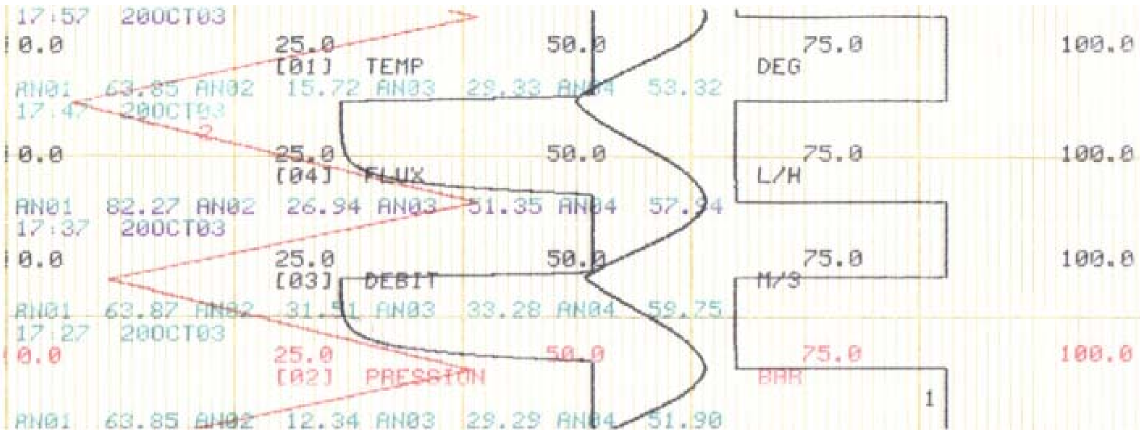
(SUB DIVISIONS)



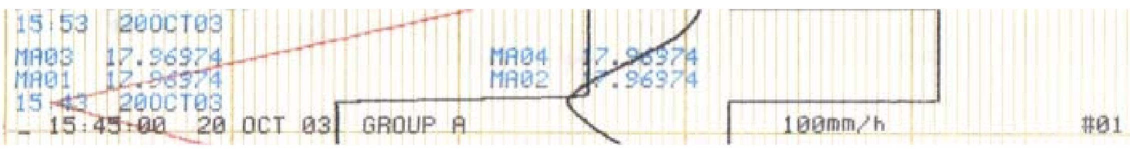
SNAP SHOT

Messages are printed in sequenced colors in order to improve the life expectancy of the printing ribbon.

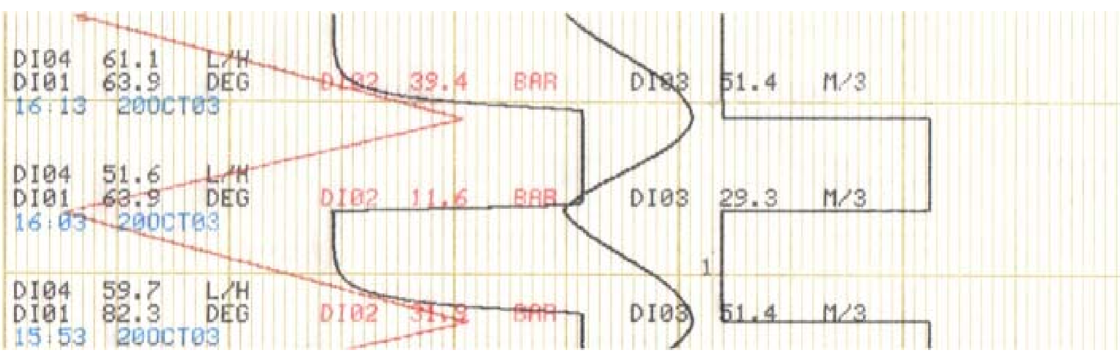
SNAP SHOT ANALOG



SNAP SHOT MATH



SNAP SHOT LOGIC



CAUTION: **DATE, TIME, SPEED, ID: Periodic printing not configurable.**

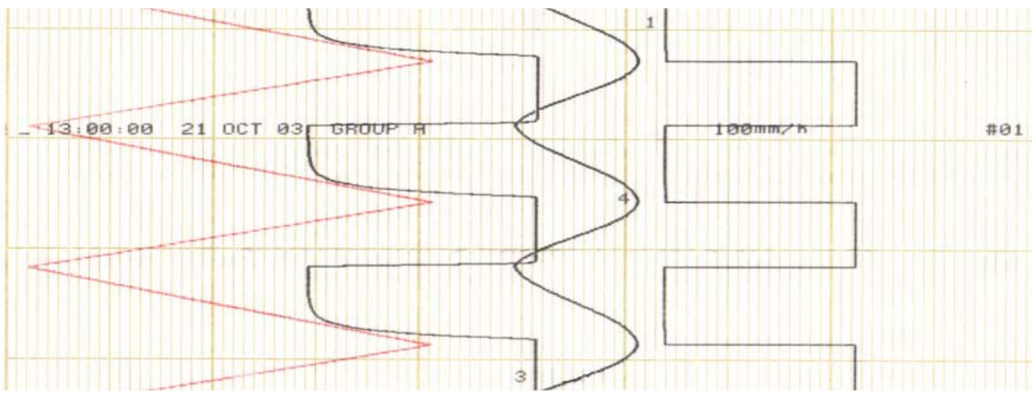
SUB-MATRIX	PARAMETER	CLASSIFICATION
CHART DOC	**TRACE REF**	◆♣

DEFINITION: Specifies whether a number or number plus tag name is printed along side the trace to identify the channel.

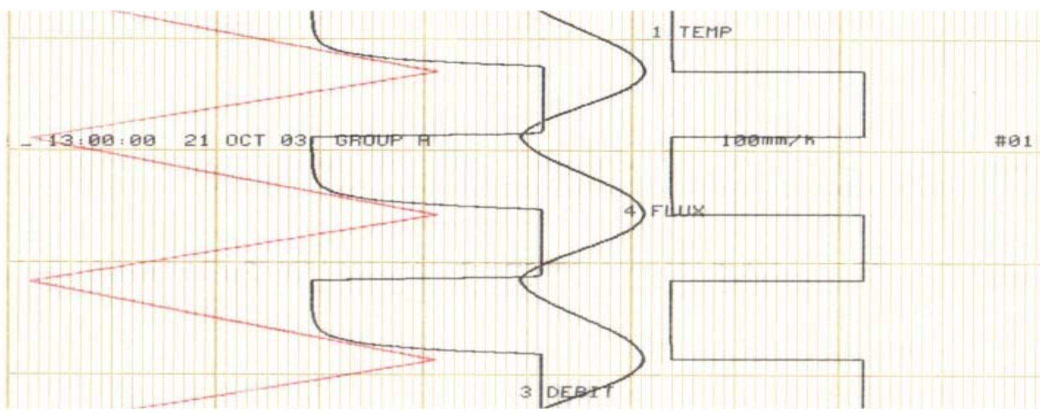
POSSIBLE CHOICES: **NUMBER:** Channel number only

NUMBER & TAG: Channel number & tag name

EXAMPLES:



Number only



Number + Tag

NOTE: The trace reference is printed periodically and sequentially

SUB-MATRIX	PARAMETER	CLASSIFICATION
CHART DOC	**FUNCT MSG**	◆♣

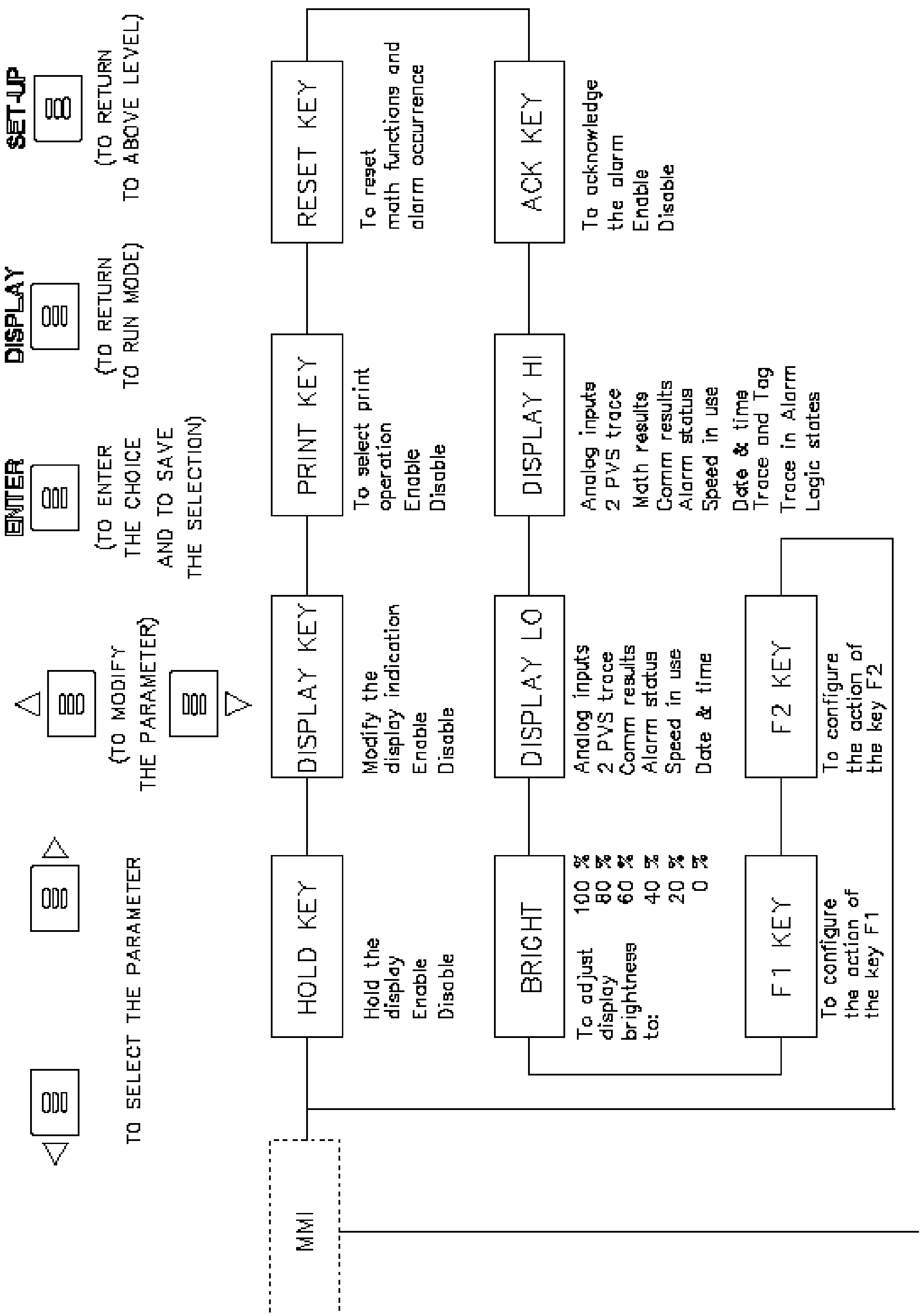
DEFINITION:

Change range, change speed, change group and print inhibit messages are the functional messages of the recorder.
The **FUNCT MSG** parameter allows the customer to select whether to print these messages on the paper.

POSSIBLE CHOICES:

ENABLE

DISABLE


TO SELECT THE PARAMETER
(TO MODIFY
THE PARAMETER)
ENTER
(TO ENTER
THE CHOICE
AND TO SAVE
THE SELECTION)
DISPLAY
(TO RETURN
TO RUN MODE)
SET-UP
(TO RETURN
TO ABOVE LEVEL)
MMI
HOLD KEY
Hold the
display
Enable
Disable
DISPLAY KEY
Modify the
display indication
Enable
Disable
PRINT KEY
To select print
operation
Enable
Disable
RESET KEY
To reset
math functions and
alarm occurrence
BRIGHT
To adjust
display
brightness
to:
100 %
80 %
60 %
40 %
20 %
0 %
DISPLAY LO
Analog inputs
2 PVS trace
Comm results
Alarm status
Speed in use
Date & time
DISPLAY HI
Analog inputs
2 PVS trace
Math results
Comm results
Alarm status
Speed in use
Date & time
Trace and Tag
Trace in Alarm
Logic states
ACK KEY
To acknowledge
the alarm
Enable
Disable
F1 KEY
To configure
the action of
the key F1
F2 KEY
To configure
the action of
the key F2

SUB – MATRIX

MMI

Configuration of key actions and display of operations

PARAMETERS

See page 3-1 for diagram of key location.

SUB-MATRIX	PARAMETER	CLASSIFICATION
MMI	**HOLD KEY**	◆♣

DEFINITION: To enable the Hold key so the operator can modify the display scanning from the keyboard and hold the upper display on a desired channel.

HOW TO MODIFY IT: Choose a new selection.

POSSIBLE CHOICES: **ENABLE**

DISABLE

NOTE: The possible actions are:
- Scan
- Hold: Stops the scanning of the upper display on the current channel.

Use the keys ▲ or ▼ to change the channel number shown on the upper display.

SEE ALSO: SECTION 3.5 " OPERATOR INITIATED ACTIONS"

SUB-MATRIX	PARAMETER	CLASSIFICATION
MMI	**DISPLAY KEY**	◆♣

DEFINITION: To enable the display key so the operator can modify the display from the keyboard.

HOW TO MODIFY IT: Choose a new selection.

POSSIBLE CHOICES: **ENABLE**

DISABLE

NOTE: This key gives access to the different configuration. For each display the possible indications are the same as the configuration of **DISPLAY HI, DISPLAY LO** Parameters.

SEE ALSO: SECTION 3.5 " OPERATOR INITIATED ACTIONS"

SUB-MATRIX	PARAMETER	CLASSIFICATION
MMI	**PRINT KEY**	◆♣

DEFINITION: To enable the printer key so the operator can modify the display from the keyboard.

HOW TO MODIFY IT: Choose a new selection.

POSSIBLE CHOICES:
ENABLE
DISABLE

NOTE: If **ENABLE** is selected, you may choose one or more of the following actions:

INHIBIT or **PRINTING**
RESET PAPER LENG
SPEED/INT 2 or **SPEED/INT 1**
PRINT DATE&TIME
SNAP SHOT TRACE
CHART ADVANCE
CHG GROUP B or **CHG GROUP A**
CHG GROUP A+B or **CHG GROUP B**
SNAP SHOT LOGIC
SNAP SHOT MATH
START ARCHIVE or **STOP ARCHIVE**
REMOVE PCMCIA

SEE ALSO: SECTION 3.5 " OPERATOR INITIATED ACTIONS"

SUB-MATRIX	PARAMETER	CLASSIFICATION
MMI	**RESET KEY**	◆♣

DEFINITION: To reset the maths functions or alarm occurrence.

HOW TO MODIFY IT: Choose a new selection.

POSSIBLE CHOICES:
ENABLE
DISABLE

NOTE: The possible actions are:
- RESET MATH #
- RESET ALL MATHS
- RESET OCCURRENCE
- RESET ALL OCCUR
- RESET PCMCIA

SUB-MATRIX	PARAMETER	CLASSIFICATION
MMI	**ACK KEY**	◆♣

DEFINITION: To release ALL energized alarms that have **ACKNOWLEDGE** enabled in **ALARM** and **DIGITAL** sub-matrices.

HOW TO MODIFY IT: Choose a new selection.

POSSIBLE CHOICES:
ENABLE
DISABLE

NOTE: See sub-matrices:
ALARM, DIGITAL in **ACK KEY** parameter.

SUB-MATRIX	PARAMETER	CLASSIFICATION
MMI	**DISPLAY HI**	◆♣

DEFINITION: Type of information displayed on the upper line of the display in the run mode at power on.

HOW TO MODIFY IT: Choose a new selection.

POSSIBLE CHOICES:

Displayed messages:	Explanation:
ANALOG INPUTS	: Display the analog inputs configured
2 PVS TRACE	: 2 consecutive channel traces are displayed on the same display line
MATH RESULTS*	: Display maths results
COMM RESULTS	: Display communication channels
ALARM STATUS	: Display alarm states
SPEED IN USE	: Display the chart speed in use
DATE & TIME	: Display the date and time
TRACE & TAG*	: For all traces configured on the display # 1, display the tag name, and on the display # 2 the value, the unit and the alarm associated
TRACE IN ALARM*	: Display the states of alarm associated for all traced channels
LOGIC STATES*	: Display states

NOTE: *This parameter uses both the upper and the lower displays.

SEE ALSO: SECTION 3.5 " OPERATOR INITIATED ACTIONS"

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
MMI	**DISPLAY LO**	◆♣

DEFINITION: Type of information displayed on the lower line of the display in the run mode at power on.

HOW TO MODIFY IT: Choose a new selection.

POSSIBLE CHOICES:

Displayed messages:	**Explanation:**
ANALOG INPUTS	: Display the analog inputs configured
2 PVS TRACE	: 2 consecutive channels traces are displayed on the same display line
COMM RESULTS	: Display communication channels
ALARM STATUS	: Display alarm states
SPEED IN USE	: Display of chart speed in use
DATE & TIME	: Display of date and time

NOTE: If the selection is the same choice for the 2 displays, displays 1 and 2 are consecutive.

SEE ALSO: SECTION 3.5 " OPERATOR INITIATED ACTIONS"

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
MMI	**BRIGHT**	◆♣

DEFINITION: To modify the display brightness during operation.

HOW TO MODIFY IT: Choose a new selection. Press the key until the display indicates the right value. Then press **ENTER**.

POSSIBLE CHOICES:

OFF (0%)

>> (20%)

MEDIUM (40%)

>> (60%)

>> (80%)

HIGH (100%)

SUB-MATRIX	PARAMETER	CLASSIFICATION
MMI	**F1 KEY F2 KEY**	◆♣

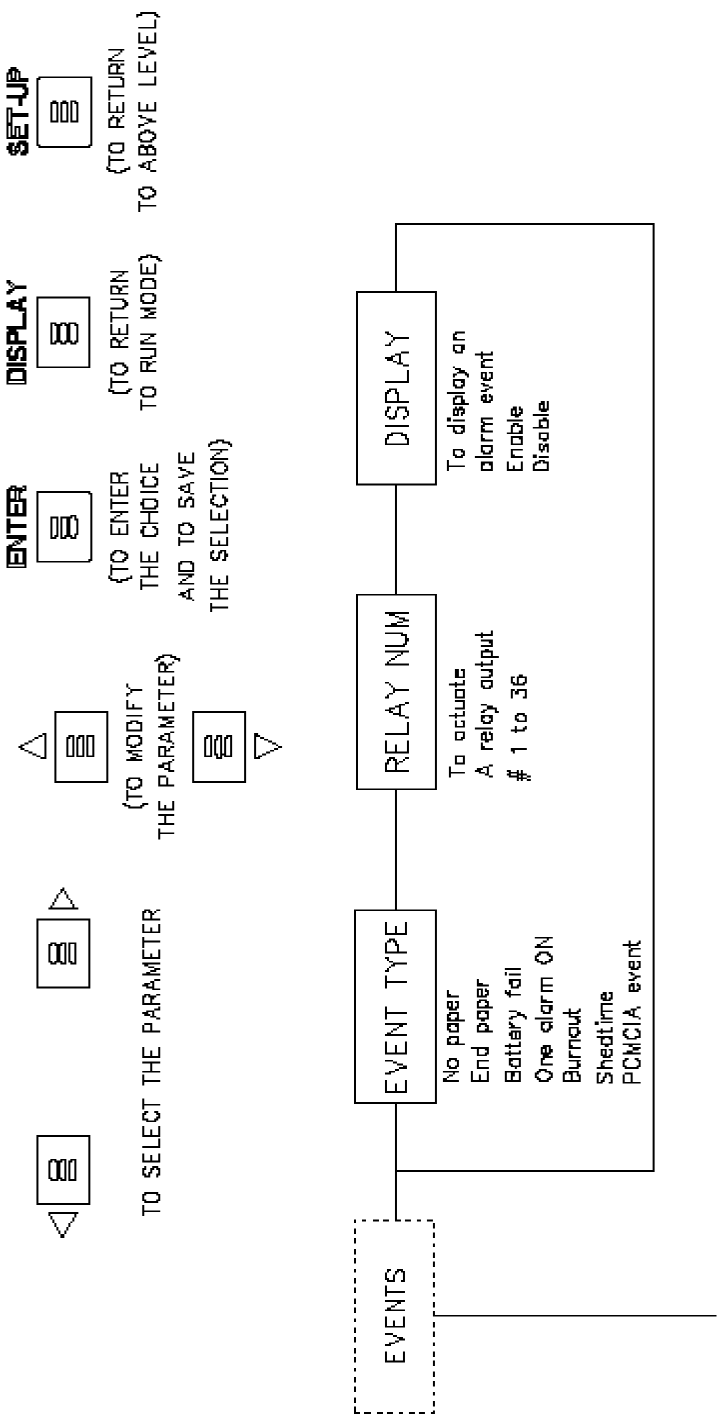
DEFINITION: Defines the action of the F1 and F2 keys in operation mode.
The user can define the action of these keys.

HOW TO MODIFY IT: . Choose a new selection.

POSSIBLE CHOICES:

Displayed messages:	**Explanation:**
UNUSED	: Unused key
INHIBIT/PRINT	: Stop the printing without data memorization or start.
RESET PAPER LENG	: Reset value of the paper length configured in the **PRINTER** sub-matrix.
CHANGE SPEED	: Change speed/int
PRINT DATE&TIME	: Print date and time
SNAP SHOT TRACE	: Print analog PV'S sequence
CHART ADVANCE	: Advance paper
CHG GROUP A	: Print group A of channels defined in **CHART** sub-matrix
CHG GROUP B	: Print group B of channels defined in **CHART** sub-matrix
CHG GROUP A+B	: Print group A+B of channels defined in **CHART** sub-matrix
SNAP SHOT LOGIC	: Print the digital inputs
SNAP SHOT MATH	: Table of maths results
START/STOP ARCHIVE	: Start or stop archiving on the PCMCIA board
REMOVE PCMCIA	: Close all PCMCIA files and allow the card extraction

SEE ALSO: SECTION 3.5 " OPERATOR INITIATED ACTIONS"



SET-UP
(TO RETURN
TO ABOVE LEVEL)
DISPLAY
(TO RETURN
TO RUN MODE)
ENTER
(TO ENTER
THE CHOICE
AND TO SAVE
THE SELECTION)
(TO MODIFY
THE PARAMETER)
TO SELECT THE PARAMETER
EVENTS
EVENT TYPE
No paper
End paper
Battery fail
One alarm ON
Burnout
Shedtime
PCMCIA event
RELAY NUM
To actuate
A relay output
1 to 36
DISPLAY
To display an
alarm event
Enable
Disable

SUB – MATRIX

EVENTS

Configuration of recorder events

PARAMETERS

SUB-MATRIX	PARAMETER	CLASSIFICATION
EVENTS	**EVENT TYPE**	

DEFINITION: Type of recorder event.

HOW TO MODIFY IT: No selection. Parameter cannot be modified, you can only select whether you want to display this Event condition or send the action to relay output.

POSSIBLE CHOICES:

Displayed messages:	Explanation:
EV 01 **NO PAPER**	The recorder has detected no chart paper
EV 02 **END PAPER**	End of the paper length configured in the **PRINTER** matrix
EV 03 **BATTERY FAIL**	The recorder battery has failed
EV 04 **ONE ALARM ON**	There is at least one alarm on
EV 05 **BURNOUT**	There is at least one channel in the recorder burnout
EV 06 **SHEDTIME**	Communication time expired (configured in the communication sub-matrix). See Communication Manual.
EV 07 **PCMCIA EVENT**	PCMCIA board is FULL, BAD or NOT INITIALIZED. (See PCMCIA Option Manual).

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
EVENTS	**RELAY NUM**	◆◆♣♣

DEFINITION: Selection of relay activated for each event condition.

HOW TO MODIFY IT: Select a new relay number.

POSSIBLE CHOICES:

NO RELAY

RELAY # i (i = 1 ... 48)

SEE ALSO: Parameter **RELAY NUM** in sub-matrix **ALARM** and **DIGITAL.**

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
EVENTS	**DISPLAY**	◆♣

DEFINITION: Enable/disable a display indication of the event occurrence.

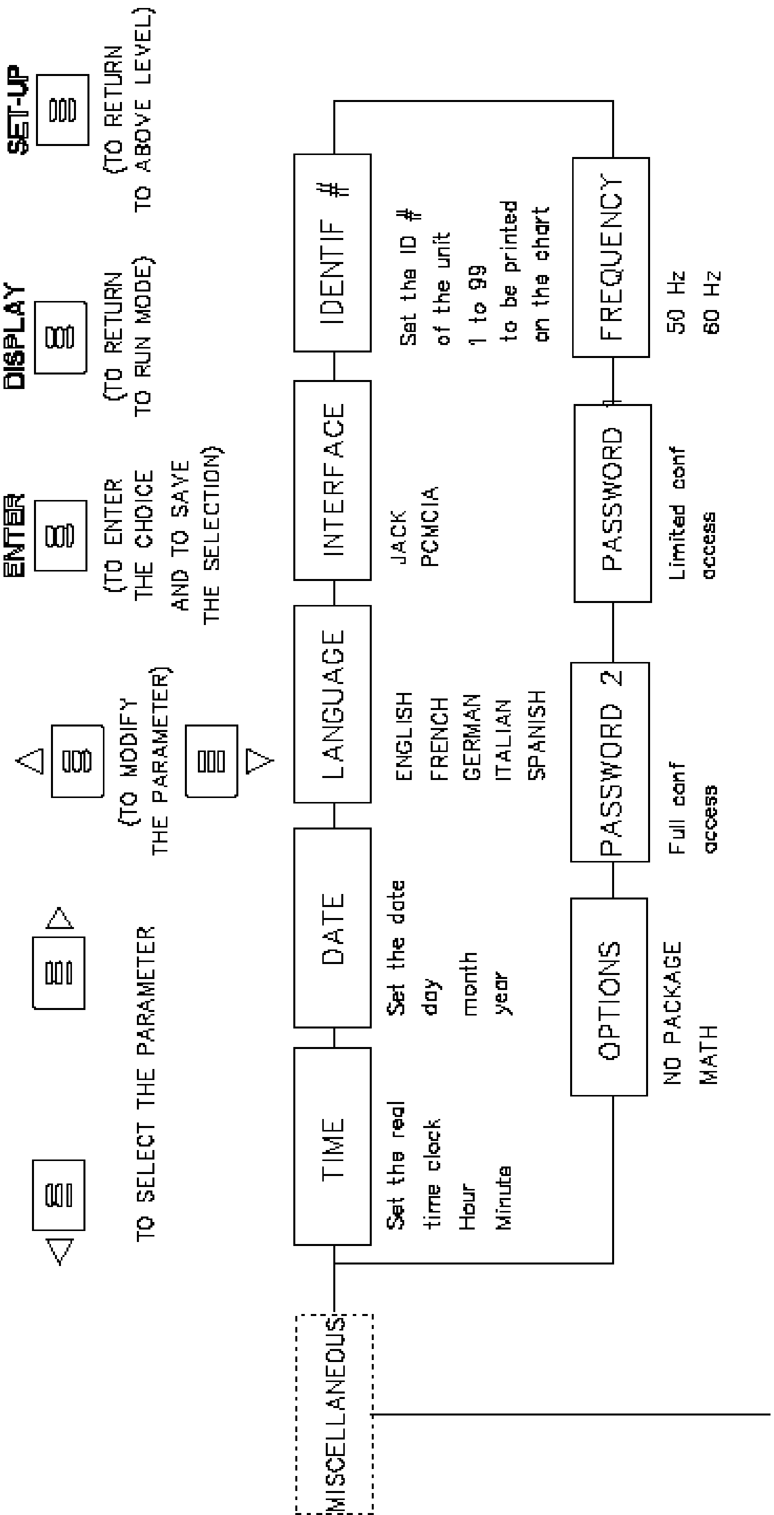
HOW TO MODIFY IT: Choose a new selection.

POSSIBLE CHOICES:

ENABLE

DISABLE

SEE ALSO: The burnout event cannot be displayed for sensors and ranges with "Fixed Burnout". (See **ANALOG** sub-matrix, **BURNOUT** parameter.)


TO SELECT THE PARAMETER
(TO MODIFY THE PARAMETER)
ENTER
(TO ENTER THE CHOICE AND TO SAVE THE SELECTION)
DISPLAY
(TO RETURN TO RUN MODE)
SET-UP
(TO RETURN TO ABOVE LEVEL)
MISCELLANEOUS
TIME
Set the real time clock
Hour
Minute
DATE
Set the date
day
month
year
LANGUAGE
ENGLISH
FRENCH
GERMAN
ITALIAN
SPANISH
INTERFACE
JACK
PCMCIA
IDENTIF #
Set the ID # of the unit
1 to 99
to be printed on the chart
OPTIONS
NO PACKAGE
MATH
PASSWORD 2
Full conf access
PASSWORD
Limited conf access
FREQUENCY
50 Hz
60 Hz

SUB – MATRIX

MISCELLANEOUS

PARAMETERS

SUB-MATRIX	PARAMETER	CLASSIFICATION
MISCEL	**TIME**	◆◆♣

DEFINITION: For setting the real time clock.

HOW TO MODIFY IT: Enter a new value for hour.

Then press **ENTER**

Enter a new value for minutes.

Then press **ENTER**

POSSIBLE CHOICES: **00:00 up to 23:59**

SUB-MATRIX	PARAMETER	CLASSIFICATION
MISCEL	**DATE**	◆◆♣

DEFINITION: For setting the real time clock date.

HOW TO MODIFY IT: Enter a new value for day.

Then press **ENTER**

Select a new value for month.

Then press **ENTER**

Enter a new value for year.

Then press **ENTER**

SUB-MATRIX	PARAMETER	CLASSIFICATION
MISCEL	**LANGUAGE**	◆◆♣♣

DEFINITION: Operator information and configuration language.

HOW TO MODIFY IT: Select a new language.

POSSIBLE CHOICES: **ENGLISH**

FRENCH

GERMAN

SPANISH

ITALIAN

SUB-MATRIX	PARAMETER	CLASSIFICATION
MISCEL	**INTERFACE**	◆◆♣♣

DEFINITION: Determines the owner of internal communication between PCMCIA option and JACK.

HOW TO MODIFY IT: Select a new value.

POSSIBLE CHOICES: **JACK**
PCMCIA

DEFAULT VALUE: **JACK**

NOTE: PC Configurator cannot modify this parameter.
PC Configurator is able to communicate with the recorder only if INTERFACE = JACK.

On the contrary, INTERFACE must be equal to PCMCIA if you want to store data on the PCMCIA board (if PCMCIA option is installed).

SUB-MATRIX	PARAMETER	CLASSIFICATION
MISCEL	**IDENTIF #**	◆♣

DEFINITION: Identification number of the instrument which will be printed on the chart.

HOW TO MODIFY IT: Enter a numeric value.

POSSIBLE VALUES: **[0 ... 99]**

SUB-MATRIX	PARAMETER	CLASSIFICATION
MISCEL	**FREQUENCY**	◆◆♣

DEFINITION: To select the line frequency.

HOW TO MODIFY IT: Select a new frequency.

POSSIBLE CHOICES:

50 Hz

60 Hz

NOTE: This value is important to improve serial mode rejection at supply frequency.

In case of DC power supply, use the line frequency of the country.

SUB-MATRIX	PARAMETER	CLASSIFICATION
MISCEL	**PASSWORD 1**	◆♣♣

DEFINITION: Used to provide a limited access to configuration parameters.

HOW TO MODIFY IT: Enter text.

POSSIBLE CHOICES: **8 digits max.**

SEE ALSO: See section 8.1 and the classification in section 9.1.
See section 4 for configuration matrix.

NOTE: The instrument is shipped with no configured password.
This gives a limited access to configuration. (Parameters with ♣)

NOTE: If **PASSWORD 1 = PASSWORD 2**, the password will be understood as **PASSWORD 2.**
If **PASSWORD 1 = PASSWORD 2** = a nil string, no password will be required for configuration access.

NOTICE

Do not lose your password code. If you do, contact your service department or technical assistance center.

If using the password function, both PASSWORD 1 & PASSWORD 2 are required. These can be the same or they can be different.

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
MISCEL	**PASSWORD 2**	◆♣♣

DEFINITION: Used to provide a limited access to configuration parameters.

HOW TO MODIFY IT: Enter text.

POSSIBLE CHOICES: **8 digits max.**

SEE ALSO: See section 8.1 and the classification in section 9.1.
See section 4 for configuration matrix.

NOTE: The instrument is shipped with no configured password.
This gives a limited access to configuration. (Parameters with ♣♣ or ♣)

NOTE: If **PASSWORD 2 = PASSWORD 1**, the password will be understood as **PASSWORD 2.**
If **PASSWORD 2 = PASSWORD 1** = a nil string, no password will be required for configuration access.

NOTICE

Do not lose your password code. If you do, contact your service department or technical assistance center.

If using the password function, both PASSWORD 1 & PASSWORD 2 are required. These can be the same or they can be different.

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
MISCEL	**OPTIONS**	◆♣♣

DEFINITION: Type of optional maths package.

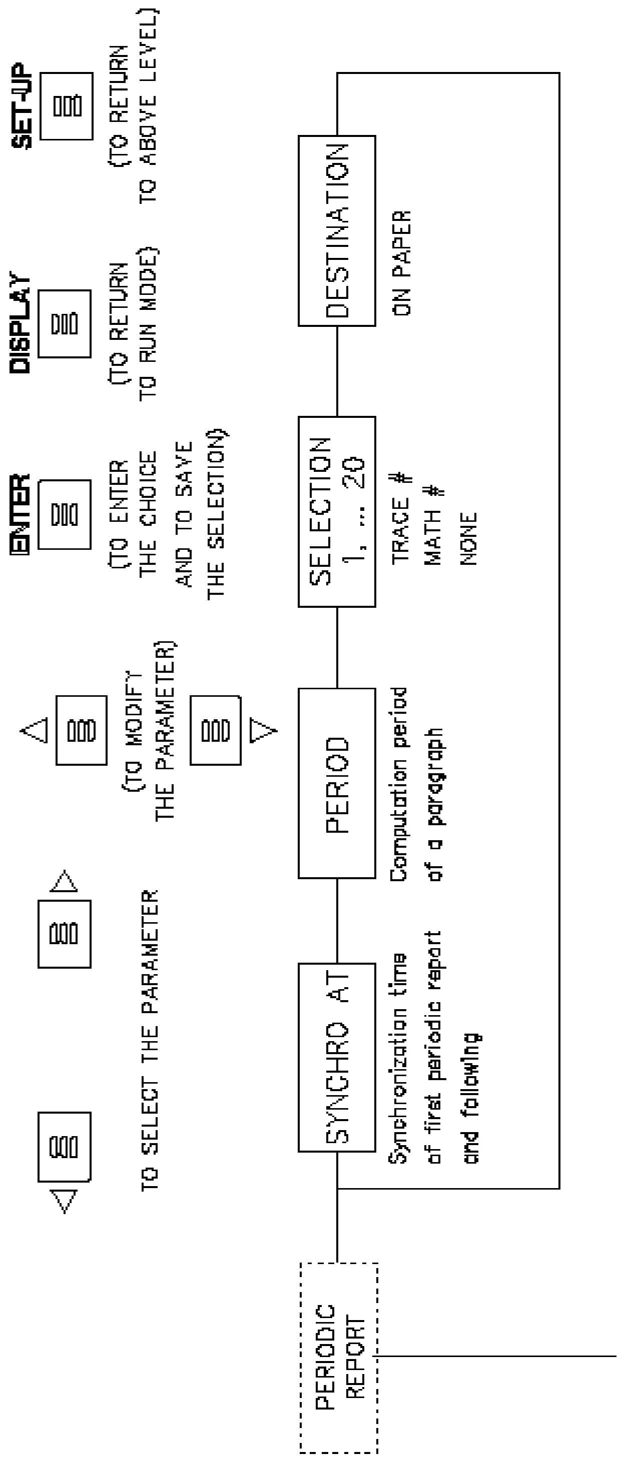
HOW TO MODIFY IT: Enter a code. **(12 capital letters max.)**

POSSIBLE CHOICES: If the entered code corresponds to the option code, the following message is displayed: **MATH**
If not, the following message is displayed: **NO PACKAGE**

SEE MATH USER'S MANUAL

SEE ALSO: This code should be delivered by your service department and is specific to this recorder.

NOTE: To obtain a new code, please indicate the full serial number (13 digits) shown in MISCELLANEOUS sub-matrix, SERIAL # parameter. (See the section 8, "SERVICE")


TO SELECT THE PARAMETER
(TO MODIFY
THE PARAMETER)
ENTER
(TO ENTER
THE CHOICE
AND TO SAVE
THE SELECTION)
DISPLAY
(TO RETURN
TO RUN MODE)
SET-UP
(TO RETURN
TO ABOVE LEVEL)
PERIODIC
REPORT
SYNCHRO AT
Synchronization time
of first periodic report
and following
PERIOD
Computation period
of a paragraph
SELECTION
1, ... 20
TRACE #
MATH #
NONE
DESTINATION
ON PAPER

SUB – MATRIX

PERIODIC REPORT

PARAMETERS

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
PERIODIC REPORT	**SYNCHRO AT**	◆◆♣♣

DEFINITION: Synchronization time of first periodic report and following.

HOW TO MODIFY IT: Enter a new value for time.

POSSIBLE CHOICES: **[0 ... 23] hours**
[0 ... 59] minutes

Default value: 00h00

PE01 SYNCHRO AT

00h00

NOTE: The periodic report will not be printed in "INHIBIT" mode.
The first periodic report will be sent when the nearest time will correspond to **[SYNCHRO AT & n(PERIOD)]** time. (accuracy: 1 second)
"n" is automatically calculated by the recorder so that the synchronization is effective
as fast as possible.
Any configuration modification that stops the acquisitions (with ◆◆ classification)
or any restart of the recorder will interrupt the current report and will begin a new
one, according to the new parameters.

EXAMPLE: 1) Current time: 13h00
Synchro at: 18h00
Period: 1.50 (1h30)
The first periodic report will be sent at 13h30.
Explanation: 13h30 = 18h00 - 3(1h30)

2) Current date and time: Friday 08/08/1997 at 13h00
Synchro at: 01h00
Period: 168 (1 week)
The first periodic report will be sent on Saturday 09/08/1997, at 01h00.

SUB-MATRIX	PARAMETER	CLASSIFICATION
PERIODIC REPORT	**PERIOD**	◆◆♣♣

DEFINITION: This parameter corresponds to the computation period of a paragraph relative to minimum, average and maximum values for each trace and maths result.

HOW TO MODIFY IT: Enter a value between 0 and 720 hours with two significant digits after the decimal point.

POSSIBLE CHOICES:
0: no periodic report
[0.25 ... 720] in hours and hundredths of hours

The chosen values are automatically corrected to the nearest whole minute to obtain the computation period.

Default value: 0.00 (00h00)

NOTE: You can choose parameters from 0.25 hour (15 mn) to 720 hours (30 days) if you want a periodic report.
If you do not want any periodic report, configure 0 in this parameter or do not select any trace or maths in the report selection parameter.

WARNING: You cannot choose parameter numbers between 0.01 and 0.24 hours.
When the recorder prints many messages (ex. CHART DOC, ALARM, DIGITAL ...), some periodic reports may not be printed.

EXAMPLE: If the entered value is 0.33, then the computation period is 20 mn.

SUB-MATRIX	PARAMETER	CLASSIFICATION
PERIODIC REPORT	**SELECTION 01, ... 20**	◆◆♣♣

DEFINITION: Defines every TRACE or MATH that will be computed in the periodic report.

HOW TO MODIFY IT: Select each TRACE or MATH you want to use in the periodic report.

POSSIBLE CHOICES:

TRACE # i (i = 1 ... 32)
MATH # i (i = 1 ... 32)
NONE

The structure of **SELECTION 01, ... 20** in the periodic report sub-matrix is similar to **INFORMATION 1, ... 10** in the CHART DOC sub-matrix.

EXAMPLE:

*** PERIODIC REPORT 14:49 21 OCT 03 ***

PE	SYNCHRO AT	PERIOD	DESTINATIO	SELECTI 01	SELECTI 02	SELECTI 03
1	00h00	0.33	ON PAPER	TRACE #01	TRACE #02	MATH #02

PE	SELECTI 04	SELECTI 05	SELECTI 06	SELECTI 07	SELECTI 08	SELECTI 09
1	TRACE #04	NONE	NONE	NONE	NONE	NONE

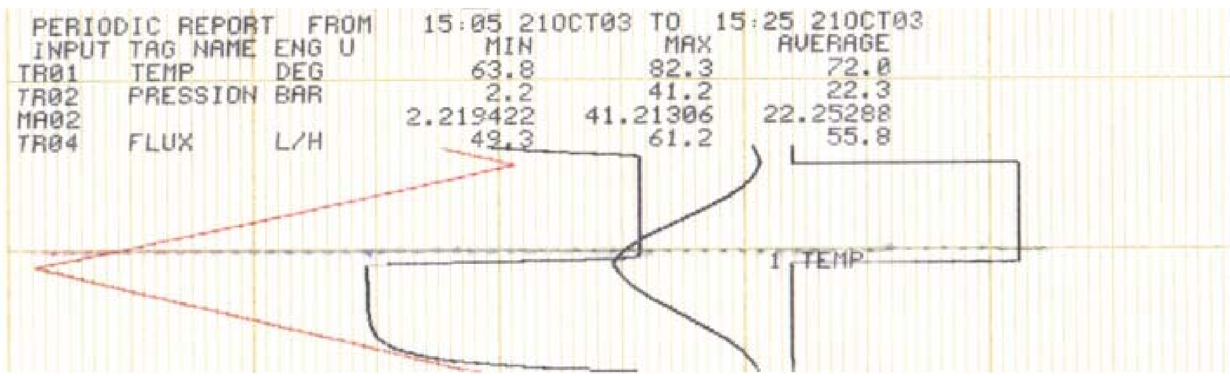
PE	SELECTI 10	SELECTI 11	SELECTI 12	SELECTI 13	SELECTI 14	SELECTI 15
1	NONE	NONE	NONE	NONE	NONE	NONE

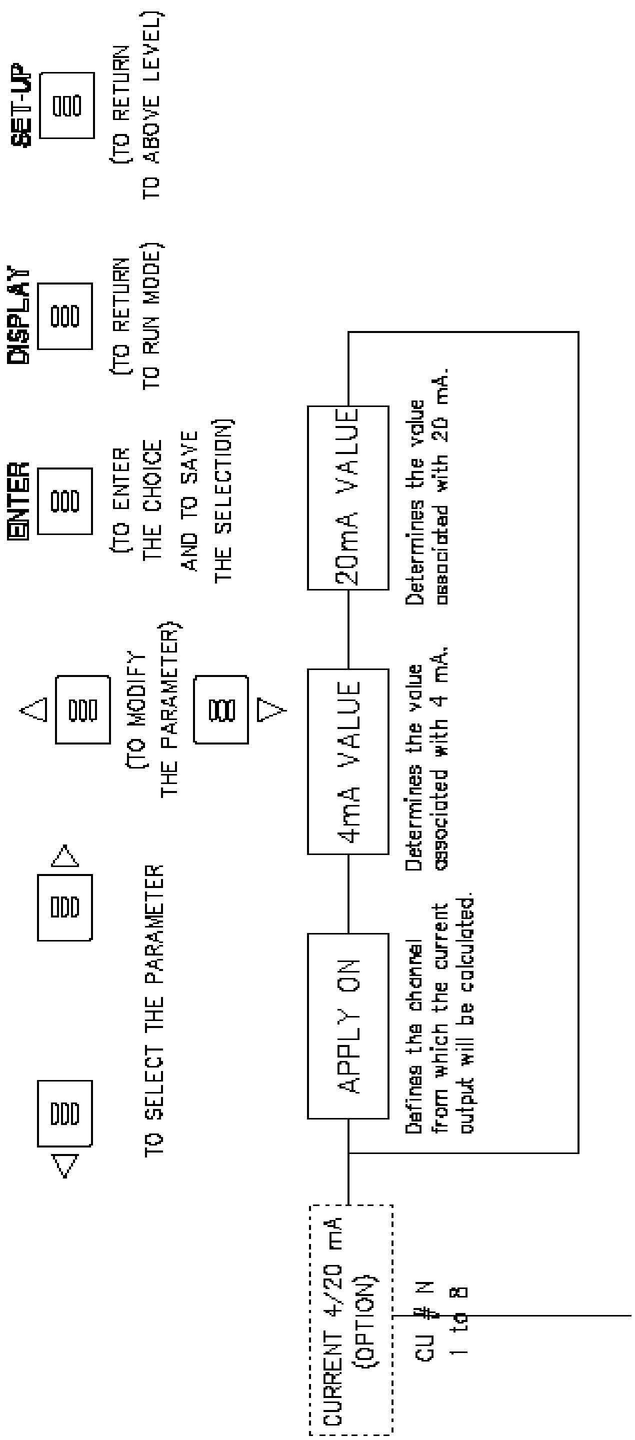
PE	SELECTI 16	SELECTI 17	SELECTI 18	SELECTI 19	SELECTI 20
1	NONE	NONE	NONE	NONE	NONE

SUB-MATRIX	PARAMETER	CLASSIFICATION
PERIODIC REPORT	**DESTINATION**	◆◆♣♣

DEFINITION: Destination where the report will be sent to.

EXAMPLE:




TO SELECT THE PARAMETER
(TO MODIFY THE PARAMETER)
ENTER
(TO ENTER THE CHOICE AND TO SAVE THE SELECTION)
DISPLAY
(TO RETURN TO RUN MODE)
SET-UP
(TO RETURN TO ABOVE LEVEL)
CURRENT 4/20 mA (OPTION)
CU # N
1 to 8
APPLY ON
Defines the channel from which the current output will be calculated.
4mA VALUE
Determines the value associated with 4 mA.
20mA VALUE
Determines the value associated with 20 mA.

SUB – MATRIX

CURRENT 4/20 mA

PARAMETERS

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
CURRENT 4/20 mA	**APPLY ON**	◆◆♣♣

DEFINITION:	Defines the channel from which the current output would be calculated.
HOW TO MODIFY IT:	Select a new variable.
POSSIBLE CHOICES:	**NONE** **ANALOG # i (i = 1 ... 64)** **MATH # i (i = 1 ... 32)** **COMM # i (i = 1 ... 32)**
DEFAULT VALUE:	**NONE**

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
CURRENT 4/20 mA	**4mA VALUE**	◆◆♣♣

DEFINITION:	Determines the value associated with 4 mA.
HOW TO MODIFY IT:	Enter a numeric value.
POSSIBLE CHOICES:	Up to 7 digits plus optional sign and decimal point (optional) according to the associated input type [-9999999 ... 9999999] 3 digits after the decimal point
DEFAULT VALUE:	-50.000

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
CURRENT 4/20 mA	**20mA VALUE**	◆◆♣♣

DEFINITION:	Determines the value associated with 20 mA.
HOW TO MODIFY IT:	Enter a numeric value.
POSSIBLE CHOICES:	Up to 7 digits plus optional sign and decimal point (optional) according to the associated input type [-9999999 ... 9999999] 3 digits after the decimal point
DEFAULT VALUE:	150.000

4.4 COPY CONFIGURATION

4.4.1 Introduction

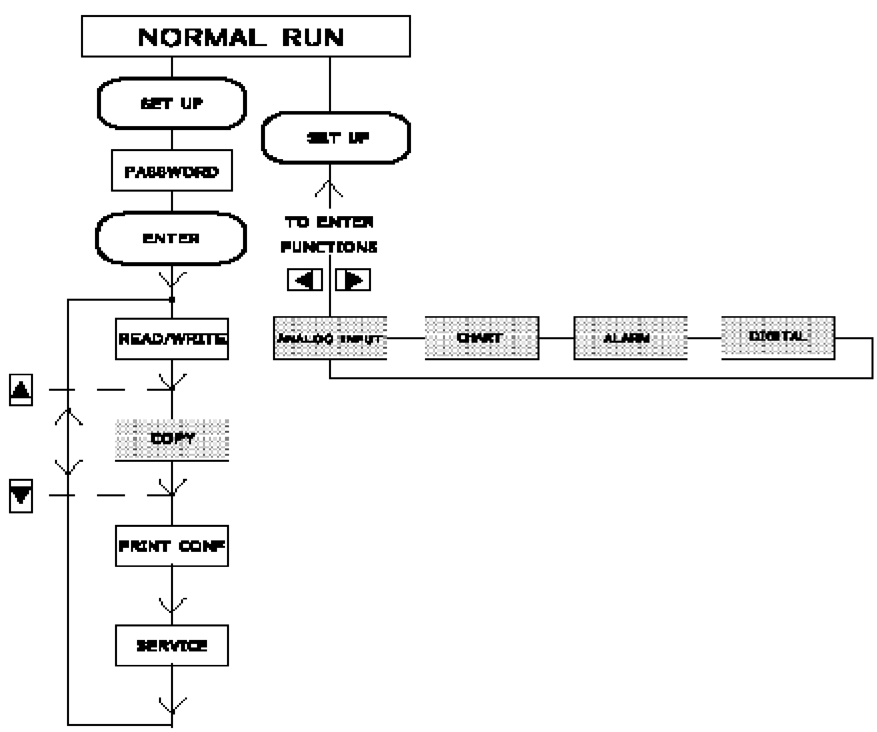
The COPY function allows you to reduce the required time to configure the recorder.
For example: If more than one channel may be connected to similar sensors with similar ranges, use the COPY function. The data you want to copy must be first selected into one line of the sub-matrix. See the following procedure.

NOTE: When entering in this mode with **PASSWORD 2** (♣♣),
ACQUISITIONS and **PRINTING** are stopped (◆◆).

4.4.2 Configuration

4.4.2.1 Function access

When the recorder is in RUN mode:
- Press SETUP to enter in CONFIGURATION mode,
- Enter your password,
- Select the COPY function with the ▲ and ▼ keys.
- Select the sub-matrix with the ◀ and ▶ keys,



4.4.2.2 Sub-matrix presentation

Each sub-matrix is shown as a table, and each column represents one parameter of the sub-matrix. See example below relative to the CHART sub-matrix.

CHANNEL #	TRACE	FORMA T	MIN RANGE 1	MAX RANGE 1		0% ZONE	100% ZONE	SUB DIV	GROUP DEF
Customer choice	A	B	C	D		L	M	N	O
1									
2									
3									
4									
24									

Each input parameter has a reference containing one letter and one number. (For example, the FORMAT parameter of the third input has the B03 reference.)
These references are used to identify the source and destination of a copy.

4.4.2.3 Procedure

- In COPY mode, select the desired sub-matrix.

COPY

CHART

Press ENTER after having selected the sub-matrix.
Press SET UP to return to RUN mode.

- To confirm the CONFIGURATION mode access

COPY CHART

CONFIRM

"CONFIRM" is blinking. Press ENTER to enter in CONFIGURATION mode
Press SET UP to return to the previous level.

- To define the left limit of the source copy block:

COPY CHART

FROM	A	0 1	O 0 1

The ▲ and ▼ keys allow you to change the letter on the first character. The character "A" on the second display is proposed by default.

NOTE: The letters of numbers (ie A01) correspond to the selection of parameters in each sub-matrix, such as for CHART "A01" is for TRACE channel #1. "B01" would be FORMAT channel #1. (Refer to section 11 "Configuration worksheet").

Press ENTER to confirm your choice and then, to define the source line of the copy.
Press SET UP to return to the initial display "COPY CHART".

For example: Choose the "B" letter instead of "A".

- To define the line source of the copy:

COPY CHART

FROM	B	0	1	O 0 1

The ◀ and ▶ keys allow you to move between both digits.
The line number proposed by default corresponds to:
- the first available hardware channel for ANALOG and DIGITAL sub-matrices
    - "01" for the other sub-matrices

Press ENTER to confirm your selection and to go to the next level.
Press SET UP to return to the previous writing level.

For example: Choose the "01" line.

- To define the right limit of the source copy block:

```
COPY CHART
```

```
FROM        B0 1    O 0 1
```

The ▲ and ▼ keys allow you to change the letter on the first character. The character "O" on the second display is proposed by default and corresponds to the last column of the sub-matrix. It can be changed between "B" (chosen at the previous level) and "O".

The ENTER key allows you to confirm your choice and to define the first destination line of the copy.
Press SET UP to return to the previous level.

For example: Choose the "N" letter.

- To define the low limit of the destination block:

```
FROM      B01        N01
```

```
TO          B 0 1
```

The ▲ and ▼ keys allow you to change the first digit or the second one of the line number.
The ◀ and ▶ keys allow you to move between both digits.

The ENTER key allows you to confirm your choice and to define the second destination line of the copy.
Press SET UP to return to the previous level.

For example: Choose the "03" line.

- To define the high limit of the destination block:

FROM B01 N 0 1

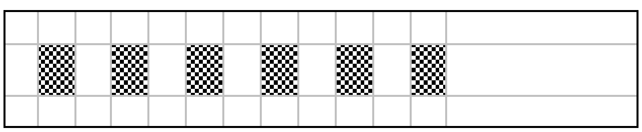
TO B03 N 0 3

The ▲ and ▼ keys allow you to change the first digit or the second one of the line number.
The ◀ and ▶ keys allow you to move between both digits.

The ENTER key allows you to confirm your choice and to execute the copy operations.
Press SET UP to return to the previous level.

- During the copy execution, on the lower display, the bargraph represents the elapsed time.

COPY



At the end of the copy execution, the initial message is displayed again:

COPY

CHART

4.4.3 WARNING

- The choice of the copy source is only made with consecutive parameters on the same line.
- The copy source can only be a line corresponding to an existing hardware channel in case of ANALOG and DIGITAL sub-matrices.
- The destination can only be composed of consecutive lines.
- For ANALOG sub-matrix only, the source of copy function is necessarily a whole line.

4.5 PRINT CONFIGURATION

4.5.1 Introduction

The recorder allows you to print its configuration data.

Two alternative procedures are available:

- **The first procedure should be used when a print-out of all or part of a sub-matrix is required. ACCESS: In the main menu through PRINT CONF**

- **The second procedure is used when a complete print-out is required. ACCESS: In Service Printer through PRINT ALL CONF**

If for any reason, part or all of the configured data should be subsequently corrupted or lost; the availability of a hard copy of the recorder configuration will help with the accurate and speedy re-entry of the records configuration.

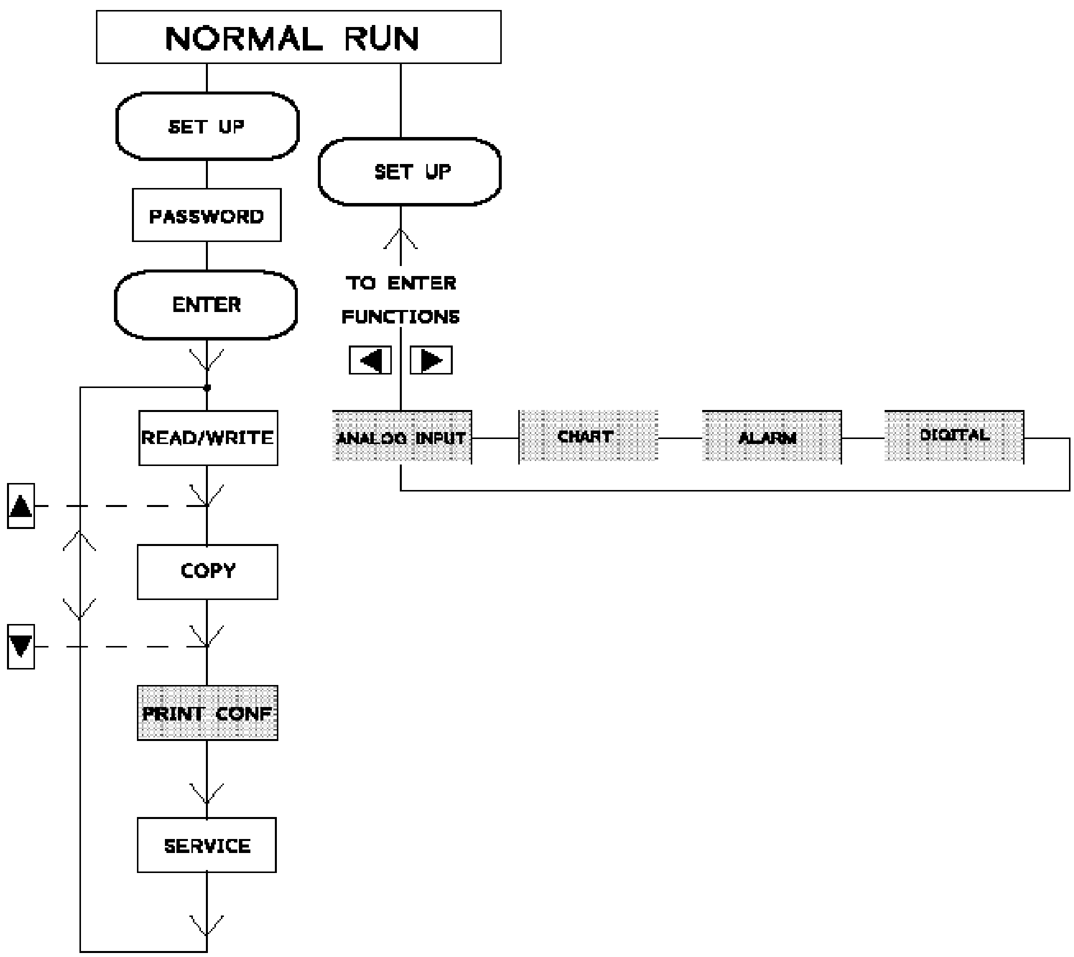
ADVICE: It is recommended that you execute a PRINT ALL CONF after you have configured the recorder and file this away for later reference.

4.5.2 Configuration

4.5.2.1 Printing all or part of a sub-matrix

4.5.2.1.1 Function access

When the recorder is in RUN mode:
- Press SETUP to enter in CONFIGURATION mode,
- Enter your password,
- Select the sub-matrix with the ▲ and ▼ keys,
- Select the PRINT function with the ◀ and ▶ keys.



4.5.2.1.2 Procedure

- Enter in PRINT mode and select the desired sub-matrix.

PRINT CONF

ANALOG INPUT

Press ENTER after having selected the sub-matrix.
Press SET UP to return to RUN mode.

- To confirm the PRINT mode access,

PRINT CONF

CONFIRM

"CONFIRM" is blinking.
Press ENTER to confirm the PRINT mode access.
Press SET UP to return to the previous level.

- To define the low limit number:

PRINT ANALOG IN

FROM LINE	**0**	**1**

The ▲ and ▼ keys allow you to change the line numbers.
The ◀ and ▶ keys allow you to move between both digits.

Press ENTER to confirm your choice. If your written selection is in error (non existent line number), you will have to define a line number again.
Press SET UP to return to the initial display "PRINT CONF / ANALOG INPUT".

For example: Choose the line "05".

NOTE: Refer to section 11 "Configuration worksheet" for line limits.

- To define the high limit number:

FROM LINE 0 5

TO LINE 3 2

The procedure to define this high line number is the same as that for the low line number.
The ENTER key allows you to confirm, check and print your selection.
Press SET UP to return to the previous level.

- During the printing, the following message is displayed:

PRINT CONF

IN PROGRESS

- At the end of the printing, the initial message is displayed again:

PRINT CONF

ANALOG INPUT

4.5.2.2 Printing the complete configuration

4.5.2.2.1 Function access

NOTICE:

TO PRINT THE COMPLETE CONFIGURATION, YOU MUST ENTER IN THE SERVICE MODE.
(For more information, see section 8 "SERVICE")
Then to access to the "PRINT ALL CONF" function:

- **Enter in the SERVICE mode,**
- **Select the PRINT matrix.**

4.5.2.2.2 Procedure

- Enter in the PRINT mode.

SERVICE PRINTER

PR01 PR ALL CONF

Press ENTER to have access to this mode.
Press SET UP to return to RUN mode.

- To confirm access in PRINT mode:

PR ALL CONF

CONFIRM

"CONFIRM" is blinking.
Press ENTER to confirm access in PRINT mode.
Press SET UP to return to the previous level.

- During the printing, the following message is displayed:

PR ALL CONF

IN PROGRESS

- At the end of the printing, the initial message is displayed again:

SERVICE PRINTER

PR01 PR ALL CONF

4.5.3 Information about printing

- You can stop the printing at any time by pressing the SET UP or DISPLAY keys. All other keys are not active.
- During the printing, a message (IN PROGRESS) is shown on the lower display, indicating the current action.
- At the end of the printing, the initial messages are displayed again and the keys are reactivated.
- The data is printed in reverse order so that you can read it in a logical order from top to bottom when completed.

4.5.4 WARNING

- During the printing of one sub-matrix, it is possible to print all the lines or only a few lines. In both cases, these lines are consecutive.
- Some sub-matrices can change depending on the recorder type. PRINT ALL CONF prints only sub-matrices relative to this recorder. This is true particularly for ANALOG and DIGITAL sub-matrices, whose printed lines correspond to an existing hardware channel.
- For the MESSAGE sub-matrix, only lines with a non blank message are printed.
- Accessible passwords in the MISCEL sub-matrix are not printed.
- To provide the longest printer ribbon life, PRINT ALL CONF alternates the colors automatically:
  - Black for heading
  - Brown, purple, green and blue are alternatively used for the printing of parameter values.

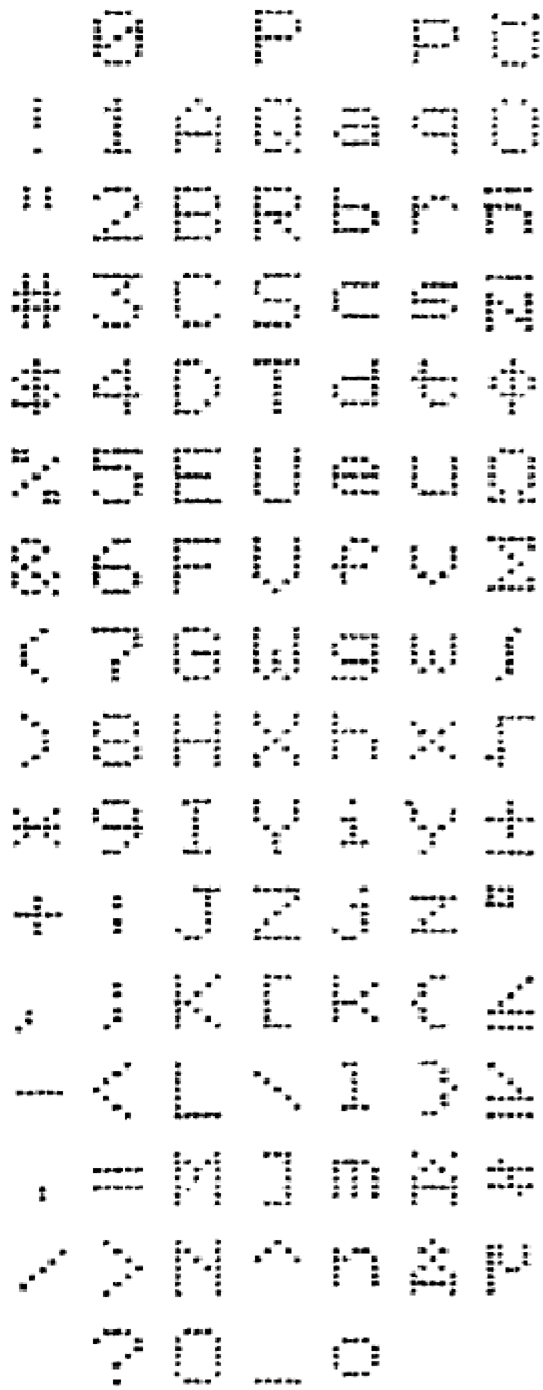
- Printing formats take into account the smallest printing width, which can be defined by the user.

The following example represents a printing format you may use:

ANALOG INPUT 15.55 15TH OCT 96						
AN#	SENSOR	RANGE	EXT COMP	FILTER	LOW VAL	HIGH VAL
01	RTD	OHM 0/2000	0.0	5.0	0.00	2000.00
02	RTD	OHM 0/2000	0.0	5.0	0.00	2000.00
03	RTD	OHM 0/2000	0.0	5.0	0.00	2000.00
04	RTD	OHM 0/2000	0.0	5.0	0.00	2000.00
05	RTD	OHM 0/2000	0.0	5.0	0.00	2000.00
06	RTD	OHM 0/2000	0.0	5.0	0.00	2000.00
07	RTD	OHM 0/2000	0.0	5.0	0.00	2000.00
08	RTD	OHM 0/2000	0.0	5.0	0.00	2000.00
etc.						

AN#	STD MATH	DIFF WITH	BURN OUT	LOW ADJ	HIGH ADJ
01	SQUARE RO	ANALOG #01	FIX HIGH	0.0	1.0
02	SQUARE RO	ANALOG #01	FIX HIGH	0.0	1.0
03	SQUARE RO	ANALOG #01	FIX HIGH	0.0	1.0
04	SQUARE RO	ANALOG #01	FIX HIGH	0.0	1.0
05	SQUARE RO	ANALOG #01	FIX HIGH	0.0	1.0
06	SQUARE RO	ANALOG #01	FIX HIGH	0.0	1.0
07	SQUARE RO	ANALOG #01	FIX HIGH	0.0	1.0
08	SQUARE RO	ANALOG #01	FIX HIGH	0.0	1.0
etc.					

4.6 CONFIGURABLE AND PRINTABLE CHARACTERS



INDEX

TABLE OF CONTENTS

Section Page

IMPORTANT:

- The PC Configurator is operating on recorder units having Firmware from version 001AC.
- Previous versions 001AA, 001AB and 6.0 (demo.units) need to have a Firmware upgrade before making configurations.
- The recorder Firmware upgrade (Refer to section 5.6) and the communication Firmware upgrade (Refer to section 5.7) are part of the PC Configurator menu and are only executed via the jack cable.

REMINDER:

You can identify the recorder Firmware issue or the communication Firmware issue by pressing SETUP, then going to SERVICE menu and MISCELLANEOUS sub-matrix (recorder) or COMM sub-matrix.

5.1 OVERVIEW

The PC Configurator enables you to configure your recorder through a Windows ™ interface.
It provides the following functionalities:

- Configuration Upload/Download
- Recorder Firmware Upgrade or communication Firmware Upgrade

The minimum PC configuration required is a 486 with 4Mb of RAM.
This software is compatible with Windows 3.1, Windows 3.11 and Windows 95.

To communicate with your recorder, you need the PC Interface Kit 46190409-501, which includes the application software for your recorder configuration, part number 46190407-501.

To run this application efficiently, we recommend you first close all other application software packages that are open on your PC.

NOTES:
- All menus and screens are accessible with or without a mouse.
- For general information, choose the **"ABOUT"** dialog box in the main menu.
- 2 configurations max. may be opened.

NOTICE

The configuration must be saved first before configuration printing.

5.2 INSTALLING THE SOFTWARE ON YOUR SYSTEM

The software installation requires 10Mb free on your hard disk.
The Configurator installation procedure is the following (from Windows only):

- Insert the **disk 1** of the Configurator into your floppy drive.
- In the Program Manager Window, choose **"Run"** from the file menu.
- Type the following command line: **a:\setup**
- Follow the instruction of the setup.
- If you have received the Firmware floppy disk of the recorder, you must install it on your system to upgrade the recorder Firmware. For this installation, refer to section 5.3.

NOTE: The choice of the language (English, French, German) is defined at the PC Configurator installation. This choice cannot be modified after the installation. Only the PC Configurator reinstallation allows you to choose another language.

5.3 INSTALLING THE FIRMWARE FOR YOUR RECORDER OR FOR YOUR COMMUNICATION BOARD

The following procedure allows you to install new Firmware versions on your PC (the Firmware for your recorder or the Firmware for your communication board).

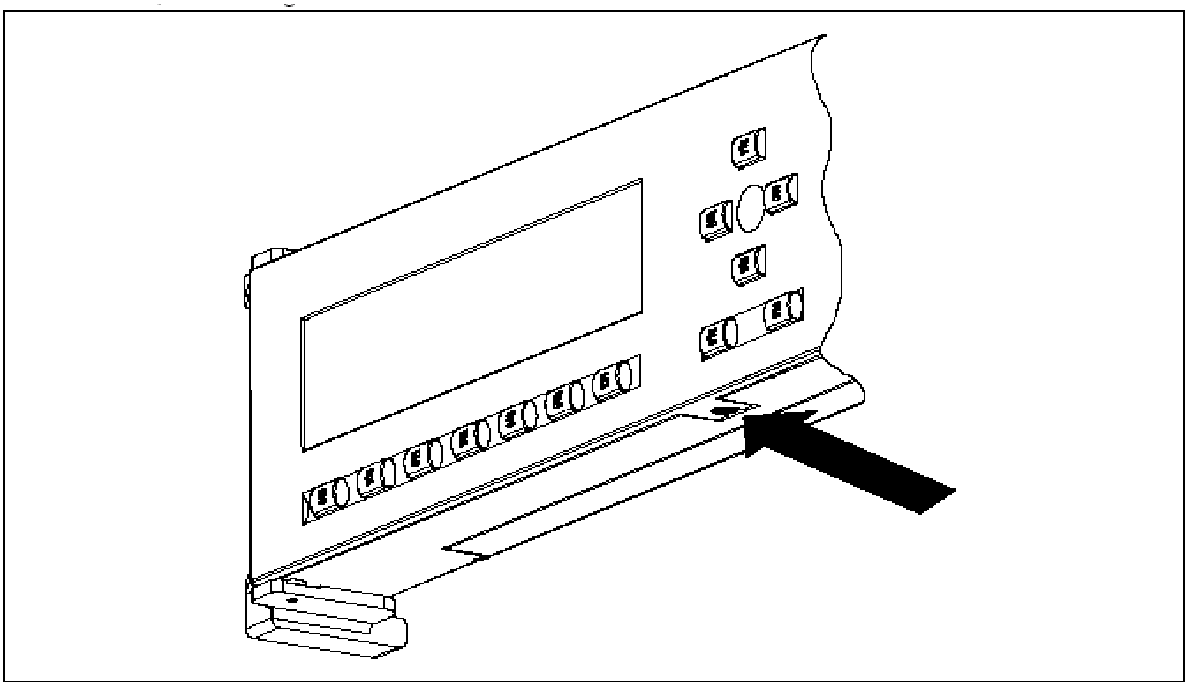
- Insert the Firmware floppy disk.
- Double-click on **"Upgrade Firmware Setup"** icon.
- Follow the instructions.

5.4 PC - RECORDER INTERFACE

5.4.1 Kit elements

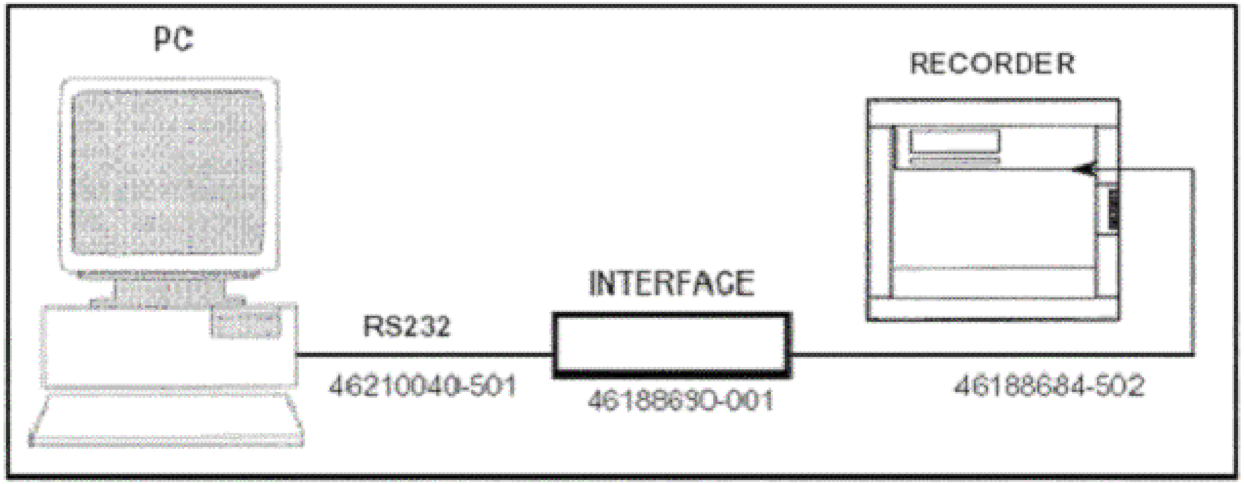
This kit is composed of:

- A PC Interface box
- 2 cables: - one serial cable (9 pins) between the interface and the PC-port (COM 1 or COM 2)
- one jack cable between the interface box and the recorder. To connect the jack cable to your recorder, see the figure below.



- 3 floppy disks, which include the PC Configurator.

5.4.2 Installation



5.5 CONFIGURATION UPLOAD/DOWNLOAD

5.5.1 Preparing your PC for communication

- Connect the interface to one serial port of your PC with the supplied cable.

Connect it to your recorder with the supplied jack cable. The connector is located on the lower side of the recorder display.

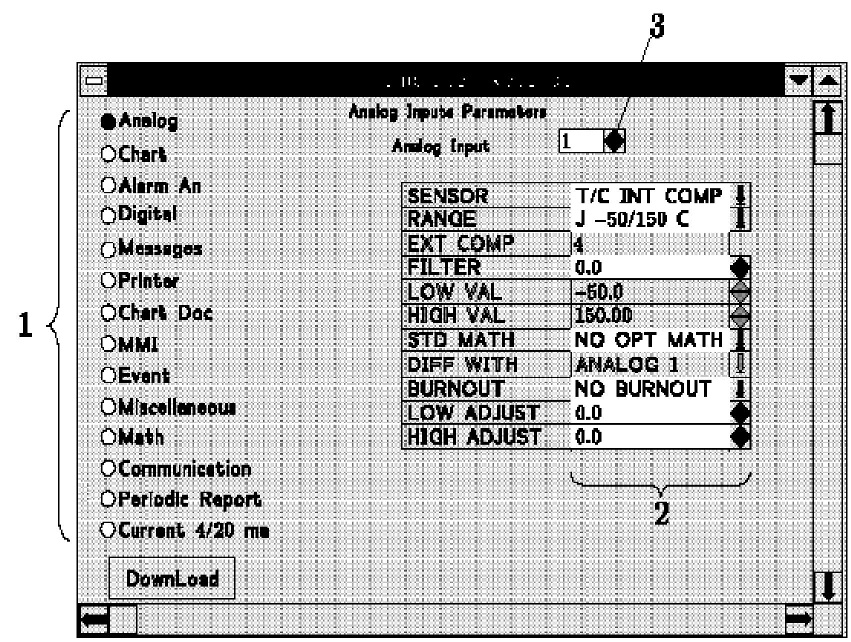
> **NOTICE**
> Only one recorder can be connected to the communication link.

- In your Configurator, click on **"Communication Parameters"** in the **"Online Comm"** menu.
- Select the PC-port (COM 1 or COM 2) to which you have connected your interface.
- The baud rate is fixed to 9600 bauds.
- A message will be displayed for communication errors.

5.5.2 Creating a new configuration

- Select **"New configuration"** from the **"File"** menu.
- Select the type of device in the list of devices.
- Click on **"OK"** in the **"New"** message box.

- The Configurator opens the following window:



- The buttons on the left side (1) enable you to access to the different sub-matrices of the recorder.
- The boxes on the right side (2) allow you to configure the parameters.

There are 3 types of parameters:

✓ **List parameters** (See SENSOR example on the figure above)
Click on the box to open it and make your selection.

✓ **Numeric parameters** (See FILTER example on the figure above)
Type a new value in the box or increment it with the arrows.

✓ **Text parameters**
Type your text in the box.
These parameters will accept only the characters available on the recorder.

For EXT COMP in ANALOG INPUT sub-matrix, proceed as follows:
- Choose T/C EXT COMP in SENSOR.
- Compensation relative to a value (^{o}C only): Enter a number between 0 and 80.
- Compensation relative to an analog channel: Type **A xx** (xx take channel number). Note that there is a space between **A** and the channel number you want to use for compensation. (For example: **A 04**)

For SYNCHRO AT in PERIODIC REPORT sub-matrix, type **xx:yy** (xx take values from 00 to 23 and yy take values from 00 to 59).

Greyed-out parameters cannot be modified.

- The little box on the top-right side (3) is used to move through the configuration lines (or channels).

5.5.3 Opening a configuration from disk

- Click on **"Open"** in the **"File"** menu.
- The Configurator opens a dialog box and lists all the configurations in the current directory.
- Select the type of recorder for which you want to open a configuration.
- Choose the configuration you want to open.
- Click on **"OK"**.
- The Configurator opens a window containing your configuration.

NOTE: If the configuration was saved with a previous PC Configurator version, the MATH, COMM and PERIODIC REPORT sub-matrices can be displayed with default values.

5.5.4 Saving a configuration

- Click on **"Save"** or **"Save As"** in the **"File"** menu.
- If it is the first time you are saving your configuration, the Configurator asks you to enter a configuration name.
- All configurations are stored in a common database (product.mdb) and for the configuration name, you can use up to 50 characters.

NOTE: Saving directly on a floppy disk takes a long time. It is strongly recommended to use the import/export function to transfer a configuration on a floppy disk.

5.5.5 Configuration export/import function

This function is useful to transfer one configuration via a floppy disk or a hard disk.
Note that the configuration is stored with the following file extension **.exp**.

EXPORT

- Click on **"Export"** in the **file** menu.
- To copy one configuration on your driver (A: or B:) or on the hard disk, you just have to select one of the configurations in your working directory and define the target file.
- The resultant file will be defined with an **.exp** extension and will only contain the configuration you have exported.

IMPORT

- Click on **"Import"** in the **file** menu.
- To open the previous exported configuration, select the **.exp** file containing your configuration.
- When the **"Import"** action is finished, the configuration is opened. Then you have to save the recorder configuration in your working database if you want to keep it.

NOTE: If the imported configuration was saved with a previous PC Configurator version, the MATH, COMM and PERIODIC REPORT sub-matrices can be displayed with default values.

5.5.6 Configuration download

- Make sure that your recorder is connected to your PC through the interface.
- Click on **"Device"** in the **"Online Comm"** menu and select the type of recorder you want to communicate with.
- Open a configuration.
- Click on the **"Download"** button.
- For the download, there are 2 options:
  - General download of the configuration,
  - Download of sub-matrix (or sub-matrices)

  Choose the sub-matrix (or sub-matrices) you want to send (ALL if you want to send all sub-matrices) and click on the **"Download"** button.
- The Configurator performs a test and displays:
  - information about the difference between the channels you have configured and what is really present and possible on your recorder.
  - the "No package" message. The MATH sub-matrix is not downloaded whereas the maths package is not present on the recorder.
  - the "No com option" message. The COMM sub-matrix is not downloaded whereas the COMM option is not present on the recorder.
- Click on **"OK"**.
- The Configurator sends your configuration to the recorder. (if during the download, the recorder detects that a parameter is out of range, a message will warn the user, the download will continue and the parameter will be replaced with the minimal or maximal value).

NOTICE

The following characters cannot be configured with the Configurator and will never be sent to the recorder. $\surd$, Ω, Σ, $\int$

- If the configuration of the recorder is locked, download is impossible (See Communication Manual).

5.5.7 Configuration upload

- Click on **"Device"** in the **"Online Comm"** menu and select the type of recorder you want to communicate with.
- Click on **"Upload Configuration"** from the **"Online Comm"** menu.
- Click on **"OK"** in the first dialog box.
- The Configurator uploads the configuration from your recorder.

NOTICE

- The "NO PACKAGE" message will warn the user if the MATH option is not present on the recorder. Then the MATH sub-matrix will be displayed with default values.
- The "No com option" message will warn the user if the COMM option is not present on the recorder. Then the COMM sub-matrix will be displayed with default values.
- The non configurable characters listed above are received under a different form:

$\leq$ becomes <=	$\surd$ becomes x
$\geq$ becomes >=	Ω becomes x
ϕ becomes Ø	Σ becomes x
$\neq$ becomes !=	$\int$ becomes x

5.6 RECORDER FIRMWARE UPGRADE

- Click on **"Device"** in the **"Online Comm"** menu and select the type of recorder you want to communicate with.
- Click on **"Upgrade Firmware"** in the **"Online Comm"** menu.
- Click on **"Main Firmware"**.
- Choose the ".rec" file containing the last Firmware version you want to send to the recorder.
- Click on **"OK"**.
- The Configurator sends the new Firmware to your recorder. This operation will take about 25 minutes.

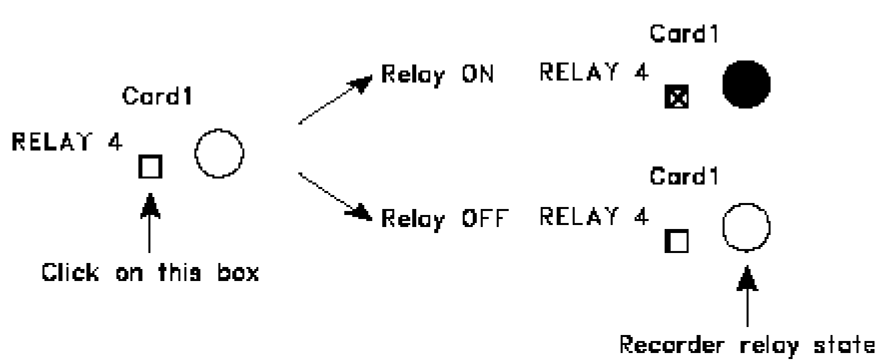
5.7 COMMUNICATION FIRMWARE UPGRADE

- Click on **"Device"** in the **"Online Comm"** menu and select the type of recorder you want to communicate with.
- Click on **"Upgrade Firmware"** in the **"Online Comm"** menu.
- Click on **"Communication Firmware"**.
- Choose the ".rec" file containing the last Firmware version you want to send to the communication board.
- Click on **"OK"**.
- The Configurator sends the new Firmware to the communication board. This operation will take about 15 minutes.

5.8 RELAY STATE AND CONTROL

- Click on **"Device"** in the **"Online Comm"** menu and select the type of recorder you want to communicate with.
- Connect your PC to the recorder through the interface.
- Click on **"Services"** and **"Relay Outputs State and Control"** in the **"On-Line Comm"** menu.
- Then you will see the Relay Window.
- By pressing on **"All Relays On"** or **"All Relays Off"**, you will switch ON or OFF every relay on your recorder.

You can also switch ON or OFF one relay by clicking in the box as the following example:



NOTE: If the configuration of the recorder is locked, relay state and control cannot be executed (See Communication Manual).

5.9 COPY LINE OPTION

This option allows you to copy all parameters of the displayed line to one or many consecutive lines of the same sub-matrix.

- Display a configuration (by selecting **"OPEN"**, **"New Configuration"**, **"Import"** from the **"File"** menu or **"Upload Configuration"** from the **"Online Comm"** menu.
- Click on **"Copy Line"** in the **"Options"** menu.
  A new displayed window allows you to define:
  - the source line,
  - and the destination lines.
- Enter source line number and destination line(s) numbers.
- Click on **"OK"** to copy or **"Cancel"** to close the window without making the copy.

NOTE: - **"Copy Line"** is only enabled if a configuration is displayed and if it has several lines.
- A message warns the user if wrong line numbers are entered and the copy is not executed.

5.10 USER ACTUATION

The User Actuation function allows the user to define a new sensor range that does not exist in the recorder by using the PC Configurator.

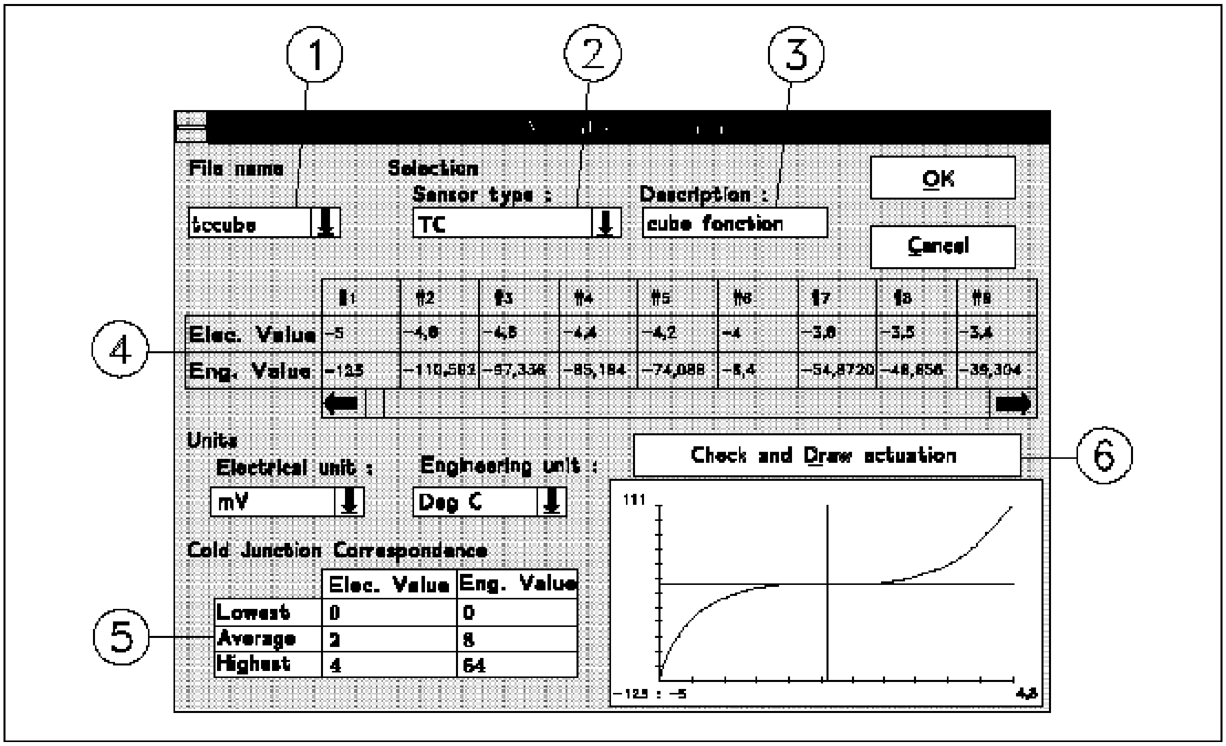
Each User Actuation is stored in a *.ua file separated from the configuration files. This allows the user to export these files easily.

Electrical measures can be matched with engineering units either by a **set of segments :** thus, the user has to create a table defining segments, or by a **set of polynomials** for a greater accuracy (the curve being defined by a polynomial).
Polynomial definition of user actuation is reserved for factory. Thus, contact your Sales Office.
A User Actuation file (*.fua) defined with polynomials can be established so that your sensor actuation will have the same accuracy as the recorder standard ranges.

5.10.1 USER ACTUATION MENU

5.10.1.1 EDIT USER ACTUATION FILE

- Click on **"User Actuation"**.
- Click on **"Edit User Actuation File"** in the main menu to create a specific range of sensor.
- Enter the actuation file name. (1)
- The sensor type (2) may be TC, RTD or SPECIAL.
- The description (3) is the range name of the sensor that will be displayed by the recorder, when reading the input range configuration.
- The grid (4) for electrical and engineering values represents the sensor actuation. Up to 50 pairs of points can be entered.
  - Electric unit: mV, V, mA or Ohm
  - Engineering unit: - for TC or RTD sensor: Deg C or Deg F
    - for SPECIAL sensor: to be entered
- The cold junction correspondence grid (5) is for TC sensors only.
- Click on **"Check and Draw actuation"** (6) to check if data have been correctly entered.
- Click on **"OK"** to close and save the actuation file or click on **"Cancel"** to abort changes and keep the previous data.

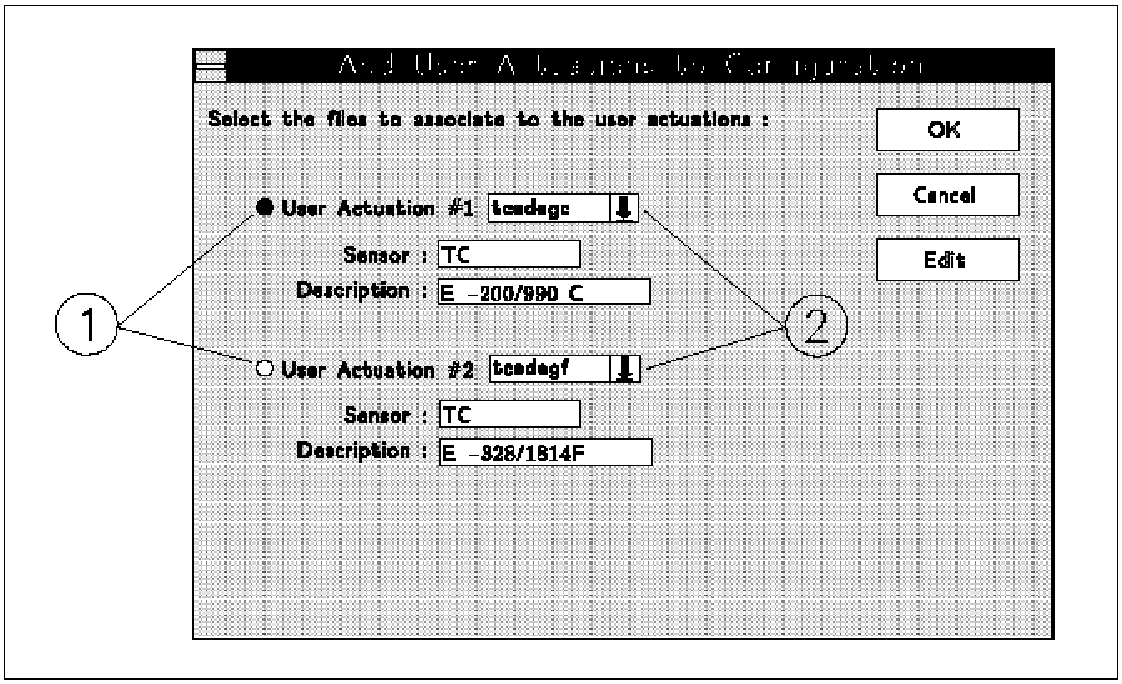


NOTES:

- The entered points should represent a monotonous function.
- For Thermocouples, a compatibility test is made between the main
- For the best accuracy, there should be as many points as possible.

5.10.1.2 ADD USER ACTUATIONS TO CONFIGURATION

- To introduce a User Actuation file into a recorder configuration,
- **"Add User Actuations to Configuration"** in the User Actuation
- Actuation file you want to associate with the User Actuations 1 and 2.
- Select the User Actuation number. (1)
- Select the User Actuation file you want to add to your configuration.
- Click on **"OK"** to save data and close the window.
- Click on **"Cancel"** to abort changes and keep the previous data.
- Click on **"Edit"** to display the selected User Actuation data window.



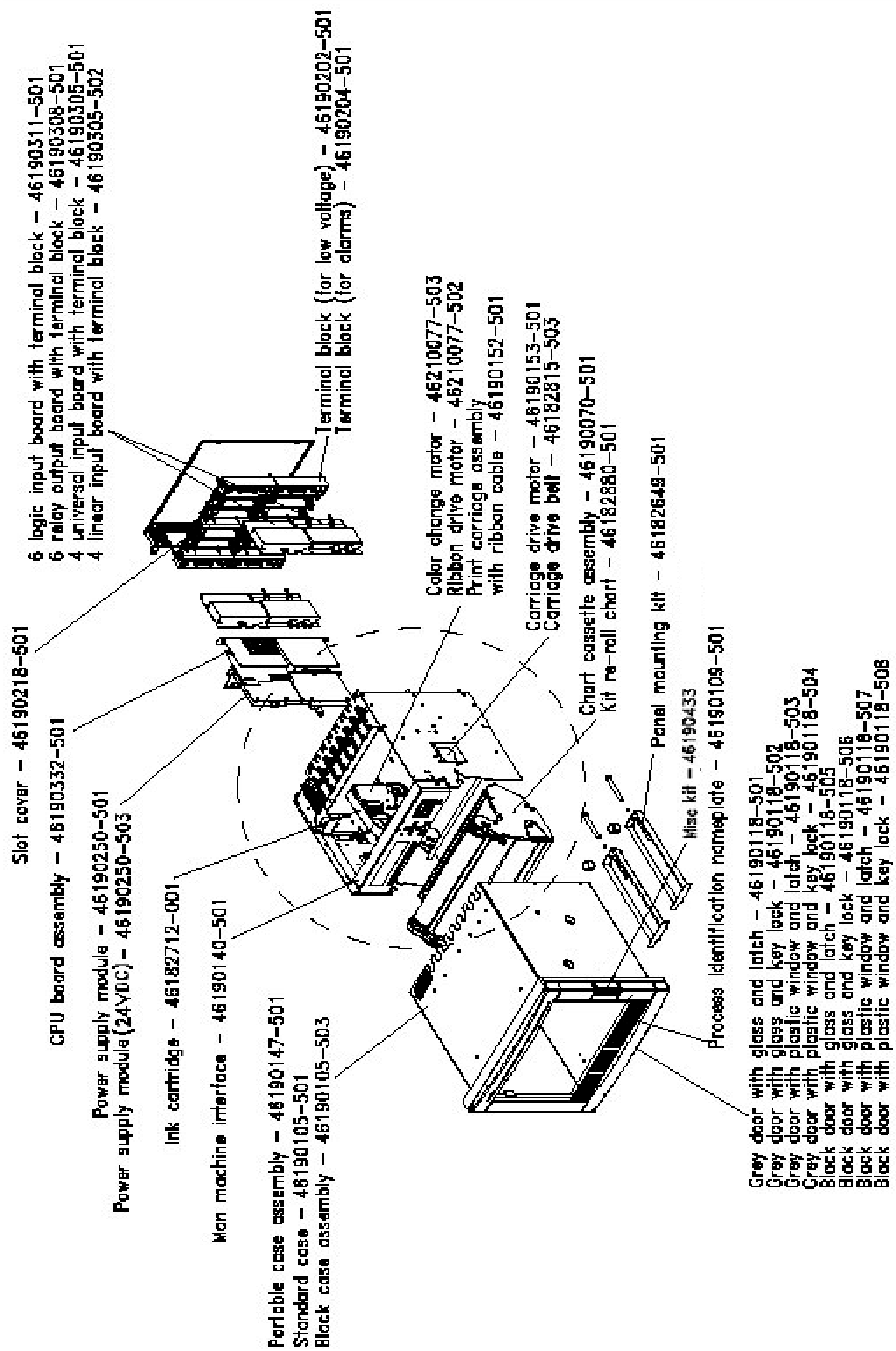
NOTE: If you have clicked on **"OK"**, you can now check that your list of ranges in the analog sub-matrix contains the sensor actuation you have attached to the configuration.

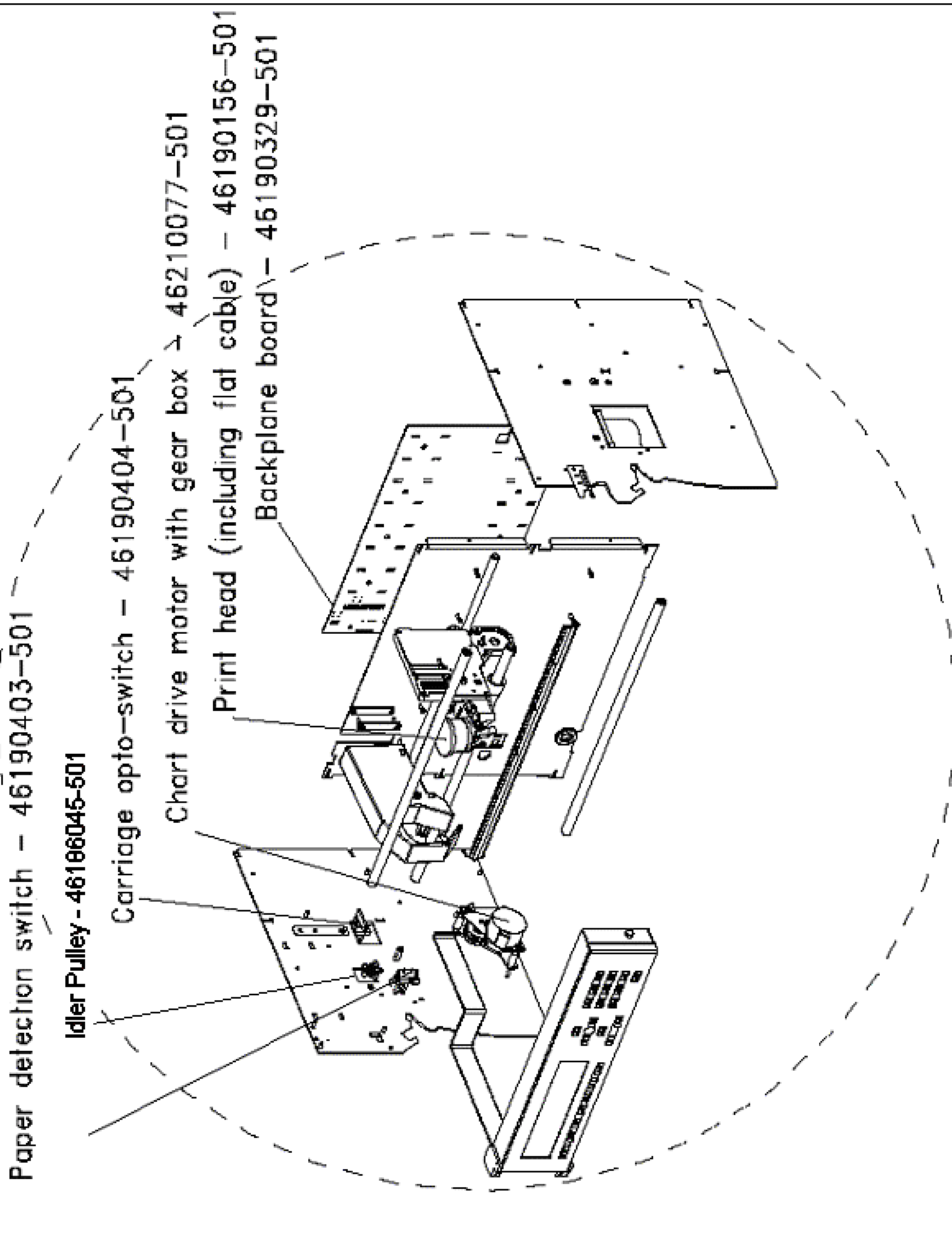
5.10.2 DOWNLOADING USER ACTUATION TO RECORDER

Up to 2 User Actuations can be attached to a recorder configuration. User Actuation data is downloaded along with the analog sub-matrix. Your recorder software version must be AH or greater. Once a User Actuation has been downloaded into the recorder, it can be selected in the analog sub-matrix as any standard range of the same sensor type already present in the recorder.

5.10.3 UPLOADING CONFIGURATION THAT CONTAINS USER ACTUATION

Uploading configuration that contains User Actuation will also upload User Actuation data and store them into a .ua file (or a .fua file in case of special characterization created in factory) if they are not already on your disk. This will allow you to duplicate them on another recorder.


Slot cover – 46190218-501
CPU board assembly – 46190332-501
Power supply module – 46190250-501
Power supply module (24VDC) – 46190250-503
Ink cartridge – 46182712-001
Man machine interface – 46190140-501
Portable case assembly – 46190147-501
Standard case – 46190105-501
Black case assembly – 46190105-503
6 logic input board with terminal block – 46190311-501
6 relay output board with terminal block – 46190308-501
4 universal input board with terminal block – 46190305-501
4 linear input board with terminal block – 46190305-502
Terminal block (for low voltage) – 46190202-501
Terminal block (for alarms) – 46190204-501
Color change motor – 46210077-503
Ribbon drive motor – 46210077-502
Print carriage assembly
with ribbon cable – 46190152-501
Carriage drive motor – 46190153-501
Carriage drive belt – 46182815-503
Chart cassette assembly – 46190070-501
Kit re-roll chart – 46182880-501
Panel mounting kit – 46182649-501
Misc kit – 46190433
Process identification nameplate – 46190109-501
Grey door with glass and latch – 46190118-501
Grey door with glass and key lock – 46190118-502
Grey door with plastic window and latch – 46190118-503
Grey door with plastic window and key lock – 46190118-504
Black door with glass and latch – 46190118-505
Black door with glass and key lock – 46190118-506
Black door with plastic window and latch – 46190118-507
Black door with plastic window and key lock – 46190118-508



Paper detection switch - 461190403-501
Idler Pulley - 46186045-501
Carriage opto-switch - 461190404-501
Chart drive motor with gear box - 46210077-501
Print head (including flat cable) - 461190156-501
Backplane board - 461190329-501

KITS LIST	PART #
ELECTRONIC SOFTWARE	
Man machine interface	46190140-501
Power supply module (AC power)	46190250-501
Power supply module (24VDC)	46190250-503
CPU board assembly	46190332-501
Backplane board	46190329-501
Analog output board kit	46190314-501
PCMCIA upgrade kit	46190163-501
PCMCIA ATA type ll Flash Memory Card – 16Mb	51453064-501
PCMCIA ATA type ll Flash Memory Card – 32Mb	51453064-502
6 logical input board with terminal block	46190311-501
Universal input board with terminal block	46190305-501
Linear input board with terminal block	46190305-502
6 relays output board with terminal block	46190308-501
Ethernet Interface Card	51500651-501
TrendManager Pro (Data Analysis) software (single)	TMPCON5

KITS LIST	PART #
MECHANICAL PARTS	
Print head, motors and belts	
Chart cassette assembly	46190070-501
Print head (including flat cable)	46190156-501
Color change motor	46210077-503
Ribbon drive motor	46210077-502
Carriage drive motor	46190153-501
Chart drive motor with gear box	46210077-501
Carriage drive belt	46182815-503
Print carriage assembly with Rod w/o Print head	46190152-503
Print carriage assembly with Print head & Rod	46190152-501
Display cable	46190132-501
Kit re-roll chart-takeup spool complete	46182880-501
Grey door with glass and latch	46190118-501
Grey door with glass and key lock	46190118-502
Grey door with plastic window and latch	46190118-503
Grey door with plastic window and key lock	46190118-504
Black door with glass and latch	46190118-505
Black door with glass and key lock	46190118-506
Black door with plastic window and latch	46190118-507
Black door with plastic window and key lock	46190118-508
Process identification nameplate	46190109-501
Portable case assembly	46190147-501
Painted black case	46190105-503
Miscellaneous kit	46190433-501
Idler Pulley	46186045-501
Chart Cassette Side Plate kit	46182900-501

6. KITS LIST

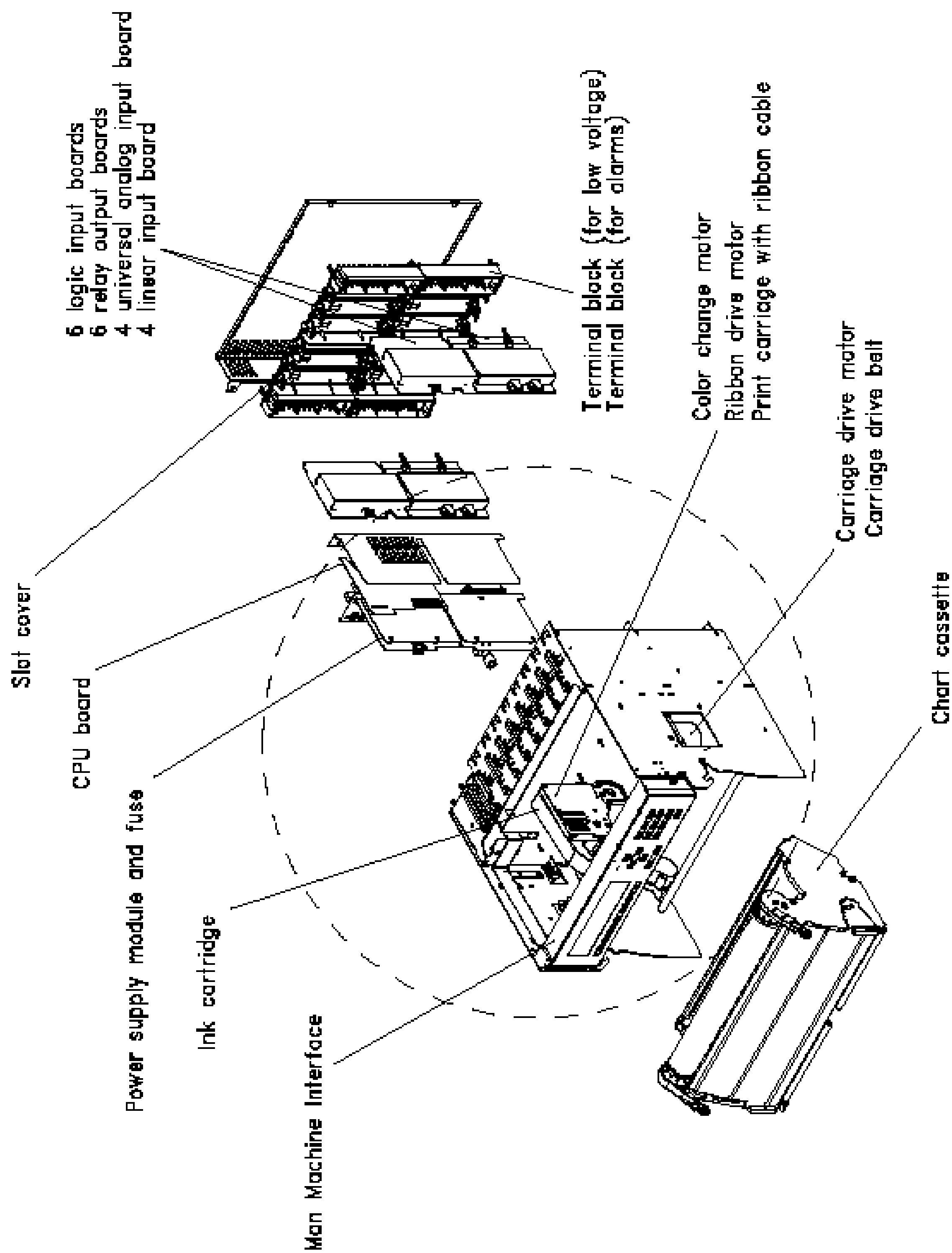
KITS LIST	PART #

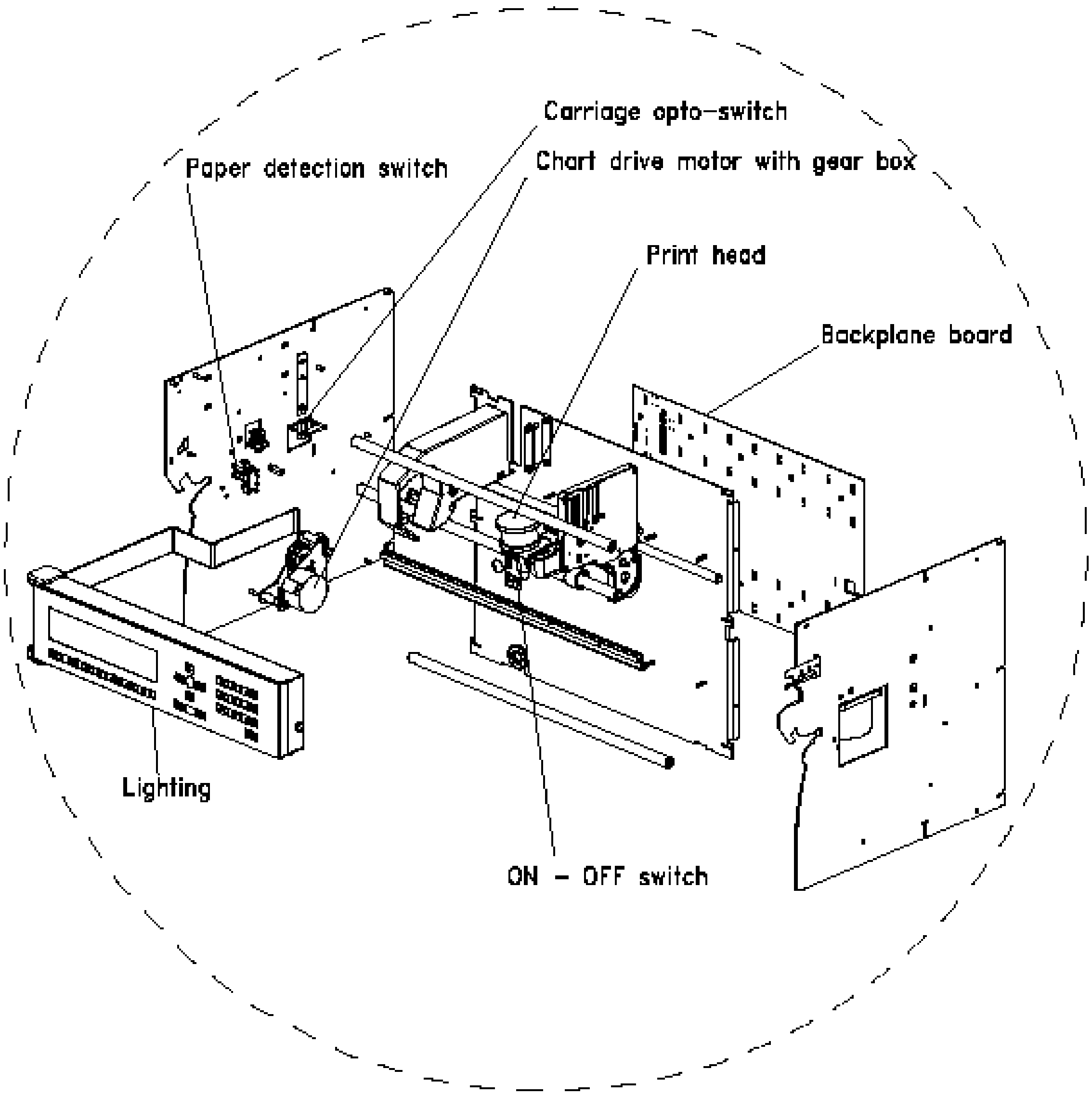
COMMUNICATION PARTS	
PC configurator interface with cables and diskette	46190409-501
PC configurator Firmware	46190407-501
Firmware update (alone) incl. Comms	46190416-501
Kit Maths upgrade package	46190424-501
Cable : Jack PC interface and recorder	46225600-001
Cable : Between PC interface and PC	46210040-501
Cable for Comm. link to PC	46210098-501
MISCELLANEOUS	
Fluorescent tube for chart illumination	46190406-501
Terminal block (for low voltage)	46190202-501
Terminal block (for alarms)	46190204-501
Paper detection switch	46190403-501
Carriage opto-switch	46190404-501
Battery	46222201-502
Slot cover	46190218-501
Panel mounting kit	46182649-501
Rubber grommets	46173047-510
Kit chart platen	46190160-501
Re-roll Tube (empty chart tube only)	46190056-501
Packaging box for transport	46190420-001
Tools kit	46190410-501
Mounting adaptor plate 20.11"x 14.88" (511mm x 378mm)	30756326-001
Mounting adaptor plate 19.0"x 13.2" (483mm x 335mm)	30756305-001
Rack Mounting Kit	46182883-001
Kit of grease for Print Carriage	46210096-501
Miscellaneous Hardware kit (Incl. fuses, labels, grommets, door hinge pins, assort screws)	46190433-501
CONSUMABLES	
Chart roll 100 divisions (35 meters)	46182708-001
Fan fold chart 100 divisions (35 meters)	46182707-001
Ink cartridge	46182712-001
4 resistors 250 Ohms each for mA input	46181080-503
Fuse 100 to 230 V ac/dc (Europe STD: 5 x 20 mm)	46182886-502
Fuse 100 to 230 V ac/dc (US STD: 5 x 32 mm)	46182886-001
DOCUMENTATION	
DPR180 Product manual	US1I-6171
DPR250 Product manual	US1I-6199
DPR180/250 Maths option manual	EN1I-6184
DPR180/250 Communication option manual	US1I-6189
DPR180/250 PCMCIA option manual	US1I-6208
Ethernet Interface manual	51-52-25-96

TABLE OF CONTENTS

Section Page

7.1 PARTS LOCATION




Carriage opto-switch
Paper detection switch
Chart drive motor with gear box
Print head
Backplane board
Lighting
ON - OFF switch

7.2 SYMPTOM: UNIT DOES NOT RESPOND TO POWER UP

CHECK	*DIAGNOSTIC / ACTION*
1. Check if the power switch is on.	**1. NO:** Push the switch on.
2. Check the voltage applied to the supply terminals L1 and L2. Is there loss of line power?	**2. YES:** Check wiring.
3. Check if the fuse is OK.	***3.*** **NO:** Change the fuse
4. Is the fluorescent light working?	***4.*** **NO:** Replace the power supply.
5. Is the problem still present with a new power supply or with lightning fluorescent tube.	***5.*** **YES:** Replace the CPU board.

7.3 SYMPTOM: NO DISPLAY BUT THE PRINTING WORKS PROPERLY

CHECK	*DIAGNOSTIC / ACTION*
1. Check if the flat cable connection between MMI and CPU board is correct.	***1.*** **NO:** Check for the proper connection.
	2. Change the MMI.

7.4 SYMPTOM: THE CHART ILLUMINATION FAILED

CHECK	*DIAGNOSTIC / ACTION*
1. Fluorescent tube out?	***1.*** **YES:** Replace the fluorescent tube.
2. Is the printer operative?	***2.*** **NO:** Replace power supply.
3. If still not correct	***3.*** Replace the MMI.

7.5 SYMPTOM: DISPLAY SHOWS ONLY ALL DOTS LIGHT OR INCOHERENT DISPLAY

CHECK	*DIAGNOSTIC / ACTION*
1. Check if the flat cable connection between MMI and CPU board is correct.	***1.*** **NO:** Check for the proper connection.
	2. Change the CPU board.
	3. Change the MMI.

7.6 SYMPTOM: DISPLAY SHOWS: BATTERY FAILED

CHECK	DIAGNOSTIC / ACTION
	1. Change the battery.

.

7.7 SYMPTOM: DISPLAY SHOWS: EEPROM FAILED ON CPU BOARD

CHECK	DIAGNOSTIC / ACTION
	1. Change the CPU board.

7.8 SYMPTOM: DISPLAY SHOWS: EEPROM FAILED ON BACKPLANE BOARD

CHECK	DIAGNOSTIC / ACTION
	1. Change the backplane board.

7.9 SYMPTOM: DISPLAY SHOWS: EEPROM FAILED ON SLOT

CHECK	DIAGNOSTIC / ACTION
	1. Change the board in slot #.

7.10 SYMPTOM: DISPLAY SHOWS: RAM BAD

CHECK	DIAGNOSTIC / ACTION
	1. Change the CPU board.

7.11 SYMPTOM: DISPLAY SHOWS: REAL TIME CLOCK PROGRAMMING FAILED

CHECK	DIAGNOSTIC / ACTION
	1. Change the CPU board.

7.12 SYMPTOM: DISPLAY SHOWS: DATE & TIME NEED RE-ADJUSTMENT

CHECK	***DIAGNOSTIC / ACTION***
1. Check time and date.	**1.** Readjust time and date.
2. Does it solve?	**2.** Change the battery.
3. Does it solve?	***3.*** Change the CPU board.

7.13 SYMPTOM: DISPLAY SHOWS: BAD CARRIAGE DIS

CHECK	***DIAGNOSTIC / ACTION***
	1. Remove the chart cassette.
	2. Push the switch off.
	3. Push the switch on.
	4. Re-insert the chart cassette.

7.14 SYMPTOM: ANALOG INPUTS OUTSIDE SPECIFIED ACCURACY TOLERANCE

CHECK	***DIAGNOSTIC / ACTION***
1. Is the range configuration for every sensor?	**1. NO:** Reconfigure the frequency.
2. Is the recorder configured for the correct supply frequency?	**2. NO:** Reconfigure the frequency
3. Check the sensors, leads and input terminals. Are the contacts good?	***3.*** **NO:** Reconnect properly sensors, leads, input terminals.
4. Are the environmental conditions outside rated limits?	***4.*** **NO:** Ensure that ambient temperature and relative humidity are within limits. Be sure delay has been long enough since power on.
5. Does it solve?	***5.*** **NO:** Replace the appropriate analog input card.
	6. Replace the backplane board.

7.15 SYMPTOM: NO COMMUNICATION WITH PC CONFIGURATOR

CHECK	***DIAGNOSTIC / ACTION***
1. Is the PC showing “NO RESPONSE FROM DEVICE”?	**1.** Check that INTERFACE parameter equals to JACK in MISCELLANEOUS matrix. Wait until end of initialization. Check wiring. Verify the selected product in PC software. Verify the recorder version. If the version of your recorder Firmware is previous than 001AC (001AB and 001AA), you must upgrade the new Firmware.
2. Is the PC showing "ERROR MESSAGE RECEIVED FROM DEVICE" or "BAD DEVICE TYPE SELECTED" ?	**2.** The type of device is incorrectly selected. Click on "Device" in the "Online Comm" menu and select the right type of device you want to communicate with.
3. Test the PC Configurator with other recorders, test the recorder with another PC Configurator.	***3.*** Send back the faulty product to your nearest Service Center.

7.16 SYMPTOM: THE ALARM FEATURE DOES NOT WORK PROPERLY

CHECK	***DIAGNOSTIC / ACTION***
1. Check the jumper selection on relay board. Is it correct?	**1.** **NO:** Reconfigure.
2. Check the "relay" parameter in the alarm matrix. Is it correct?	**2.** **NO:** Reconfigure.
3. Are the connectors correctly fitted?	***3.*** **NO:** Reconnect.
4. If still not correct	***4.*** Replace the alarm board.
5. If still not correct	***5.*** Return the faulty product to your nearest Service Center.

7.17 SYMPTOM: PRINTER INOPERATIVE

CHECK	*DIAGNOSTIC / ACTION*
1. Is the fluorescent tube on?	***1.*** **NO:** Replace the power supply (same voltage for light and motors).
2. Check the configuration: is there anything wrong?	***2.*** **YES:** Reconfigure. Print inhibit with digital input ("ACTION" parameter) Print inhibit with alarm ("ACTION" parameter) Check speed 1 and speed 2.
3. Is the chart correctly installed in the chart cassette?	***3.*** **NO:** Install the chart correctly.
4. Is the chart damaged?	***4.*** **YES:** Advance chart beyond damaged section
5. Is the chart cassette engaged in the chassis?	***5.*** **NO:** Insert the chart cassette into the chassis properly.
6. Remove the chart cassette and push the paper detection switch on the left side. Do you see the paper advance gear tuning, carriage, color and ribbon moving?	**6.** **YES:** Check point above. Check if paper switch deformed. Check if chart cassette damaged. **NO:** Verify power supply (light). Verify paper switch connection on the backplane board. Replace paper switch. Check CPU board.
7. Is carriage always going left or always going right?	***7.*** **YES:** Check opto sensor connections.

7.18 SYMPTOM: ADVANCE PAPER INOPERATIVE

CHECK	*DIAGNOSTIC / ACTION*
1. Only chart still not functioning	**1.** Check motor connection on backplane board. Check motor about 80 Ω per coil. Check gear box. Check cassette gear. If not, replace CPU board.

7.19 SYMPTOM: CARRIAGE INOPERATIVE

CHECK	*DIAGNOSTIC / ACTION*
1. Is the belt correctly installed?	***1.*** **NO:** Reinstall belt.
2. Is the carriage motor properly connected on backplane board?	***2.*** **NO:** Reconnect the motor.
3. Is the motor coil about 7 Ω per coil?	***3.*** **NO:** Change motor.
4. Is the pulley free to rotate?	***4.*** **NO:** Change pulley.
5. If the problem still present	***5.*** Check backplane board. Check CPU board.

7.20 SYMPTOM: PRINT HEAD INOPERATIVE

CHECK	DIAGNOSTIC / ACTION
1. Is cartridge missing?	***1.*** **YES:** Install cartridge.
2. Is cartridge well engage ?	***2.*** **NO:** Install cartridge and push it on fully.
3. Is print head well connected?	***3.*** **NO:** Reconnect the flat cable on the CPU board.
4. Check print head coils *	***4.*** **NO**: Change print head.
5. If the problem remains	***5.*** Change CPU board.

* With reference on the first top pin of the flat cable you should measure:
50 Ω, 25 Ω, 50 Ω, 50 Ω, 50 Ω, 50 Ω, 25 Ω, Open circuit, 50 Ω

7.21 SYMPTOM: INCORRECT COLOR

CHECK	DIAGNOSTIC / ACTION
1. Is cartridge installed?	***1.*** **NO:** Install cartridge and push it fully.
2. Is color motor properly connected?	***2.*** **NO:** Reconnect the flat cable on the CPU board.
3. Is the motor coil about 80 Ω per coil?	***3.*** **NO:** Change motor.
4. Is the color always black?	***4.*** **YES:** Check printing delay (speed too high or printer left with no paper) make correction and cycle power to recorder.

7.22 SYMPTOM: INCORRECT PRINT OUT

CHECK	DIAGNOSTIC / ACTION
1. Is printing too light?	**1.** **YES:** Check cartridge ribbon (too old). Check gap print head (0.6 mm, 0.0236”). Check motor ribbon (about 80 Ω per coil).
2. Are some colors missing?	**2.** **YES:** Check color calibration. Clean color mechanism.
3. Is printing trace unstable?	**3.** **YES:** Check 0% and 100% paper calibration. Clean carriage driving bar.

7.23 SYMPTOM: DOUBLE TRACE ON THE CHART PAPER

CHECK	DIAGNOSTIC / ACTION
1. Check if the carriage belt is worn where the carriage is fixed on the belt.	**1.** If the belt is worn, free the belt from the carriage. **2.** Move the carriage some centimeters right or left, on a non-worn part of the belt. **3.** Put the belt back on the carriage.

7.24 ERROR MESSAGES

NO TRACE
Display is selected for traces but no traces are configures in the chart configuration on each channel

NO PAPER
No paper in the cassette has activated the “Paper Out” switch or the cassette has been removed

END PAPER
The Chart Length counter has reached 0

BATTERY FAIL
The Lithium Battery for the Real Time Clock is at the level less than 3V

ONE ALARM ON
The configured Alarm/Event has occurred

BURNOUT
The input is configured and in a Burnout Condition or an input in burnout has disabled

SHEDTIME
The configured time period within which the communications response has not occurred

PRT INHIBIT
All print actions have been inhibited

OVERFLOW SPEED
The print buffer is near is capacity, filling the printer requirements with alarm messages, chart documentation information. Buffer will fill if paper is not installed. Remove power and install chart paper.

EV PRECURSOR
Event precursor mode is enabled and the recorder is in standby

TEST PASSED
The recorder passes the self-test (diagnostic and running-in test)

TEST FAILED
The recorder fails the self-test (either diagnosis or running-in test)

NO RESPONSE
There is no communication between the recorder and the PCconfigurator

BAD CARRIAGE DISPLACEMENT
The carriage movement requires more steps to reach the “zero reference” than the processor expects

BAD REFERENCE
Zero reference sensor bad or not connected

BAD COLD JUNCTION REFERENCE
Bad reading coming from Cold Junction Reference Resistor

PCMCIA BAD
Some data could not have been stored on PCMCIA card because of a physical problem on it

PCMCIA NOT INIT
PCMCIA card has been recognized but not initialized

PCMCIA PENDING
Data can not be stored on the PCMCIA card because the configuration stored on it does not match the recorder configuration or there is no memory card

PCMCIA CONF CHG
There is a difference between the configuration of the recorder and the parameters stored in the memory card, the parameters may be one of the following: the ID number, the language, the trace, the destination, the tagname and the engineering unit.

PCMCIA DATA LOST
This message is displayed if data written on the PCMCIA card has not been stored and has been removed from the internal buffer.

PCMCIA FULL
One of the PCMCIA files is nearly full according to the EVENT definition

PCMCIA MISSING
There is no PCMCIA card inside the recorder or the card has not been detected

CARD PRESENT
A PCMCIA card is present with no problem detected

BAD EEPROM BACKPLANE
EEPROM not responding

BAD EEPROM INPUT
EEPROM not responding

TABLE OF CONTENTS

8.1 OPERATOR INTERFACE

8.1.1 ACCESS TO SERVICE

Access to **READ/WRITE** Configuration, **COPY**, **PRINT CONF**iguration or **SERVICE** from Operation mode is obtained by pressing the **SETUP** key.

8.1.2 PASSWORDS

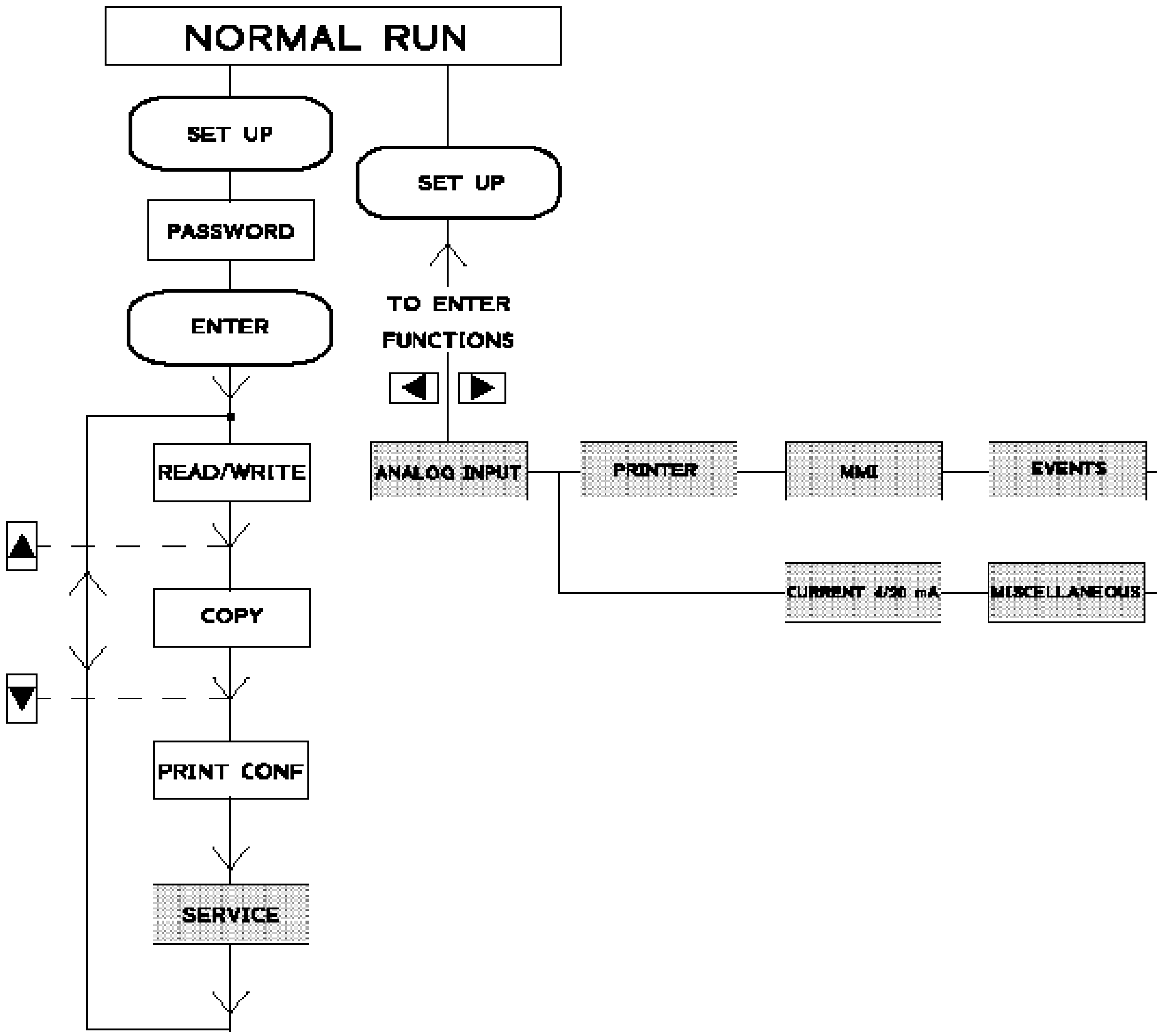
To protect the recorder against unauthorized access, the operator has to enter a password. There are two possible levels of access :

- Password #1 allows reduced access to service. If password #1 is used, you are only able to adjust the 0 % and 100 % chart markings.

- Password #2 allows full access to service.

NOTE: Use of the ▲ ▼ keys allows you to select **SERVICE.**

Use of the ◀ ▶ keys allows you to select one of the following functions of parameters for **SERVICE** action:



Press **ENTER** to validate your selection, or press **SETUP** to come back to main function.

8.1.3 ACCESS TO FUNCTIONS DURING SERVICE

TYPES OF SERVICE SELECTION:

The ◀ ▶ keys allows you to select the type of service you want to execute.

The ▲ ▼ keys allows you to select the channel on which you want to execute the service.

Press **ENTER** to validate your selection, or press **SETUP** to come back to main function.

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
NAME OF THE FUNCTION	**NAME OF THE PARAMETER**	**IMPORTANCE OF THE PARAMETER** ◆ **CAN BE CHANGED IN RUN MODE** ◆◆ **STOP OF ACQUISITIONS** ♣ **WITH PASSWORD 1 OR 2** ♣♣ **ONLY WITH PASSWORD 2**

DEFINITION: **EXPLAIN THE ROLE OF THE PARAMETER**

HOW TO MODIFY IT: **BY SELECTING OR ENTERING A NEW VALUE I.E. USING THE ▼ ▲ KEYS**

POSSIBLE VALUES: **LIST OF POSSIBLE VALUES OR LIMITS**

SEE ALSO:

EXAMPLE:

NOTE:

NOTICE

The configuration of parameters with the classification "◆◆" stops the acquisition as well as the operation of alarm supervision.
Leaving the configuration mode resets the memory buffer and the alarm status is defined again, and the chart speed changes back to the configured value. Occurrence value is reset.

8.2 LIST OF SERVICES

SUB – MATRIX **ANALOG INPUT**

SUB-MATRIX	PARAMETER	CLASSIFICATION
ANALOG INPUT	**PV CALIB**	◆◆ ♣♣

DEFINITION: Allows the user to calibrate the 0% and 100% of the measure system.

HOW TO MODIFY IT: Allows the user to calibrate the 0% and 100% of the measure system. The message **"1** (channel) **CAL 0%**" is flashing with "**CONNECT 0%**". (Asks the user to prepare the system for the 0% calibration). Set input generator to deliver a signal corresponding to low scale (0%).

NOTE: For some thermocouples, the accuracy is inherently low . For these thermocouples, the **"CAL 0%"** (low point) has been shifted to the values listed below:

Thermocouple CAL 0%

PR20-40	$1100^{o}C = 2012^{o}F$
B	$600^{o}C = 1112^{o}F$
WW26	$400^{o}C = 752^{o}F$

Then press **ENTER**, calibration starts and **"CAL 0%"** is flashing. To end "**CAL 0%**", press **ENTER** to validate. You can press **SETUP** at any time to cancel the process.

Then the message **"CAL 100%"** flashing with "**CONNECT 100%** " asks the user to prepare the recorder for the 100% calibration.

Set input generator to deliver a signal corresponding to full scale (100%). Then press **ENTER**, the 100% calibration starts and "**CAL 100%**" is flashing. To end "**CAL 100%**", press **ENTER** to validate. You can press **SETUP** at any time to cancel the process.

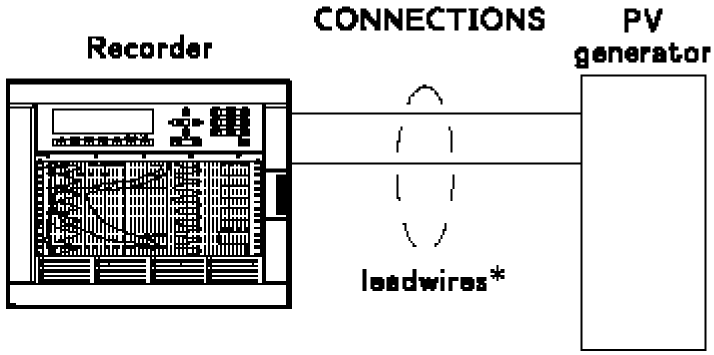
If you do not cancel the calibration (0% or 100%), "**END CAL**" is displayed for 3 seconds. Press **SETUP** to exit.

If you do not press **SETUP**, the message **"COPY ?"** is displayed after 3 seconds. Pressing **ENTER** will copy the calibration result on all similar connected ranges. Press **SETUP** if you do not want the result to be copied on the other similar connected ranges.

NOTE: Instrument should be allowed to warm up for a period of 30 minutes before calibration

SUB-MATRIX	PARAMETER	CLASSIFICATION
ANALOG INPUT	**PV CALIB**	◆◆ ♣♣

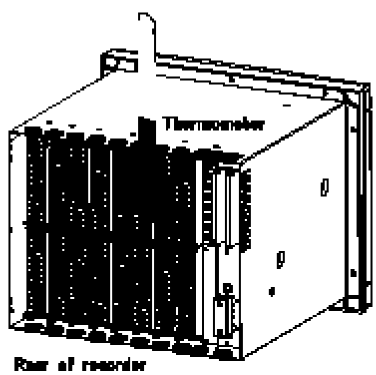
NOTE: Signal generators should have an accuracy of at least 0.05 %.
The type of wires depends on the sensor used.
Wait for 5 minutes after that particular sensor is connected (For compensation wires only).



CAUTION

MAINTAIN CORRECT TEMPERATURE

For T/C: Use compensation lead wires as the selected thermocouple. For RTD, mA: Use the copper lead wires. In thermocouple pay attention to the ambient temperature. If you are using a mV generator instead of direct thermocouple generator, the lead wires are in copper and you have to subtract from the mV value the mV corresponding to the ambient temperature of the rear terminals. (This eliminates the effect of the cold junction compensation)



Failure to comply with these instructions may result in product damage

NOTE: Each time you change the sensor, the recorder is factory calibrated again.

SUB-MATRIX	PARAMETER	CLASSIFICATION
ANALOG INPUT	**CAL DATE**	◆♣

DEFINITION:	Shows you the date of the last PV calibration or junction calibration.
HOW TO USE/EXECUTE IT:	You can only read the date. Press **SETUP** to escape.

SUB-MATRIX	PARAMETER	CLASSIFICATION
ANALOG INPUT	**JUNCT °C**	◆♣

DEFINITION:	Shows value of the cold junction temperature compensation.
HOW TO USE/EXECUTE IT:	You can only read the value. Press **SETUP** to escape.
NOTE:	Value in °C.

SUB-MATRIX	PARAMETER	CLASSIFICATION
ANALOG INPUT	**JUNCT T°**	◆◆♣ ♣

DEFINITION:	Allows the user to calibrate the cold junction temperature.
HOW TO USE/EXECUTE IT:	When you enter in the sub-matrix, the message "**1T: 25.1 °C**" is displayed. Press ▼ or ▲, to modify the current value. Press **ENTER** to accept this value, or **SETUP** to cancel. If you accept, the calibration of the cold junction is executed. The message **"CAL JUNCT"** is flashing during few seconds. You can cancel the process by pressing **SETUP** If you do not cancel, the message **"END CAL."** is displayed for three seconds.
NOTE:	All units are delivered with the cold junction temperature already calibrated. The temperature must be gauged on the positive or negative terminals of the channel to calibrate.

SUB – MATRIX **PRINTER**

PARAMETERS

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
PRINTER	**CHART LG**	◆♣

DEFINITION: Allows the user to know the length of remaining chart.

HOW TO USE/EXECUTE IT: You can only read the value.
Press **SETUP** to escape.

SUB-MATRIX	PARAMETER	CLASSIFICATION
PRINTER	**0% CHART**	◆◆♣ ♣

DEFINITION: Chart certification to show the current 0% chart position with 0% print carriage. This is a mechanical adjustment.

HOW TO USE/EXECUTE IT: The message (channel nb) **"CAL 0%"** is displayed with a flashing number. This number corresponds to the present adjustment (= step motor).

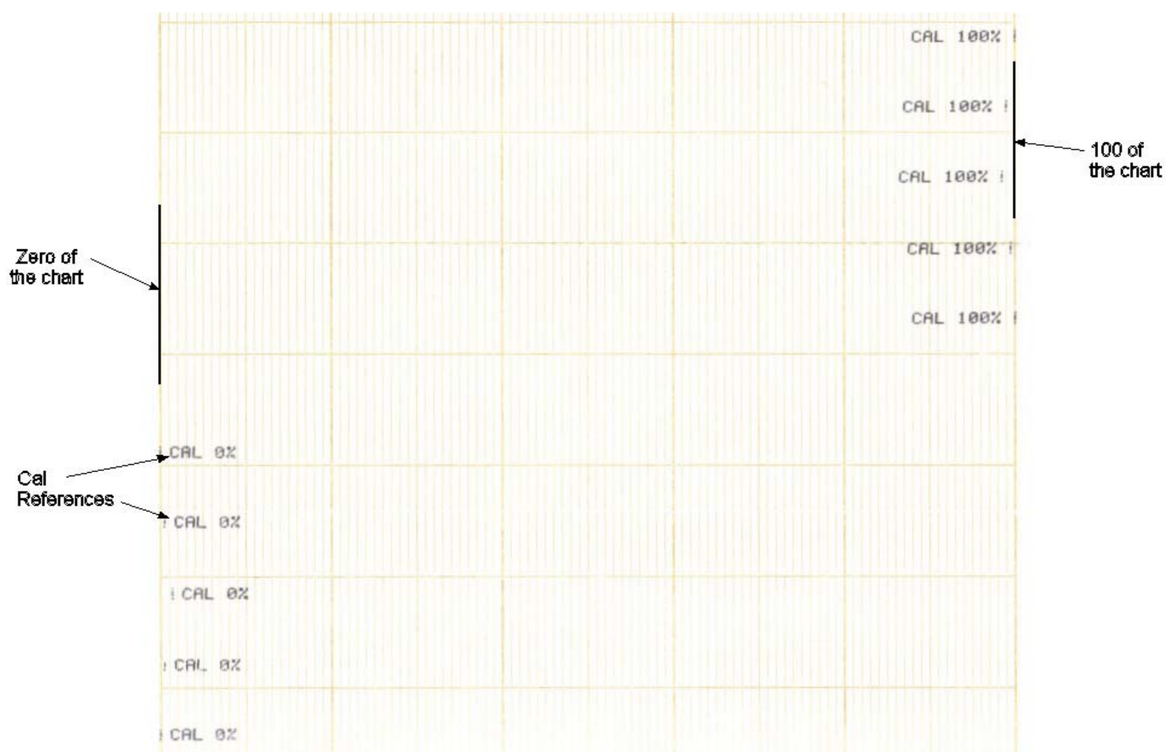
To move to the right, increase this number or to the left, decrease the number. (You may use a negative number).

You can change the distance value by pressing the ▲ ▼ keys.

The recorder accepts the value by pressing **ENTER**.

You can leave the 0% chart service by pressing **SETUP**.

NOTE: When you press **ENTER**, the head moves and prints at the new 0% chart calibration.



SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
PRINTER	**100% CHART**	◆◆♣ ♣

DEFINITION: Chart certification to show the current 100% chart position with 100% print carriage. This is a mechanical adjustment.

HOW TO USE/EXECUTE IT: The message (channel nb) **"CAL 100%"** is displayed with a flashing number. This number corresponds to the present adjustment (= step motor).

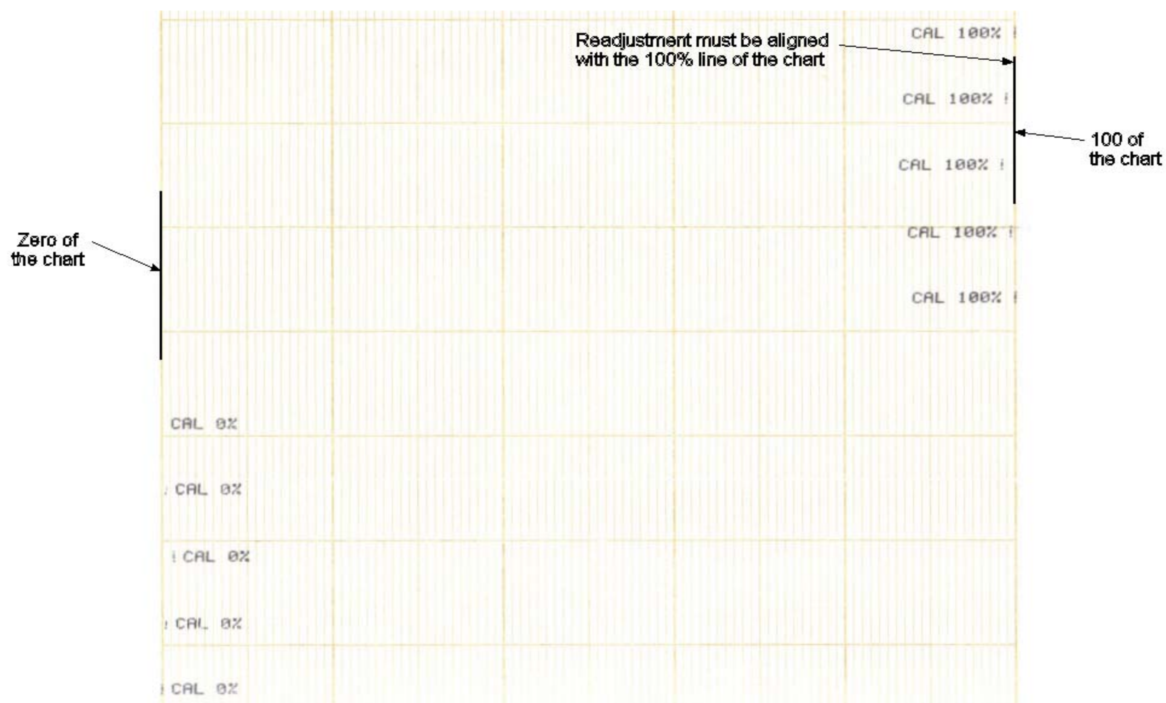
To move to the right, increase this number or to the left, decrease the number. (You may use a negative number).

You can change the distance value by pressing the ▲ ▼ keys.

The recorder accepts the value by pressing **ENTER**.

You can leave the 100% chart service by pressing **SETUP**.

NOTE: When you press **ENTER**, the head moves and prints at the new 100% chart calibration.



SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
PRINTER	**COLOR CALIB**	◆◆♣ ♣

DEFINITION: Test to show the current mechanical color adjustment.

HOW TO USE/EXECUTE IT: Press **ENTER** to confirm or **SETUP** to leave.

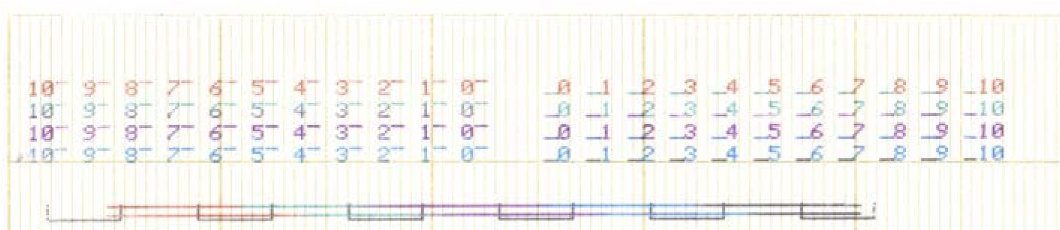
Description:
- First step gives a rough idea of adjustment, 6 zones from left to right red, brown, green, purple, blue and black.
- Second step: String of blue characters
- Third step: String of purple characters
- Fourth step: String of green characters
- Fifth step: String of brown characters

  Target is to get at least in the four strings: low dash from 0 to 4 in the good color and up dash from 4 to 0 in the good color.
  To increase low dash number in the good color give a positive value by pressing the [key quantity proportional to graduations.

To increase up dash number in the good color give a negative value by pressing the] key quantity proportional to graduations.
The recorder accepts value by pressing **ENTER** then the recorder prints the adjustment test with the new value.
You leave color calibration mode by pressing **SETUP**.

4 strings

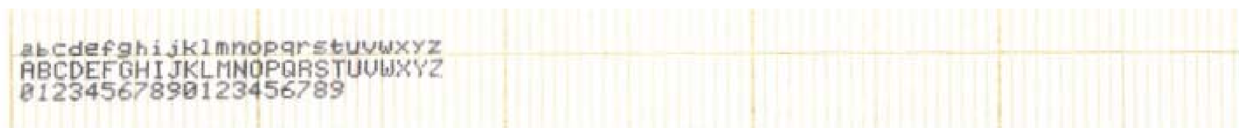
first step



SUB-MATRIX	PARAMETER	CLASSIFICATION
PRINTER	**CHARACTERS**	◆◆♣ ♣

DEFINITION: Prints all the characters available with the printer.

HOW TO USE/EXECUTE IT: The printer test begins when you enter in the function.
You stop it by pressing **SETUP**.



SUB-MATRIX	PARAMETER	CLASSIFICATION
PRINTER	**PR ALL CONF**	◆◆♣ ♣

DEFINITION: The recorder allows you to print its complete configuration data.
Refer to section 4.5 "PRINT CONFIGURATION".

NOTE: **ADVICE:** We recommend you to execute a PRINT ALL CONF after having received your recorder.

During the printing, a message (IN PROGRESS) is shown on the lower display, indicating the current action.

You can stop the printing at any time by pressing the SETUP or DISPLAY keys. All other keys are deactivated.

The data is printed in reverse order so that you can read it in a logical order from top to bottom when completed.

PRINT ALL CONF does not print the MATH sub-matrix if your recorder does not have this option.

SUB-MATRIX	PARAMETER	CLASSIFICATION
PRINTER	**PR HRD CONF**	◆◆♣ ♣

DEFINITION: This function allows you to print the hardware configuration of your recorder and shows the type of current cards with their respective slots.

NOTE: During the printing, the "IN PROGRESS" message is displayed. At the end of the printing, the initial message (PR01 PR HRD CONF) is displayed again.

PRINTING FORMAT:

*** HARDWARE CONFIG 18:25 15 SEP 97 ***

SLOT	J	K	L	M	N	P
CARD	D	D	D	R	R	.

SLOT	A	B	C	D	E	F
CARD	U	U	.	L	U	?

COMM	.
PCMCIA	.

D: 6 digital inputs
R: 6 alarm relay outputs (digital outputs)
L: 4 linear inputs (analog inputs)
U: 4 universal inputs (analog inputs)
C: 4 current outputs
?: incorrectly located card
●: no existing card

NOTE: In this case, data is printed on BLANK paper. (Trace printing is momentarily stopped.)
The card abbreviations must be the same as those in the Model Selection Guide and in the "CARD USED" function ("MISCELLANEOUS" service).

SUB – MATRIX **MMI**

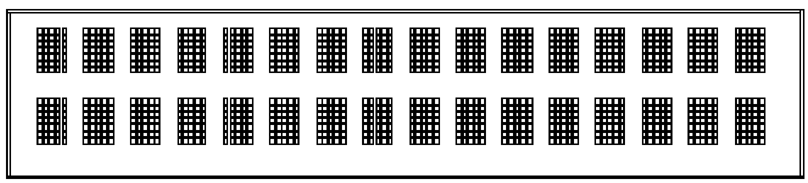
PARAMETER **DISPL TEST** page 8-18

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
PRINTER	**DISPL TEST**	◆♣

DEFINITION: Confirms that the display is operating correctly.

HOW TO USE/ EXECUTE IT: When you enter in the function, every pixel flashes for 15 seconds.

You can stop it by pressing **SETUP**.



SUB – MATRIX **EVENTS**

PARAMETER **EV STATE** page 8-19

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
EVENTS	**EV STATE**	◆♣

DEFINITION: Shows the event status.

HOW TO USE/ EXECUTE IT: You can only read the event status.

Press **SETUP** to escape.

SUB – MATRIX **MISCELLANEOUS**

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
MISCELLANEOUS	**RECORD TYPE**	◆♣

DEFINITION: Shows the recorder type, 250 mmm (9.84 inch).

HOW TO USE/EXECUTE IT: You can only read the value.

Press **SETUP** to escape

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
MISCELLANEOUS	**SERIAL #**	◆♣

DEFINITION: Shows the serial number of the product

HOW TO USE/EXECUTE IT: You can only read the value.

Press **SETUP** to escape.

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
MISCELLANEOUS	**FINAL TEST**	◆♣

DEFINITION: Shows the date of final factory test.

HOW TO USE/EXECUTE IT: You can only read the value.

Press **SETUP** to escape.

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
MISCELLANEOUS	**BACKUP**	◆◆♣♣

DEFINITION: Saves time, date, remaining paper length and maths results before changing the battery.

HOW TO USE/EXECUTE IT: When you press **ENTER** in the function, the copy is executed.

You can execute several backups before restoring the values. But you cannot execute many restores without any backup.

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
MISCELLANEOUS	**RESTORE**	◆◆♣♣

DEFINITION: Restores the previous backup values after having changed the battery.

HOW TO USE/EXECUTE IT: When you press **ENTER** in the function, the restoration is executed.

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
MISCELLANEOUS	**SOFTWARE**	◆♣

DEFINITION: Shows the recorder software version.

HOW TO USE/EXECUTE IT: You can only read the value.

Press **SETUP** to escape.

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
MISCELLANEOUS	**HARDWARE**	◆♣

DEFINITION: Shows the recorder hardware version of the product.

HOW TO USE/EXECUTE IT: You can only read the value.

Press **SETUP** to escape.

SUB-MATRIX	*PARAMETER*	*CLASSIFICATION*
MISCELLANEOUS	**CARD USED**	◆♣

DEFINITION:

Shows the type of cards connected to the recorder.
Possible choices are:
- **D**: 6 digital inputs
- **R**: 6 alarm relay outputs (digital outputs)
- **L**: 4 linear inputs (analog inputs)
- **U**: 4 universal inputs (analog inputs)
- **C:** 4 current outputs
- **?**: incorrectly located card
- ●: no existing card

HOW TO USE/EXECUTE IT:

You can only read the value.

Press **SETUP** to escape.

SUB – MATRIX **CURRENT 4/20 mA**

PARAMETERS

SUB-MATRIX	PARAMETER	CLASSIFICATION
CURRENT 4/20 mA	**CURR CALIB**	◆◆♣♣

DEFINITION: Calibrates the 4 mA and 20 mA references for the selected output.

HOW TO USE/EXECUTE IT: The **"CALIB 4mA"** message flashes and the output is supposed to produce 4 mA. Press the ▲ and ▼ keys to start calibration until reaching the 4 mA output.
In the case where you validated via the **ENTER** key, the **" CALIB 20mA"** message flashes and the output is supposed to produce 20 mA.
Calibration starts when pressing the ▲ and ▼ keys until reaching the 20 mA output.
Pressing **ENTER** makes the calibration stop (the **"END CAL"** message is displayed during 3s.)
At any time, **SETUP** disables the 2 references calibration.

SUB-MATRIX	PARAMETER	CLASSIFICATION
CURRENT 4/20 mA	**VIEW CURR**	◆♣

DEFINITION: Allows the output current to be displayed under the automatic format. (from 0 to 24 mA)

HOW TO USE/EXECUTE IT: Cannot be modified. Press **SETUP** to escape.

SUB-MATRIX	PARAMETER	CLASSIFICATION
CURRENT 4/20 mA	**FORCE CURR**	◆◆♣♣

DEFINITION: Allows forcing a current output manually on the 0-24 mA range.

HOW TO USE/EXECUTE IT: Press the ▲ and ▼ keys to modify the output current.
Press **SETUP** to escape.

DEFINITION: [0 ... 24] mA
3 digits after the decimal point

DEFINITION: 0.000

Technical data

Technology	Microprocessor-based (32 bits), with non-volatile memory. Flash memory for product software upgrade or specials, via the front jack.
Analog inputs	
Number of inputs	From 4 up to 64 in group of 4. Above 32 inputs, it could limit the total number of alarm outputs or digital inputs.
Input boards	2 types: 4 linear inputs per board: mV, V, mA 4 Universal inputs per board: mV, V, mA, T/C, RTD, Ohms
Signal source	Thermocouple with cold junction compensation, or with remote compensation temperature configurable between 0 to 80°C (32 to 176°F) Line resistance up to 1000 ohms for T/C, mV, mA, V RTD Pt 100 Ohms, 3-wire connections, 40 Ω balanced max.
Basic mathematical Functions	Square Root extraction or channel differential are standard.
Filter	Digital filter configurable per input from 0 to 99 seconds.
Field calibration	Channel field calibration 0 to 100% span (or calibration of a group of identical channels) can be made to certify input sensor loop.
Burnout	T/C, mV, V (except following ranges) configurable to upscale, to downscale or none. Volt: -500, 0, 500 mV; -1, 0, 1 V; -2, 0, 2 V; -5, 0, 5 V; 0, 10 V; -10, 0, 10 V : Inherent to zero RTD: Inherent upscale. mA: Inherent downscale
Scanning time	2 channels = 105 ms, 4 channels = 210 ms, 8 channels = 420 ms, 12 channels = 630 ms, 16 channels = 840 ms, 20 channels = 1 sec, 24 channels = 1.2 secs, …, 64 channels = 3.3 secs (see section 1 for more details)
Input impedance	10 Mohm for T/C, mV inputs, >1 Mohm for volt inputs.
Stray rejection	Series mode > 60 dB. Common mode at 120 V AC > 130 dB.
Display	
Fluorescent display	2 rows of 16 digits, 8.5 mm (.33 inch) high, matrix display. Can display 1 or 2 PV values (5 digits) per line, engineering units (5 digits), alarm status, tag name, maths, speed, event messages etc.
Brightness	The display brightness is configurable.
Record	
Chart	250 mm (9.84 inch) width
Traces	Up to 32 traces, configurable in 6 colors, thin or thick traces, plus digital traces
Trace assignment	Traces are configurable on analog inputs, maths, comm. or digital inputs
Scaling	Per input, up to 2 analog scales can be configured to be printed on the chart with the engineering unit, channel reference and tag name. Each input can be configured independently. The scale can be linear, with up to 10 sub-divisions

Technical data	
Print mode	**Trend:** Up to 32 traces, with periodic chart documentation configurable in time, from 1 minute to 24 hours with date, time, scales, digital PV print-out over traces or on blank paper, with channel reference, digital traces, alarm messages and customer message **Tabular:** Tabular print-out configurable in time from 1 to 1440 minutes with channel number, tag name, digital PV value, engineering unit, alarm status
Zoning	Each input can be scaled between 0 to 100 % of the chart. (min. zone = 20%)
Printing group	Up to 2 groups of channels can be defined, with printing selection by: Alarm, logic inputs or triggers.
Pen carriage speed	1.4 seconds full scale
Chart length	Roll and Fanfold chart 35 m (115 ft.)
Chart speed	1 or 2 chart speeds, fully configurable, selected by: Logic input, alarm, communication, front key
Speed setting	Speeds 1 and 2 are configurable from 1 (0.04) up to 5000 mm/h (200 inch/h)
Resolution	Chart resolution is 0.19 mm (0.0075 inch)
Product configuration	
Access	The configuration can be accessed using front keys, PC Configurator or Communication.
Protection	2 password levels protect the unit configuration from unauthorized access. Level 1 = limited access, Level 2 = full protection
Front keys	Configurable and alphanumeric keys allow the operator to change the recorder operation.
PC configuration	Through the front jack the unit can be configured from a PC through a PC interface. This provides the facility to copy the configuration, modify, store, download or upload the configuration, access service diagnostics, and also to upgrade the recorder firmware.
Logic inputs (optional) Number of inputs	Up to 48 input contacts, organized in groups of 6 contacts per card Dry contacts (5 mA - 5 V dc)
Actions	Change chart speed 1 to speed 2, tab interval 1 to tab interval 2, digital print-out, print message, print inhibit, event traces, print math calculations. Change range, start/stop math operations. Change print group, actuate a relay output. Up to 48 event traces are configurable in color and position from 0 to 100% of the chart.
Alarms	
Setpoints	Up to 64 alarm setpoints, freely assignable to analog inputs, maths or comm.
Alarm type	High, low, change rate high, change rate low, change rate high-low or deviation with configurable alarm occurrence

Technical data	
Alarms (continued) Actions	Can trigger a message, print channel in red in alarm, print in alarm, change the range, change the speed/tabular, print digital PV's, start/stop the maths, select the print group, actuate a relay output.
Relay output (optional)	Up to 48 internal relays: 2 A, 250 V ac on resistive load. 1 SPST contact output, normally closed contact (NC), configurable to normally open (NO), configurable alarm relay acknowledgment.
Alarm event	The recorder can be configured to display events such as: 1 alarm, 1 channel in burnout, paper out, battery failed, communication interrupted.
Alphanumeric documentation Messages	Up to 48 freely assignable messages of 50 characters each. Can be printed with or without date/time over the traces by alarms, logic inputs, communication, when alarm is ON, OFF or ON/OFF. Message 1 can be configured to print a header message in Tabular mode.
Process values	Periodic digital print-out at time intervals configurable from 1 minute to 24 hours or through alarms, digital inputs, communication
Tag name	Each channel can have up to an 8 character name.
Chart scales	Each can be configured from 0 to 9 subdivisions
Periodic Report	Startup time and period are configurable. Min., max., average of selected channels (or math computation) are printed in alphanumeric. Report size max. = 20 lines.
User-Defined Actuation	Up to 50 breakpoints can be used to define a custom range/actuation. Up to 2 ranges can be defined using the PC Configurator.
Mathematical package (optional)	Many functions are available such as: basic maths functions (+, -, x), square root, Fo, totalization mass flows, energy consumption, averages, min., max., timers, carbon potential, alarm logic pulses totalization, RH, .. The calculations are stored during power interruption.
Actions	The results can be recorded as a trace, a tabular print-out, or in a periodic report, or sent to the communication link, or used to generate a current output signal.
Communication (optional) Protocols	ASCII in RS 232, RS 422, RS 485 MODBUS RTU in RS 422, RS 485 Ethernet/Modbus RTU Bridge Inteface Interface configured with standard IP address and is utilized with 3rd party software that provides TCP/IP modbus driver and OPC capability
PC supervision	In ASCII Communication, an application software package L.P.C.S. provides the following functions: monitor the PV's, alarms, event status ; archiving of data in ASCII files ; send a message to the recorder ; configure the recorder.

Technical data	
PCMCIA (optional) PCMCIA cards	 PCMCIA memory cards are ATA type II compatible and use flash technology for a longer data retention. Memory size starts from 2 Mb up to 75 Mb
Actions	Archiving of PV traces, alarms and events with file names. Logging time selectable from 1 second up to 30 minutes.
PC analysis	The SDA software (Software Data Analysis) or TrendManager Pro software provides an easy and powerful way to analyze trend, alarm and event files as well as to export them in spreadsheet format. (CSV)
Retransmitting signals (optional)	
Current output	Up to 8 signals, 4 to 20 mA dc, can be generated by the recorder (organized in blocks of 4 output signals). Max. Line impedance = 400 Ohms These can be configured for: analog traces, math calculations, PV's from the communication link. The zero and span are configurable. Factory accuracy: 0.15% Field calibration accuracy: 0.05% Temperature drift: 75 ppm
Clock timer	
Format	Year, month, hour, minute can be set
Power interruption	Battery backed (10 years time, 3 years power off)
Accuracy	10^{-5} at reference conditions
Power supply	100 to 240 V ac/dc (24 V ac/dc on special request) Power consumption = 100 VA max.
Packaging	
Weight	22 kg max. (48 lbs)
Front bezel	310 x 387 mm (12.2 x 15.24 inches)
Panel cutout	278 x 348 mm (10.9 x 13.7 inches)
Depth	320 mm (12.6 inches) including the rear cover
Front protection	IP 55
Lock	Latch, optional key (DIN 43832-N)
Door	Die cast aluminum: Dark gray or black (optional), door opens to 180°
Mounting	Panel mounting ±30° from the horizontal
Wiring	Screw terminals: Terminal blocks plug on to the boards at the back of the recorder
Noise immunity/Isolation	This product is in conformity with the protection requirements of the following European Council Directives: ▪ 73/23/EEC, the Low Voltage Directive and 89/336/EEC, the EMC Directive. Conformity of this product with any other “CE Mark” Directive(s) shall not be assumed. ▪ EMC Classification: EN61326-1 Electromagnetic Compatibility – General Emission Standard, Part 2: Industrial Environment. ▪ EN61326-1 Electromagnetic Compatibility – General Immunity Standard, Part 2:Industrial Environment.
Safety protection	Complies with EN61010-1 and UL 3121 for process control instrumentation. Pollution Degree 2. Installation Category II

Technical data		
Electrical insulation - Input to input - Input/ground - Alarm relay/ground - Input/line; Line/ground - Current output/ground - Logic/ground	- Functional isolation for continuous operation at 280 V ac or 400 V dc (except for RTD) - Test voltage 2.1 kV dc for 1 minute - Test voltage 3.25 kV dc for 1 minute - Test voltage 3.25 kV dc for 1 minute - Test voltage 3.25 kV dc for 1 minute - Test voltage 500 V dc for 1 minute	
Temperature Ambient Storage	0 to 50°C (32 to 122°F) for roll paper, 0 to 40°C (32 to 104°F) for fanfold paper -40 to 70°C (-40 to 160°F)	
Humidity Roll chart Fan fold	10 to 90% RH non-condensing 15 to 80% RH non-condensing	
Vibrations	Frequency: 10 to 60 Hz, amplitude 0.07 mm 60 to 150 Hz, acceleration 1 g	
Accuracy Reference conditions	Temperature = 23°C ±2°C (73°F ±3°F) Humidity = 65% RH ±5% Line voltage = Nominal ±1% Source resistance = 0 Ohm Series mode and common mode = 0 V Frequency = Nominal ±1%	
Accuracy	**Field calibration accuracy 0.05% of the selected range (IEC 873)** Factory calibration = 0.1% of the selected range Chart resolution = 0.18 mm (0.007”). Cold junction accuracy = ±0.5°C (32.9ºF)	
Rated limits and associated drifts **Parameter**	**Rated limits**	**influence on accuracy**
Temperature	0 to 50°C (32 to 120°F)	0.15% per 10°C of change (See note below) Cold junction 0.3°C/10°C
Supply voltage	85 to 250 V	No influence
Source resistance	T/C, mV	6 µV per 100 Ohms of line Resistance max. = 1000 Ohms
	RTD	0.1°C per Ohm in each wire. Balanced leads: 40 Ohms max. in each wire *
	* On PT100°C ≥400°C and JIS ≥400°C and other ranges	
Humidity	10 to 90 % RH at 25°C	0.1% max.
Long-term stability		0.1% per year
Vibrations	0 to 14 Hz, amplitude 1.25 mm 14 to 250 Hz, acceleration 1g.	

NOTE: 0.5% per 10°C on Cu 10 ohms
0.3% per 10°C on Pt 100°C ≤200°C

AVAILABLE RANGES

LINEAR			
DISPLAY	RANGE	DISPLAY	RANGE
mV:	mV:	Volt:	Volt:
0/10 mV	0/10 mV	0/1 V	0, 1 V
-10/10 mV	-10, 0, 10 mV	-1/1 V	-1, 0, 1 V
0/20 mV	0, 20 mV	0/2 V	0, 2 V
-20/20 mV	-20, 0, 20 mV	-2/2 V	-2, 0, 2 V
0/50 mV	0, 50 mV	0/5 V	0, 5 V
-50/50 mV	-50, 0, 50 mV	-5/5 V	-5, 0, 5 V
10/50 mV	10, 50 mV	1/5 V	1, 5 V
0/100 mV	0, 100 mV	0/10 V	0, 10 V
-100, 0, 100 mV	-100, 0, 100 mV	-10/10 V	-10, 0, 10 V
0/500 mV	0, 500 mV		
-500/500 mV	-500, 0, 500 mV		
mA:	mA:		
0/20 mA	0/20 mA*		
4/20 mA	4, 20 mA*		

*** The mA inputs have to be connected on a 250 Ω input resistor across the input terminals.**

AVAILABLE RANGES *(continued)*

RTD / OHMS			
DISPLAY	**RANGE**	**REFERENCE ACCURACY RANGE**	**STANDARD**
Pt 100 Ω et 0 °C:	Pt 100 Ω et 0 °C:	Pt 100 Ω et 0 °C:-	
-50/150 C	-50, 0, 150 °C	50, 0, 150 °C	IEC 751 – 1986
-58/302 F	-58, 0, 302 °F	-58, 0, 302 °F	IEC 751 – 1986
0/100 C	0, 100 °C**	0, 100 °C**	IEC 751 – 1986
32/212 F	32, 212 F**	32, 212 °F**	IEC 751 – 1986
0/200 C	0, 200 C	0, 200 °C	IEC 751 – 1986
32/392 F	32, 392 °F	32, 392 °F	IEC 751 – 1986
0/400 C	0, 400 °C	0, 400 °C	IEC 751 – 1986
32/752 F	32, 752 °F	32, 752 °F	IEC 751 – 1986
-200/800 C	-200, 0, 800 °C	-200, 0, 800 °C	IEC 751 – 1986
-328/1472 F	-328, 0, 1472 °F	-328, 0, 1472 °F	IEC 751 – 1986
Ni 50 ohms:	Ni 50 ohms:	Ni 50 ohms:	
-80/320 C	-80, 0, 320 °C	0, 320 °C	Edison #2045A – 1962
-112/608 F	-112, 0, 608 °F	32, 608 °F	Edison #2045A – 1962
Ni 508 ohms:	Ni 508 ohms:	Ni 508 ohms:	
-80/150 C	-80, 0, 150 °C	0, 150 °C	
-112/302 F	-112, 0, 302 °F	32, 302 °F	
Cu 10 ohms:	Cu 10 ohms:	Cu 10 ohms:	
-20/250 C	-20, 0, 250 °C***	-20, 0, 250 °C***	General Electric
-4/482 F	-4, 0, 482 °F***	-4, 0, 482 °F***	General Electric
Ohms:	Ohms:	Ohms:	
0/200Ω	0, 200Ω	0, 200Ω	
0/2000 Ω	0, 2000 Ω	0, 2000 Ω	
JIS:	JIS:	JIS:	
-50/150 C	-50, 0, 150 °C	-50, 0, 150 °C	JIS C 1604 – 1981
-58/302 F	-58, 0, 302 °F	-58, 0, 302 °F	JIS C 1604 – 1981
0/100 C	0, 100 °C**	0, 100 °C**	JIS C 1604 – 1981
32/212 F	32, 212 °F**	32, 212 °F**	JIS C 1604 – 1981
0/200 C	0, 200 °C	0, 200 °C	JIS C 1604 – 1981
32/392 F	32, 392 °F	32, 392 °F	JIS C 1604 – 1981
0/400 C	0, 400 °C	0, 400 °C	JIS C 1604 – 1981
32/752 F	32, 752 °F	32, 752 °F	JIS C 1604 – 1981
-200/500 C	-200, 0, 500 °C	-200, 0, 500 °C	JIS C 1604 – 1981
-328/932 F	-328, 0, 932 °F	-328, 0, 932 °F	JIS C 1604 - 1981

** Accuracy: 0.25 % *** Accuracy: 0.5 %

AVAILABLE RANGES *(continued)*

THERMOCOUPLES			
DISPLAY	RANGE	REFERENCE ACCURACY RANGE	STANDARD
J:	J:	J:	
-50/150 C	-50, 0, 150 °C	-50, 0, 150 °C	IEC 584-1 (ITS90)
-58/302 F	-58, 0, 302 °F	-58, 0, 302 °F	IEC 584-1 (ITS90)
0/400 C	0, 400 °C	0, 400 °C	IEC 584-1 (ITS90)
32/752 F	32, 752 °F	32, 752 °F	IEC 584-1 (ITS90)
-200/870 C	-200, 0, 870 °C	-170, 0, 870 °C	IEC 584-1 (ITS90)
-328/1598 F	-328, 0, 1598 °F	-274, 0, 1598 °F	IEC 584-1 (ITS90)
L:	L:	L:	
-50/150 C	-50, 0, 150 °C	-50, 0, 150 °C	DIN43710 (IPTS68)
-58/302 F	-58, 0, 302 °F	-58, 0, 302 °F	DIN43710 (IPTS68)
0/400 C	0, 400 °C	0, 400 °C	DIN43710 (IPTS68)
32/752 F	32, 752 °F	32, 752 °F	DIN43710 (IPTS68)
-200/870 C	-200, 0, 870 °C	-170, 0, 870 °C	DIN43710 (IPTS68)
-328/1598 F	-328, 0, 1598 °F	-274, 0, 1598 °F	DIN43710 (IPTS68)
K:	K:	K:	
0/400 C	0, 400 °C	0, 400 °C	IEC 584-1 (ITS90)
32/752 F	32, 752 °F	32, 752 °F	IEC 584-1 (ITS90)
0/800 C	0, 800 °C	0, 800 °C	IEC 584-1 (ITS90)
32/1472 F	32, 1472 °F	32, 1472 °F	IEC 584-1 (ITS90)
0/1200 C	0, 1200 °C	0, 1200 °C	IEC 584-1 (ITS90)
32/2192 F	32, 2192 °F	32, 2192 °F	IEC 584-1 (ITS90)
-200/1370 C	-200, 0, 1370 °C	-170, 0, 1370 °C	IEC 584-1 (ITS90)
-328/2498 F	-328, 0, 2498 °F	-274, 0, 2498 °F	IEC 584-1 (ITS90)
R:	R:	R:	
-20/1760 C	-20, 0, 1760 °C	100, 1760 °C	IEC 584-1 (ITS90)
-4/3200 F	-4, 0, 3200 °F	212, 3200 °F	IEC 584-1 (ITS90)
S:	S:	S:	
0/1600 C	0, 1600 °C	100, 1600 °C	IEC 584-1 (ITS90)
32/2912 F	32, 2912 °F	212, 2912 °F	IEC 584-1 (ITS90)
-20/1760 C	-20, 0, 1760 °C	100, 1760 °C	IEC 584-1 (ITS90)
-4/3200 F	-4, 0, 3200 °F	212, 3200 °F	IEC 584-1 (ITS90)
N:	N:	N:	
0/400 C	0, 400 °C	0, 400 °C	IEC 584-1 (ITS90)
32/752 F	32, 752 °F	32, 752 °F	IEC 584-1 (ITS90)
0/800 C	0, 800 °C	0, 800 °C	IEC 584-1 (ITS90)
32/1472 F	32, 1472 °F	32, 1472 °F	IEC 584-1 (ITS90)
0/1200 C	0, 1200 °C	0, 1200 °C	IEC 584-1 (ITS90)
32/2192 F	32, 2192 °F	32, 2192 °F	IEC 584-1 (ITS90)
-200/1300 C	-200, 0, 1300 °C	-170, 1300 °C	IEC 584-1 (ITS90)
-328/2372 F	-328, 0, 2372 °F	-274, 2372 °F	IEC 584-1 (ITS90)

AVAILABLE RANGES *(continued)*

THERMOCOUPLES			
DISPLAY	**RANGE**	**REFERENCE ACCURACY RANGE**	**STANDARD**
T: **-50/150 C** **-58/302 F** **0/150 C** **32/302 F** **50/150 C** **122/302 F** **-200/400 C** **-328/752 F**	**T:** **-50, 0, 150 °C** **-58, 0, 302 °F** **0, 150 °C** **32, 302 °F** **50, 150 °C** **122, 302 °F** **-200, 0, 400 °C** **-328, 0, 752 °F**	**T:** **-50, 0, 150 °C** **-58, 0, 302 °F** **0, 150 °C** **32, 302 °F** **50, 150 °C** **122, 302 °F** **-150, 0, 400 °C** **-238, 0, 752 °F**	 **IEC 584-1 (ITS90)** **IEC 584-1 (ITS90)** **IEC 584-1 (ITS90)** **IEC 584-1 (ITS90)** **IEC 584-1 (ITS90)** **IEC 584-1 (ITS90)** **IEC 584-1 (ITS90)** **IEC 584-1 (ITS90)**
U: **-50/150 C** **-58/302 F** **0/150 C** **32/302 F** **50/150 C** **122/302 F** **-200/400 C** **-328/752 F**	**U:** **-50, 0, 150 °C** **-58, 0, 302 °F** **0, 150 °C** **32, 302 °F** **50, 150 °C** **122, 302 °F** **-200, 0, 400 °C** **-328, 0, 752 °F**	**U:** **-50, 0, 150 °C** **-58, 0, 302 °F** **0, 150 °C** **32, 302 °F** **50, 150 °C** **122, 302 °F** **-150, 0, 400 °C** **-238, 0, 752 °F**	 **DIN43710 (IPTS68)** **DIN43710 (IPTS68)** **DIN43710 (IPTS68)** **DIN43710 (IPTS68)** **DIN43710 (IPTS68)** **DIN43710 (IPTS68)** **DIN43710 (IPTS68)** **DIN43710 (IPTS68)**
NiMo: **0/1400 C** **32/2552 F**	**NiMo:** **0, 1400 °C** **32, 2552 °F**	**NiMo:** **0, 1400 °C** **32, 2552 °F**	 **General Electric (IPTS68)** **General Electric (IPTS68)**
Moco: **0, 1400 C** **32/2552 F**	**Moco:** **0, 1400 °C** **32, 2552 °F**	**Moco:** **0, 1400 °C** **32, 2552 °F**	
W-W26: **-20/2320 C** **-4/4208 F**	**W-W26:** **-20, 0, 2320 °C** **-4, 0, 4208 °F**	**W-W26:** **500, 2100 °C** **932, 3812 °F**	 **IPTS68** **IPTS68**
W5-W26: **-20/2320 C** **-4/4208 F**	**W5-W26:** **-20, 0, 2320 °C** **-4, 0, 4208 °F**	**W5-W26:** **0, 1800 °C** **32, 3272 °F**	 **IPTS68** **IPTS68**
PR20-40: **PR20 1800 C** **PR20 3272 F**	**PR20-40:** **0, 1800 °C** **32, 3272 °F**	**PR20-40:** **600, 1800 °C** **1110, 3300 °F**	 **IPTS68** **IPTS68**
B: **40/1820 C** **104/3308 F**	**B:** **400, 1820 °C** **752, 3308°F**	**B:** **400, 1820 °C** **752, 3308°F**	 **IEC 584-1 (ITS90)** **IEC 584-1 (ITS90)**

Note: For non-linear temperature transmitter, the transmitter range MUST be identical to the input range of the recorder.

TABLE OF CONTENTS

Section Page

10.1 MATRICES

EN	FR	GE	IT	SP
ANALOG INPUT	ENTREE ANALOG	ANALOGEINGANG	INGR ANALOGICO	ENTRADAS ANALOG
CHART	DIAGRAMME	DIAGRAMM	CARTA	GRAFICO
ALARM	ALARME	ALARM	ALLARME	ALARMA
DIGITAL	LOGIQUE	BINÄREINGANG	DIGITALE	DIGITAL
MESSAGES	MESSAGES	TEXTMELDUNGEN	MESSAGGI	MENSAJES
PRINTER	IMPRIMANTE	DRUCKER	STAMPANT	IMPRESORA
CHART DOC	DOC DIAGRAMME	DIAGRAMMFORMAT	DOC CARTA	DOC GRAFICO
MMI	AFFICH/-CLAVIER	MMI	TASTIERA	MMI
EVENTS	EVENEMENTS	MELDUNGEN	EVENTI	SUCESO
MISCELLANEOUS	DIVERS	ANDERE PARAMETER	MISTO	VARIOS
PERIODIC REPORT	RAP PERIODIQUE	PERIOD PROTOKOLL	RAPPORTO PERIOD	INFORME PERIODIC
CURRENT 4/20 mA	COURANT 4/20 mA	STROM 4/20 mA	CORRENTE 4/20 mA	CORRIENT 4/20 mA

ANALOG INPUT

EN	FR	GE	IT	SP
SENSOR	CAPTEUR	GEBERART	SENSORE	SENSOR
RANGE	GAMME	BEREICH	CAMPO	RANGO
EXT COMP	T/C COMP	EXT KOMPENS	COMP EST	COMP EXT
FILTER	FILTRE	FILTER	FILTRO	FILTRO
LOW VALUE	VAL. BASSE	UNTER WERT	VALORE BASS	VALOR INFR
HIGH VALUE	VAL. HAUTE	OBERER WERT	VALORE ALTO	VALOR SUPR
STD MATH	OPTION MATH	STD MATH	OPZIONE MAT	OPC MATM
DIFF WITH	-VOIE n°	KANAL DIFF	CANALE DIF	CA # DIF
BURNOUT	RUPTURE CAP	BRUCHSICHER	SICUREZ	ROTURA
LOW ADJUST	AJUST BAS	UNTERE JUST	REG BASSO	AJUST BAJO
HIGH ADJUST	AJUST HAUT	OBERE JUST	REG ALTO	AJUST ALTO

CHART

EN	FR	GE	IT	SP
TRACE	TRACE	SPUR	TRACCIA	TRAZO
DESTINATION	DESTINATION	ZIEL	DESTINAZIONE	DESTINO
FORMAT	DECIMAL	DRUCKFORMAT	FORMATO	FORMATO
MIN RANGE 1	GAMME 1 MIN	MIN BER 1	CAMPO MIN 1	MIN RANGO 1
MAX RANGE 1	GAMME 1 MAX	MAX BER 1	CAMPO MAX 1	MAX RANGO 1
RG 1 COLOR	COULEUR G1	FARBE BER 1	COLOR CAMP1	COL RANGO 1
MIN RANGE 2	GAMME 2 MIN	MIN BER 2	CAMPO MIN 2	MIN RANGO 2
MAX RANGE 2	GAMME 2 MAX	MAX BER 2	CAMPO MAX 2	MAX RANGO 2
RG 2 COLOR	COULEUR G2	FARBE BER 2	COLOR CAMP2	COL RANGO 2
ENG UNIT	UNITE VOIE	TECHN EINH	UNITA ING	UNID ING
TAG NAME	NOM VOIE	KA BEZEICHN	TARGHETTA	NOMBRE IDNT
RANGE USED	GAMME UTILE	VERW BEREICH	CAMPO USATO	RANGO USADO
0% ZONE	0% ZONE	0% ZONE	0% ZONA	0% ZONA
100% ZONE	100% ZONE	100% ZONE	100% ZONA	100% ZONA
SUB DIV	SOUS-DIV	SKALENTEILG	N DIVISIONE	BAJA DIVIS
GROUP DEF	DEF GROUP	DEF GRUPPE	DEF GRUPPO	DEF GRUPO

ALARM

EN	FR	GE	IT	SP
SP VALUE	CONSIGNE	GRENZWERT	VALORE SP	VALOR PC
APPLY ON	OPERE SUR	KANAL-NR	CANALE	CANAL
ALARM TYPE	TYPE ALARME	ALARMTYP	TIPO ALLARM	TIPO ALARMA
HYSTERESIS	HYSTERESIS	HYSTERESE	ISTERESIS	HISTERESIS
OCCURRENCE	OCCURRENCE	AUFTRITT	STATO	OCURRCIA
DIFF WITH	-VOIE n °	KANAL DIFF	CANALE DIF	CA # DIF
ACTION	ACTION	FUNKTION	AZIONE	ACCION
RELAY NUM	RELAIS N °	RELAIS-NR	NUMERO RELE	RELE #
ACKNOWLEDGE	ACQUITTER	QUITTIERUNG	PAGARE	RECONOCIDO
MSG NUMBER	MESSAGE N °	TEXT NUMMER	NUMERO MSG	MENSAJE #
MSG COLOR	COULEUR MSG	FARBE TEXT	COLORE MSG	COLOR MSJE
MSG	TYPE MSG	TEXT AUSDR	TIPO MESSAG	TIPO MSJE
RED IN AL	ROUGE EN AL	ROTDRUCK	ROSSO IN AL	ROJO EN AL

DIGITAL

EN	FR	GE	IT	SP
TYPE	TYPE	TYP	TIPO	TIPO
DIFF WITH	-VOIE N °	KANAL DIFF	CANALE DIFF	CA # DIF
ACTION	ACTION	FUNKTION	AZIONE	ACCION
RELAY NUM	RELAIS N°	RELAIS-NR	NUMERO RELE	RELE #
ACKNOWLEDGE	ACQUITTER	QUITTIERUNG	PAGARE	RECONOCIDO
MSG NUM	MESSAGE N°	TEXTNUMMER	NUMERO MSG	MENSAJE
MSG COLOR	COULEUR MSG	FARBE TEXT	COLORE MSG	COLOR MSJE
MSG TYPE TYPE	MSG TEXT	TEXT AUSDR	TIPO MESSAG	TIPO MSJE
TRACE	TRACE	SPUR	TRACCIA	TRAZO
OFF POSITN	POSITN OFF	AUFZ AUS %	POSIZIO OFF	POSICION OF
ON POSITN	POSITN ON	AUFZ EIN %	POSIZION ON	POSICION ON
TRACE COLOR	COULEUR TRA	FARBESPUR	COLOR TRACC	COLOR TRAZO
RED IN AL	ROUGE EN AL	ROTDRUCK	ROSSO IN AL	ROJO EN AL

MESSAGES

EN	FR	GE	IT	SP
MESSAGE	MESSAGE	TEXTMELDUNG	MESSAGIO	MENSAJE

PRINTER

EN	FR	GE	IT	SP
SPEED UNIT	UNITE	GESCHW EINH	VELOC USATA	UNID VEL
SPEED 1	VITESSE 1	GESCHWIND 1	VELOCITA 1	VELOCD 1
SPEED 2	VITESSE 2	GESCHWIND 2	VELOCITA 2	VELOCD 2
INTERVAL 1	INTERVALL 1	INTERVALL 1	INTERVAL 1	INTERVAL 1
INTERVAL 2	INTERVALL 2	INTERVALL 2	INTERVAL 2	INTERVAL 2
SP/INT USED	VIT/INT UTL	GEWÄHLT	VEL/INT USI	VEL/INT USD
RECORD MODE	TYPE ENREGI	BETRIEBSART	TIPO REG	MODO REGST
PRINT MODE	TYPE IMPRES	AUSDRUCK	TIPO STAMPA	MODO IMPRS
CHART LG	LONG.PAPIER	PAPIERLÄNGE	CARTA	LGD GRAF

CHART DOC

EN	FR	GE	IT	SP
PRT INTRVAL	INTV IMPRES	DRU INTERVA	INTV STP	INTV IMP
INFORMATION 01	INFORMATION 01	INFORMATION 01	INFORMATION 01	INFORMATION 01
INFORMATION 02	INFORMATION 02	INFORMATION 02	INFORMATION 02	INFORMATION 02
INFORMATION 03	INFORMATION 03	INFORMATION 03	INFORMATION 03	INFORMATION 03
INFORMATION 04	INFORMATION 04	INFORMATION 04	INFORMATION 04	INFORMATION 04
INFORMATION 05	INFORMATION 05	INFORMATION 05	INFORMATION 05	INFORMATION 05
INFORMATION 06	INFORMATION 06	INFORMATION 06	INFORMATION 06	INFORMATION 06
INFORMATION 07	INFORMATION 07	INFORMATION 07	INFORMATION 07	INFORMATION 07
INFORMATION 08	INFORMATION 08	INFORMATION 08	INFORMATION 08	INFORMATION 08
INFORMATION 09	INFORMATION 09	INFORMATION 09	INFORMATION 09	INFORMATION 09
INFORMATION 10	INFORMATION 10	INFORMATION 10	INFORMATION 10	INFORMATION 10
TRACE REF	REF TRACE	SPURKENNZG	REF TRACCIA	REF TRAZO
FUNCT MSG	MSG FONCT	STAND TEXT	MSG FUNZ	FUNZ MSJE FUNC

MMI

EN	FR	GE	IT	SP
HOLD KEY	TOUCHE HOLD	HOLD TASTE	TAST HOLD	TECLA HOLD
DISPLAY KEY	TCH DISPLAY	DISPLAY TASTE	TAST DISPLA	TECLA DISPL
PRINT KEY	TOUCH PRINT	DRUCK TASTE	TAST PRINT	TECLA PRINT
RESET KEY	TOUCH RESET	RÜCKS TASTE	TAST RESET	TECLA RESET
ACK KEY	TOUCHE ACK	QUITTIER TA	TAST ACK	TECLA ACK
DISPLAY HI	AFFICH HAUT	OBE ANZEIGE	INDIC SUP	VISUALZ SUP
DISPLAY LO	AFFICH BAS	UNT ANZEIGE	INDIC INF	INF VISUALZ INF
BRIGHT	LUMIERE	HELLIGKEIT	LUMINOS	BRILLO
F1 KEY	TOUCHE F1	F1 TASTE	TAST F1	TECLA F1
F2 KEY	TOUCHE F2	F2 TASTE	TAST F2	TECLA F2

EVENTS

EN	FR	GE	IT	SP
EVENT TYPE	TYPE EVENMT	MELDUNG TYP	TIPO EVENTO	TIPO SUC
RELAY NUM	RELAIS N°	RELAIS-NR	NUMERO RELE	RELE #
DISPLAY	AFFICHAGE	ANZEIGE	INDICATORE	VISUALZ

MISCELLANEOUS

EN	FR	GE	IT	SP
TIME	HEURE	ZEIT	ORA	HORA
DATE	DATE	DATUM	DATA	FECHA
LANGUAGE	LANGUE	SPRACHE	LINGUA	IDIOMA
INTERFACE	INTERFACE	INTERFACE	INTERFACCIA	INTERFACE
IDENTIF #	No PAPIER	DIAGRAMM NR	N IDENT	IDENTIF #
FREQUENCY	FREQUENCE	FREQUENZ	FREQUENZA	FRECUENCIA
PASSWORD 1	CODE No 1	PASSWORT 1	CODICE 1	CLAVE 1
PASSWORD 2	CODE No 2	PASSWORT 2	CODICE 2	CLAVE 2
OPTIONS	OPTIONS	OPTIONEN	OPZIONI	OPCIONES

PERIODIC REPORT

EN	FR	GE	IT	SP
SYNCHRO AT	SYNCHRO A	SYNCHRO BEI	SINCRONISMO	SINCRO A
PERIOD	PERIODE	PERIODE	PERIODO	PERIODO
SELECTION 1, ... 20	SELECTION 1, ... 20	ANWAHL 1, ... 20	SELEZIONE 1, ... 20	SELECCION 1, ... 20
DESTINATION	DESTINATION	ZIEL	DESTINAZIO	DESTINO

CURRENT 4/20mA

EN	FR	GE	IT	SP
APPLY ON	OPERE SUR	KANAL NR	CANALE	CANAL
4mA VALUE	VAL. 4mA	4mA WERT	VALORE 4mA	VALOR 4mA
20mA VALUE	VAL. 20mA	20mA WERT	VALORE 20mA VA	VALOR 20mA

TABLE OF CONTENTS

Section Page

Model number (refer to the Model selection Guide in Section 1)

Key Number	I	II	III	IV
D25	- _ _ _ _ _ _ _ _ _	- _ _ _ _ _ _ _ _ _	- _ _ _	- _ -

V	VI	VII
_ _ _ _	- _ _	- _

11.1 CONSTRUCTION

Voltage Selection			
100 to 240 V ☐	Special ☐	Frequency	50 Hz ☐ 60 Hz ☐

Number of input Channels			☐☐
Relay Output Number			☐☐
NB of Digital Inputs			☐☐
Door color	Grey ☐	Black ☐	Portable Case ☐
Door with Latch Window Glass	☐ ☐	with key ☐ plastic ☐	Prompt language Manual EN ☐ FR ☐ GE ☐ IT ☐ SP ☐
Kit of 4 Resistors 46181080-503 To convert mA to Volt		Qty ☐	

11.2 ANALOG INPUT

INPUT #	SENSOR	RANGE	EXT COMP	FILTER	LOW VALUE	HIGH VALUE	STD MATH	DIFF WITH	BURN-OUT	LOW ADJUST	HIGH ADJUST
Customer choice	A	B	C	D	E	F	G	H	I	J	K
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
SELECTIONS	- T/C Int Comp - T/C Ext Comp - RTD - Transmit NL - Linear - Special - No entry	Select the available range (Refer to this manual)	External temperature of the compensation box: 0 to 80°C or channel # used to measure the temperature of the compensation box	Value of the digital filter to damp the analog signal 0 to 99 seconds	Low display value according to the low input range value selected	High display value according to the high input range value selected	Maths apply on analog input - NO OPT MATH - SQUARE ROOT - CHANNEL DIFF	Second CH # used to make the difference	- No burnout - B OUT LOW - B OUT HIGH - FIX LOW - FIX HIGH - FIX NONE	Zero scale adjustment -99 to 99	High scale adjustment -99 to 99
Factory Configuration	*T/C Int Comp*	*J -50/150 C*	*0.0*	*5.0*	*-50.00*	*150.00*	*No Opt Math*	*Analog # i*	*No Burnout*	*0.0*	*0.0*

INPUT #	SENSOR	RANGE	EXT COMP	FILTER	LOW VALUE	HIGH VALUE	STD MATH	DIFF WITH	BURN-OUT	LOW ADJUST	HIGH ADJUST
Customer choice	A	B	C	D	E	F	G	H	I	J	K
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											
SELECTIONS	- T/C Int Comp - T/C Ext Comp - RTD - Transmit NL - Linear - Special - No entry	Select the available range (Refer to this manual)	External temperature of the compensation box: 0 to 80°C or channel # used to measure the temperature of the compensation box	Value of the digital filter to damp the analog signal 0 to 99 seconds	Low display value according to the low input range value selected	High display value according to the high input range value selected	Maths apply on analog input - NO OPT MATH - SQUARE ROOT - CHANNEL DIFF	Second CH # used to make the difference	- No burnout - B OUT LOW - B OUT HIGH - FIX LOW - FIX HIGH - FIX NONE	Zero scale adjustment -99 to 99	High scale adjustment -99 to 99
Factory Configuration	*T/C Int Comp*	*J -50/150 C*	*0.0*	*5.0*	*-50.00*	*150.00*	*No Opt Math*	*Analog # i*	*No Burnout*	*0.0*	*0.0*

INPUT #	SENSOR	RANGE	EXT COMP	FILTER	LOW VALUE	HIGH VALUE	STD MATH	DIFF WITH	BURN-OUT	LOW ADJUST	HIGH ADJUST
Customer choice	A	B	C	D	E	F	G	H	I	J	K
41											
42											
43											
44											
45											
46											
47											
48											
49											
50											
51											
52											
53											
54											
55											
56											
57											
58											
59											
60											
61											
62											
63											
64											

SELECTIONS	- T/C Int Comp - T/C Ext Comp - RTD - Transmit NL - Linear - Special - No entry	Select the available range (Refer to this manual)	External tempera-ture of the com-pensation box: 0 to 80°C or channel # used to measure the tem-perature of the compen-sation box	Value of the digital filter to damp the analog signal 0 to 99 seconds	Low display value according to the low input range value selected	High display value according to the high input range value selected	Maths apply on analog input - NO OPT MATH - SQUA-RE ROOT - CHAN-NEL DIFF	Second CH # used to make the difference	- No burnout - B OUT LOW - B OUT HIGH - FIX LOW - FIX HIGH - FIX NONE	Zero scale adjust-ment -99 to 99	High scale adjust-ment -99 to 99
Factory Configu-ration	*T/C Int Comp*	*J -50/150 C*	*0.0*	*5.0*	*-50.00*	*150.00*	*No Opt Math*	*Analog # i*	*No Burnout*	*0.0*	*0.0*

11.3 CHART

CHANNEL #	TRACE	DESTINATION	FORMAT	MIN RANGE 1	MAX RANGE 1	RG 1 COLOR	MIN RANGE 2	MAX RANGE 2	RG 2 COLOR
Customer choice	A	B	C	D	E	F	G	H	I
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
SELECTIONS	- No trace - Analog # - Comm # - Math #	- On paper - On file - On paper & file	Display and printing format: - no decimal point - 1/10 - 1/100 - 1/1000 - AUTOMATIC	Low chart range value scale 1	High chart range value scale 1	Black Blue Purple Green Brown Red Thick: Black Blue Purple Green Brown Red	Low chart range value scale 2	High chart range value scale 2	Black Blue Purple Green Brown Red Thick: Black Blue Purple Green Brown Red
Factory Configuration	Analog #	*On paper*	*Automatic*	*-50.00*	*+150.00*	*Black*	*-50.00*	*+150.00*	*Black*

CHANNEL #	ENG UNIT	TAG NAME	RANGE USED	0% ZONE	100% ZONE	SUB DIV	GROUP DEF
Customer choice	J	K	L	M	N	O	P
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
SELECTIONS	Display and chart channel Engineering unit	Display and chart channel name	Chart scale used in normal opera-tion	Left zone position	Right zone posi-tion By step of 1 %	Number of chart scale Subdivi-sions 1-9 or none	Sepa-rate group A or B or A + B of channels to be printed as a group
Factory Configu-ration			*with RG 1*	*0 %*	*100 %*	*No division*	*No group*

11.4 ALARM

ALARM #	SP VALUE	APPLY ON	ALARM TYPE	HYS-TERE-SIS	OC-CUR-RENCE	DIFF WITH	ACTION	RELAY NUM	ACK-NOW-LEDGE	MSG NUM-BER	MSG COLOR	MSG TYPE	RED IN AL
Customer choice	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

SELECTIONS	Alarm set point in eng. unit value	Analog, Comm and Maths input # on which the alarm is applied	- None - Alarm high - Alarm low - Chg rate H - Chg rate L - Chg rate H, L - Diffe-rential	Alarm hyste-resis in Eng. unit	Number of alarm SP detec-tion to activate the alarm 0 up to 9	Analog, Comm and Maths input # of the second signal for the alarm diffe-rential	- No action - Chg spd/int - Chg range - Print on al - Prt inhibit - Tab sqtrace - Tab sqblank - Prt math log - Chg group B - Chg group AB	Activate the relay # No or 1 up to 48	Latching the alarm relay	Print the messa-ge # 1 up to 64	Color of the alarm messa-ge: Black Blue Purple Green Brown Red	- None - Std mes-sage - Mes-sage on - Mes-sage off - Msg on/off	Switch the trace color in Red YES NO
Factory Configu-ration	*0.000*	*Analog # 01*	*None*	*0.000*	*0*	*Analog # 01*	*No action*	*No relay*	*Disable*	*Messa-ge # 01*	*Red*	*None*	*No*

ALARM #	SP VALUE	APPLY ON	ALARM TYPE	HYS-TERE-SIS	OCCU-RENCE	DIFF WITH	ACTION	RELAY NUM	ACK-NOW-LEDGE	MSG NUM-BER	MSG COLOR	MSG TYPE	RED IN AL
Customer choice	A	B	C	D	E	F	G	H	I	J	K	L	M
21													
22													
23													
24													
25													
26													
27													
28													
29													
30													
31													
32													
33													
34													
35													
36													
37													
38													
39													
40													

SELECTIONS	Alarm set point in eng. unit value	Analog, Comm and Maths input # on which the alarm is applied	- None - Alarm high - Alarm low - Chg rate H - Chg rate L - Chg rate H, L - Diffe-rential	Alarm hyste-resis in Eng. unit	Number of alarm SP detec-tion to activate the alarm 0 up to 9	Analog, Comm and Maths input # of the second signal for the alarm diffe-rential	- No action - Chg spd/int - Chg range - Print on al - Prt inhibit - Tab sqtrace - Tab sqblank - Prt math log - Chg group B - Chg group AB	Activate the relay # No or 1 up to 48	Latching the alarm relay	Print the messa-ge # 1 up to 64	Color of the alarm messa-ge: Black Blue Purple Green Brown Red	- None - Std mes-sage - Mes-sage on - Mes-sage off - Msg on/off	Switch the trace color in Red YES NO
Factory Configu-ration	*0.000*	*Analog # 01*	*None*	*0.000*	*0*	*Analog # 01*	*No action*	*No relay*	*Disable*	*Messa-ge # 01*	*Red*	*None*	*No*

ALARM #	SP VALUE	APPLY ON	ALARM TYPE	HYS-TERE-SIS	OCCU-RENCE	DIFF WITH	ACTION	RELAY NUM	ACK-NOW-LEDGE	MSG NUM-BER	MSG COLOR	MSG TYPE	RED IN AL
Customer choice	A	B	C	D	E	F	G	H	I	J	K	L	M
41													
42													
43													
44													
45													
46													
47													
48													
49													
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56													
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58													
59													
60													
61													
62													
63													
64													
SELECTIONS	Alarm set point in eng. unit value	Analog, Comm and Maths input # on which the alarm is applied	- None - Alarm high - Alarm low - Chg rate H - Chg rate L - Chg rate H, L - Diffe-rential	Alarm hyste-resis in Eng. unit	Number of alarm SP detec-tion to activate the alarm 0 up to 9	Analog, Comm and Maths input # of the second signal for the alarm diffe-rential	- No action - Chg spd/int - Chg range - Print on al - Prt inhibit - Tab sqtrace - Tab sqblank - Prt math log - Chg group B - Chg group AB	Activate the relay # No or 1 up to 48	Latching the alarm relay	Print the messa-ge # 1 up to 64	Color of the alarm messa-ge: Black Blue Purple Green Brown Red	- None - Std mes-sage - Mes-sage on - Mes-sage off - Msg on/off	Switch the trace color in Red YES NO
Factory Configu-ration	*0.000*	*Analog # 01*	*None*	*0.000*	*0*	*Analog # 01*	*No action*	*No relay*	*Disable*	*Messa-ge # 01*	*Red*	*None*	*No*

11.5 DIGITAL

DIGITAL #	TYPE	DIFF WITH	ACTION	RELAY NUM	ACK-NOW-LEDGE	MSG NUM	MSG COLOR	MSG TYPE	TRACE	OFF PO-SITN	ON PO-SITN	TRACE COLOR	RED IN AL
Customer choice	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													
21													
22													
23													
24													
SELECTIONS	- None - Dig closed - Dig ope-ned - Diffe-rential	Se-cond Dig input if diffe-rential	- No action - Chg spd/int - Chg range - Print on al - Print inhibit - Tab sqtrace - Tab sqblank - Prt math log - Chg group B - Chg group AB	Activate the relay # No or 1 up to 48	Lat-ching the alarm relay	Print the mes-sage # 1 to 64	Color of the mes-sage Black Blue Purple Green Brown Red	- None - Std mes-sage - Mes-sage on - Mes-sage off - Msg on/off	Enable/ Disable event trace	Define the left trace position 1 step = 1%	Define the right trace position 1 step = 1%	Black Blue Purple Green Brown Red	Switch the trace color in Red
Factory Configu-ration	*None*	*Digital # 01*	*No action*	*No relay*	*Disable*	*Messa-ge # 01*	*Red*	*None*	*Disable*	*90 %*	*100 %*	*Black*	*No*

DIGITAL #	TYPE	DIFF WITH	ACTION	RELAY NUM	ACK-NOW-LEDGE	MSG NUM	MSG COLOR	MSG TYPE	TRACE	OFF PO-SITN	ON PO-SITN	TRACE COLOR	RED IN AL
Customer choice	A	B	C	D	E	F	G	H	I	J	K	L	M
25													
26													
27													
28													
29													
30													
31													
32													
33													
34													
35													
36													
37													
38													
39													
40													
41													
42													
43													
44													
45													
46													
47													
48													
SELECTIONS	- None - Dig closed - Dig ope-ned - Diffe-rential	Se-cond Dig input if diffe-rential	- No action - Chg spd/int - Chg range - Print on al - Print inhibit - Tab sqtrace - Tab sqblank - Prt math log - Chg group B - Chg group AB	Activate the relay # No or 1 up to 48	Lat-ching the alarm relay	Print the mes-sage # 1 to 64	Color of the mes-sage Black Blue Purple Green Brown Red	- None - Std mes-sage - Mes-sage on - Mes-sage off - Msg on/off	Enable/ Disable event trace	Define the left trace position 1 step = 1%	Define the right trace position 1 step = 1%	Black Blue Purple Green Brown Red	Switch the trace color in Red
Factory Configu-ration	*None*	*Digital # 01*	*No action*	*No relay*	*Disable*	*Messa-ge # 01*	*Red*	*None*	*Disable*	*90 %*	*100 %*	*Black*	*No*

11.6 MESSAGES

MSG #	MESSAGE CHARACTERS																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1																									
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
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37																									
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39																									
40																									
41																									
42																									
43																									
44																									
45																									
46																									
47																									
48																									
Factory Configuration: *No Message Configured*																									

MSG #	MESSAGE CHARACTERS																								
	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
1																									
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
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38																									
39																									
40																									
41																									
42																									
43																									
44																									
45																									
46																									
47																									
48																									
Factory Configuration: No Message Configured																									

MSG #	MESSAGE CHARACTERS													
	51	52	53	54	55	56	57	58	59	60	61	62	63	64
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
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17														
18														
19														
20														
21														
22														
23														
24														
25														
26														
27														
28														
29														
30														
31														
32														
Factory Configuration:	*No Message Configured*													

MSG	MESSAGE CHARACTERS																								
#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
33																									
34																									
35																									
36																									
37																									
38																									
39																									
40																									
41																									
42																									
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57																									
58																									
59																									
60																									
61																									
62																									
63																									
64																									
Factory Configuration: *No Message Configured*																									

MSG #	MESSAGE CHARACTERS																								
	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
33																									
34																									
35																									
36																									
37																									
38																									
39																									
40																									
41																									
42																									
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57																									
58																									
59																									
60																									
61																									
62																									
63																									
64																									

Factory Configuration: No Message Configured

MSG #	MESSAGE CHARACTERS													
	51	52	53	54	55	56	57	58	59	60	61	62	63	64
33														
34														
35														
36														
37														
38														
39														
40														
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58														
59														
60														
61														
62														
63														
64														
Factory Configuration:	*No Message Configured*													

11.7 PRINTER

	SPEED UNIT	SPEED 1	SPEED 2	INTERVAL 1	INTERVAL 2	SP/INT USED	RECORD MODE	PRINT MODE	CHART LG
Customer choice									
SELECTIONS	Chart speed unit mm/h inch/h	Value of the chart speed 1 1 to 5000 mm/h 0.04 to 196.86 inch/h	Value of the chart speed 2 1 to 5000 mm/h 0.04 to 196.86 inch/h	Tabular Prints interval 1 1 to 1440 mn	Tabular Prints interval 2 1 to 1440 mn	Speed/int in normal operation	- Inhibit - Print	- Trend - Tabular	Chart length to actuate the event alarm 0 to 35000 mm
Factory Conf.	*mm/h (EU)* *inch/h (US)*	*60 mm/h* *2 inch/h*	*120 mm/h* *5 inch/h*	*10*	*1*	*Speed 1*	*Print*	*Trend*	*35000*

11.8 CHART DOC

	PRT INTRVAL	INFORMATION # 1	INFORMATION # 2	INFORMATION # 3	INFORMATION # 4	INFORMATION # 5	INFORMATION # 6
Customer choice							
SELECTIONS	Time between 2 consecutive printed information # 1 to 10 1 to 1440 mn	- No information - Message # - Range # - Next range - Blank - Snap shot trace - Snap shot analog - Snap shot math - Snap shot logic	- No information - Message # - Range # - Next range - Blank - Snap shot trace - Snap shot analog - Snap shot math - Snap shot logic	- No information - Message # - Range # - Next range - Blank - Snap shot trace - Snap shot analog - Snap shot math - Snap shot logic	- No information - Message # - Range # - Next range - Blank - Snap shot trace - Snap shot analog - Snap shot math - Snap shot logic	- No information - Message # - Range # - Next range - Blank - Snap shot trace - Snap shot analog - Snap shot math - Snap shot logic	- No information - Message # - Range # - Next range - Blank - Snap shot trace - Snap shot analog - Snap shot math - Snap shot logic
Factory Conf.	*60 mn*	*Next Range*	*Snap shot trace*	*No information*	*No information*	*No information*	*No information*

	INFORMATION # 7	INFORMATION # 8	INFORMATION # 9	INFORMATION # 10	TRACE REF	FUNCT MSG
Customer choice						
SELECTIONS	- No information - Message # - Range # - Next range - Blank - Snap shot trace - Snap shot analog - Snap shot math - Snap shot logic	- No information - Message # - Range # - Next range - Blank - Snap shot trace - Snap shot analog - Snap shot math - Snap shot logic	- No information - Message # - Range # - Next range - Blank - Snap shot trace - Snap shot analog - Snap shot math - Snap shot logic	- No information - Message # - Range # - Next range - Blank - Snap shot trace - Snap shot analog - Snap shot math - Snap shot logic	- Number - Number & tag	Functional Messages Enable Disable
Factory Conf.	*No information*	*No information*	*No information*	*No information*	*Number*	*Enable*

11.9 MMI

	HOLD KEY	DISPLAY KEY	PRINT KEY	RESET KEY	ACK KEY	DISPLAY HI	DISPLAY LO
Customer choice							
SELECTIONS	Hold the display Enable Disable	Modify the display indication Enable Disable	Make printing action Enable Disable	To reset maths functions or alarm occurrences Enable Disable	To acknowledge the alarm Enable Disable	- Analog inputs - 2 PVs trace - Maths results - Comm results - Alarm status - Speed in use - Date & time - Trace & tag - Trace in AL - Logic states	- Analog inputs - 2 PVs trace - Comm results - Alarm status - Speed in use - Date & time
Factory Conf.	*Enable*	*Enable*	*Enable*	*Enable*	*Enable*	*Analog inputs*	*Analog inputs*

	BRIGHT	F1 KEY	F2 KEY
Customer choice			
SELECTIONS	- OFF (0%) - >> (20%) - MEDIUM (40%) - >> (60%) - >> (80%) - HIGH (100%)	To configure the action of the key F1 - UNUSED - INHIBIT /PRINT - RESET PAPER LENG - CHANGE SPEED - PRINT DATE & TIME - SNAP SHOT TRACE - CHART ADVANCE - CHG GROUP A - CHG GROUP B - CHG GROUP A+B - SNAP SHOT LOGIC - SNAP SHOT MATH - START / STOP ARCH - REMOVE PCMCIA	To configure the action of the key F2 - UNUSED - INHIBIT- /PRINT - RESET PAPER LENG - CHANGE SPEED - PRINT DATE & TIME - SNAP SHOT TRACE - CHART ADVANCE - CHG GROUP A - CHG GROUP B - CHG GROUP A+B -SNAP SHOT LOGIC - SNAP SHOT MATH - START / STOP ARCH - REMOVE PCMCIA
Factory Conf.	*80 %*	*Inhibit/ Print*	*Chart Advance*

11.10 EVENTS

	EVENT TYPE	RELAY NUM	DISPLAY
Customer choice			
SELECTIONS	EV 01 – No paper EV 02 – End paper EV 03 - Battery fail EV 04 – One alarm ON EV 05 - Burnout EV 06 - Shedtime EV 07- PCMCIA Event	To actuate a relay output # 1 to 36	To display an alarm event Enable Disable
Factory Conf.	*EV 01 to EV 07*	*No relay*	*Enable*

11.11 MISCELLANEOUS

	TIME	DATE	LANGUAGE	INTERFACE	IDENTIF #	FREQUENCY	PASSWORD 1	PASSWORD 2	OPTIONS
Customer choice									
SELECTIONS	Set the real time clock Hour Minute	Set the date Day Month Year	- English - French - German - Italian - Spanish	- Jack - PCMCIA	Set the ID # of the unit 1 to 99	50 Hz 60 Hz	Limited configuration access	Full configuration access	No package Math
Factory Conf.	*(Real time)*	*(Real time)*	*English*	*Jack*	*1*	*50 Hz (EU)* *60 Hz (US)*	*None*	*None*	*No package*

11.12 PERIODIC REPORT

	SYNCHRO AT	PERIOD	SELECTION 1, ... 20	DESTINATION
Customer choice	A	B	C	D
S E L E C T I O N S	[0 ... 23] hours [0 ... 59] minutes	hours and cents of hours [0.25 ... 720] hours	TRACE # MATH # NONE	ON PAPER
Factory Conf.	*00h00*	*0.00*	*NONE*	*ON PAPER*

11.13 CURRENT 4/20 mA

	APPLY ON	4mA VALUE	20mA VALUE
Customer choice	A	B	C
S E L E C T I O N S	Defines the channel from which the current output will be calculated. NONE ANALOG # MATH # COMM #	Determines the value associated with 4 mA.	Determines the value associated with 20 mA.
Factory Conf.	*NONE*	*-50.000*	*150.000*

SIKKERHEDSKRAV

	For at undgå elektrisk stød med mulighed for personskade, skal alle sikkerhedsbestemmelser i denne manual følges nøje.
	Beskyttende jordterminal. Terminalen er forberedt for og skal forbindes til beskyttelses-jordledning i henhold til stærkstrømsbekendtgørelsen (DK).

- Hvis udstyret ikke bruges som specificeret i manualen, kan den beskyttelse udstyret yder blive nedsat eller forsvinde.
- Erstat kun komponenter som udtrykkeligt er specificeret som udskiftelige i manualen.
- Alle ledningsforbindelser skal følge stærkstrømsbekendtgørelsen (DK) og udføres af autoriseret erfarent personel.
- Den beskyttende jordterminal skal forbindes først af alle forbindelser (og fjernes som den sidste).
- Det anbefales jvf. stærkstrømsbekendtgørelsen, at der installeres en afbryder til forsyningsspændingen nær udstyret.
- Hvis der installeres en extern sikring til skriveren, skal denne svare fuldstændig til skriverens egen sikring (type) og ligeså sikringsholder.

UDSTYRS SPECIFIKATIONER

Str\mforsyning: 100 til 240 V AC/DC
Frekvens: 50/60 Hz
Effektforbrug: 100 VA max.

OMGIVELSES SPECIFIKATIONER

Placer ikke udstyret i nærheden af brandbare væsker eller dampe.

Fugtighed	Rullepapir	10 - 90 % RH ikke kondenserende 15 - 80 % RH ikke kondenserende
Temperatur	Drift	Rullepapir: 0 til 50°C (32 til 122°F) Foldepapir: 0 til 40°C (32 til 104°F)
	Opbevaring	-40 til 70°C (-40 til 158°F)
Vibrationer	Frekvens	10 til 60 Hz, amplitude 0.14 mm 60 til 150 Hz, acceleration 1 g

UDSTYRS INSTALLATION

Skriveren skal monteres i en tavle for at forhindre udstyret. adgang til bagterminaler.
(Maksimal tavletykkelse 40 mm)

INSTRUKTION FOR RENG∅RING

Brug kun en t\r bomuldklud til reng\ring af

UDSKIFTNING AF SIKRING

Sikring: For at forebygge brand, vær sikker på at sikringen opfylder kravene til strøm, spænding og karakteristik.
Sluk for spAændingen før sikringen udskiftes. Brug ikke en sikring af anden type.

TURVALLISUUSMÄÄRÄYKSET

	Noudata tämän ohjeen kaikkia turvaohjeita välttääksesi sähkötapaturman vaaraa.
	Suojamaaliitin. Kytke maadoitusjohdin tähän liittimeen.

- Jos laitetta käytetään olosuhteissa, joihin sitä ei ole suunniteltu, käyttöturvallisuus voi heikentyä.
- Älä vaihda mitään komponettia tai osaa, jota valmistaja ei ole määritellyt käyttäjän vaihdettavaksi.
- Asennus ja johdotus on tehtävä paikallisten varmuusmääräysten mukaisesti valtuutetun sähköasentajan toimesta.
- Ensimmäiseksi on kytkettävä suojamaa-liitin (ja viimeiseksi irroitettava).
- Laitteen läheisyyteen suositellaan asennettavaksi verkkokytkin.
- Syöttöjohdon sulake tulee mitoittaa syötettävien laitteiden aiheuttaman kuormituksen mukaisesti.
-

LAITTEEN VAATIMUKSET
Syöttöjännite: 100 ... 240 V AC/DC
Taajuus: 50/60 Hz
Tehonkulutus: 100 VA max.

KÄYTTÖOLOSUHTEET
Älä käytä laitetta paikassa jossa on syttyviä nesteitä tai kaasuja, koska laitteen käyttö aiheuttaa räjähdysvaaran.

Kosteus	Rulla	10 ... 90 % RH non condensing
	Laskostuva	15 ... 80 % RH non condensing
Lämpötila	Käyttö	Rulla: 0 ... 50 ast. C (32 ... 122 ast. F) Laskostuva: 0 ... 40 ast. C (32 ... 104 ast. F)
	Varastointi	-40 ... 70 ast. C (-40 ... 158 ast. F)
Tärinä	Taajuus	10 ... 60 Hz, amplitude 0.14 mm 60 ... 150 Hz, kiihtyvyys 1 g

LAITTEEN ASENNUS
Piirturi on asennettava paneeliin siten, että peräliittimille jää riittävästi tilaa.
(Paneelin maksimi paksuus 40 mm)

PUHDISTUSOHJEET
Käytä vain kuivaa puuvillakangasta laitteen puhdistukseen.

KULUTUSOSIEN VAIHTAMINEN
Käytä aina oikean tyyppistä sulaketta (virta, jännite, tyyppi). Katkaise syöttöjännite laitteesta ennen sulakkeen vaihtoa. Älä käytä ohjeista poikkeavaa sulaketta tai oikosulje sulakepesää.

SÄKERHETSFÖRESKRIFTER

	För att reducera riskerna av elektriska chocker som kan orsaka personskador, följ alla säkerhetsföreskrifter i denna dokumentation.
	Anslutning av skyddsjord. Avsedd för anslutning av elsystemets skyddsjordsledare.

- Om utrustningen används på ett sådant sätt, att det inte innefattas av tillverkarens specifikation, kan de inbyggda säkerhetsfunktionerna äventyras.
- Ersätt aldrig någon komponent (eller del) som inte är specificerad som ersättningsbar av tillverkaren.
- All ledningsdragning måste utföras i enlighet med lokala bestämmelser och skall utföras av behörig personal med erfarenhet av sådant arbete.
- Skyddsjordsanslutningen skall anslutas före alla andra anslutningar (och losskopplas sist).
- En strömbrytare för nätströmmen rekommenderas.
- Om en extern säkring används för att skydda skrivaren skall denna säkring motsvara skrivarens säkring.

<u>STRÖMFÖRSÖRJNING</u>
Spänning: 100 till 240 V AC/DC
Frekvens: 50/60 Hz
Effekt: 100 VA max.

<u>OMGIVNINGSVILLKOR</u>
Använd ej instrumentet i närhet av brännbara vätskor eller gaser. Användandet av instrumentet i sådan miljö är en direkt säkerhetsrisk.

Fuktighet	Rullat papper	10 till 90 % RH ej kondenserande
	Veckat papper	15 till 80 % RH ej kondenserande
Temperatur	Omgivande	Rullat papper: 0 till 50°C (32 till 122°F) Veckat papper: 0 till 40°C (32 till 104°F)
	Lagring	-40 till 70°C (-40 till 158°F)
Vibrationer	Frekvens	10 till 60 Hz, amplitud 0.14 mm 60 till 150 Hz, acceleration 1 g

<u>INSTALLATION</u>
Instrumentet skall monteras i en panel eller i en låda för att undvika att personalen kommer i beröring med bakre inkopplingsplintar.
(Max. paneltjocklek 40 mm).

<u>RENGÖRINGSINSTRUKTION</u>
Använd endast en torr trasa för att rengöra instrumentet.

<u>BYTE AV SÄKRING</u>
För att undvika gnistbildning eller eldsvåda använd endast specificerad säkring (ström, spänning, typ). Före säkringsbyte, slå av nätspänningen till instrumentet. Sätt i ny säkring. Kortslut ej säkringshållaren.

NORME DI SICUREZZA

⚠	Per ridurre i rischi di scariche elettriche che potrebbero causare alle persone, seguire tutte le precauzioni circa la sicurezza indicate in questa documentazione.
⏚	Terminale di protezione verso terra. Previsto per il collegamento del conduttore di protezione verso terra del sistema di alimentazione.

- Se lo strumento viene utilizzato in modo diverso dalla specifica del costruttore, la protezione fornita dallo strumento puo' essere diversa.
- Non sostituire alcun componente (o parte) non specificato esplicitamente come ricambio dal vostro fornitore.
- Tutti i cablaggi devono essere in accordo con i regolamenti locali e devono essere eseguiti da personale esperto ed autorizzato.
- Il terminale di massa deve essere collegato prima di ogni altro filo (e scollegato per ultimo).
- E' raccomandato montare un interruttore per l'alimentazione principale vicino allo strumento.
- Se viene usato un fusibile esterno per proteggere il circuito elettrico del registratore, il fusibile deve essere adatto alla portata richiesta e al tipo del porta fusibile.

ALIMENTAZIONE APPARECCHIATURA

Tensione di alimentazione: da 100 a 240 V CA/CC
Frequenza: 50/60 Hz
Consumo: 100 VA max.

CONDIZIONI AMBIENTALI

Non utilizzare lo strumento in presenza di liquido o vapori infiammabili. L'uso di qualsiasi strumento elettrico in queste condizioni ambientali costituisce un pericolo alla sicurezza.

Umidità	Carta a rotolo	da 10 a 90 % UR non condensata
	Carta a pacchetto	da 15 a 80 % UR non condensata
Temperatura	Ambiente	Carta a rotoloda: 0 a 50 Gradi C (da 32 a 122 Gradi F)
		Carta a pacchetto: 0 a 40 Gradi C (da 32 a 104 Gradi F)
	Stoccaggio	da -40 a 70 Gradi C (da -40 a 158 Gradi F)
Vibrazioni	Frequenza	da 10 a 60 Hz, ampiezza 0.14 mm
		da 60 a 150 Hz, accellerazione 1 g

INSTALLAZIONE STRUMENTO

Il registratore deve essere montato sul quadro
cotone per la pulizia
senza limitare l'accesso dell'operatore ai terminali posteriori. (massimo spessore del quadro 40 mm)

ISTRUZIONI PER LA PULIZIA

Usare solo uno straccio pulito in dello strumento.

SOSTITUZIONE DEI MATERIALI DI CONSUMO

Fusibile: Per evitare incendi, assicurarsi di usare il fusibile secondo lo standard specificato (tipo, tensione, corrente). Prima di sostituire il fusibile, spegnere lo strumento e scollegare l'alimentazione. Non usare un fusibile differente o cortocircuitare il porta fusibile.

NORMAS DE SEGURIDAD

⚠	Para reducir el riesgo de choque eléctrico el cual podría causar lesiones personales, seguir todas las indicaciones de este documento.
⏚	Terminal de tierra de protección. Proporcionado para la coneción de la tierra de protección del conductor del sistema de alimentación.

- Si el equipo es utilizado de forma no especificada por el fabricante, la protección suministrada con el mismo podría resultar dañada.
- No reemplazar ningún componente (o parte) no explícitamente especificado por el suministrador.
- Todo el cableado debe realizarse de acuerdo con las normas eléctricas locales y debe ser realizado por personal experimentado.
- El terminal de tierra debe ser conectado antes que cualquier otro cable y desconectado el último.
- Se recomienda la instalacón de un interruptor de la alimentación principal, cerca del equipo.
- Si se utiliza un fusible externo para proteger el circuito eléctrico del registrador, deben tenerse en cuenta tanto las características del fusible del registrador (tipo de fusible) como las del portafusible).

DATOS ELECTRICOS DEL EQUIPO
Tensión de alimentación: 100 a 240 V AC/DC
Frecuencia: 50/60 Hz
Corriente: 100 VA max.

CONDICIONES AMBIENTALES
No operar con el instrumento en presencia de líquidos o gases inflamables. La operación de cualquier equipo eléctrico en tal ambiente constituye un riesgo contra la seguridad.

Humedad	Rollo Plegado	10 a 90 % RH sin condensados 15 a 80 % RH sin condensados
Temperatura	Ambiente	Rollo: 0 a 50°C (32 a 122°F) Dlegado: 0 a 40°C (32 a 104°F)
	Almacenamiento	-40 a 70°C (-40 a 158°F)
Vibraciones	Frecuencia	10 a 60 Hz, amplitud 0.14 mm 60 a 150 Hz, aceleración 1 g

INSTALACION DEL EQUIPO
El registrador debe ser montado en un panel para algodón para limitar al operador el acceso a los terminales traseros (espesor máximo del panel 40 mm).

INSTRUCCIONES DE LIMPIEZA
Utilizar únicamente un paño seco de limpiar la unidad.

REPOSICION DE CONSUMIBLES
Fusible: Para prevenir una posible ignición, asegurarse de utilizar fusibles normalizados (según tipo de corriente-tensión). Antes de reemplazar el fusible, interrumpir la alimentación. No utilizar un fusible diferente o cortocircuitar el soporte del mismo.

ΑΠΑΙΤΗΣΕΙΣ ΑΣΦΑΛΕΙΑΣ

⚠	ΓΙΑ ΝΑ ΜΕΙΩΘΕΙ Ο ΚΙΝΔΥΝΟΣ ΗΛΕΚΤΡΟΠΛΗΞΙΑΣ Η ΟΠΟΙΑ ΜΠΟΡΕΙ ΝΑ ΠΡΟΚΑΛΕΣΕΙ ΤΡΑΥΜΑΤΙΣΜΟ, ΑΚΟΛΟΥΘΕΙΣΤΕ, ΟΛΕΣ ΤΙΣ ΟΔΗΓΙΕΣ ΑΣΦΑΛΕΙΑΣ ΠΟΥ ΠΑΡΑΤΙΘΕΝΤΑΙ Σ϶ ΑΥΤΟ ΤΟ ΦΥΛΛΑΔΙΟ.
⏚	ΠΡΟΣΤΑΤΕΥΤΙΚΗ ΓΕΙΩΣΗ. ΠΑΡΕΧΕΤΑΙ ΓΙΑ ΤΗΝ ΣΥΝΔΕΣΗ ΜΕ ΤΟ ΣΥΣΤΗΜΑ ΓΕΙΩΣΗΣ ΤΗΣ ΕΓΚΑΤΑΣΤΑΣΗΣ.

- ΑΝ Η ΣΥΣΚΕΥΗ ΧΡΗΣΙΜΟΠΟΙΗΘΕΙ ΜΕ ΤΡΟΠΟ ΠΟΥ ΔΕΝ ΣΥΜΦΩΝΕΙ ΜΕ ΤΙΣ ΟΔΗΓΙΕΣ ΤΟΥ ΚΑΤΑΣΚΕ ΨΑΣΤΗ ΠΙΘΑΝΟΝ ΝΑ ΜΕΙΩΘΕΙ Η ΠΡΟΣΤΑΣΙΑ ΠΟΥ ΠΑΡΕΧΕΙ.
- Α ΜΗΝ ΑΝΤΙΚΑΘΙΣΤΑΤΑΙ ΚΑΝΕΝΑ ΕΞΑΡΤΗΜΑ Η϶ ΤΜΗΜΑ ΤΟΥ ΟΡΓΑΝΟΨ ΠΟΨ ΔΕΝ ΑΝΑΦΕΡΕΤΑΙ Σ ΑΦΩΣ ΑΠΟ ΤΟΝ ΚΑΤΑΣΚΕΥΑΣΤΗ ΩΣ ΑΝΤΑΛΛΑΞΙΜΟ.
- ΟΛΕΣ ΟΙ ΚΑΛΩΔΙΩΣΕΙΣ ΠΡΕΠΕΙ ΝΑ ΕΙΝΑΙ ΣΥΜΦΩΝΕΣ ΜΕ ΤΗΝ ΤΟΠΙΚΗ ΝΟΜΟΘΕΣΙΑ ΚΑΙ Η ΕΓΚΑΤΑΣ ΤΑΣΗ ΤΟΥΣ ΠΡΕΠΕΙ ΝΑ ΓΙΝΕΙ ΑΠΟ ΕΙΔΙΚΕΥΜΕΝΟ ΚΑΙ ΕΜΠΕΙΡΟ ΠΡΟΣΩΠΙΚΟ.
- Η ΓΕΙΩΣΗ ΠΡΕΠΕΙ ΝΑ ΣΥΝΔΕΘΕΙ ΠΡΙΝ ΑΠΟ ΟΠΟΙΑΔΗΠΟΤΕ ΑΛΛΗ ΚΑΛΩΔΙΩΣΗ, ΚΑΙ ΤΕΛΕΥΤΑΙΑ ΚΑΤ Α ΤΗΝ ΑΠΟΣΥΝΔΕΣΗ.
- ΕΝΑΣ ΔΙΑΚΟΠΤΗΣ ΤΗΣ ΚΥΡΙΑΣ ΠΑΡΟΧΗΣ ΣΥΝΙΣΤΑΤΑΙ ΚΟΝΤΑ ΣΤΟ ΟΡΓΑΝΟ.
- ΕΑΝ ΧΡΗΣΙΜΟΠΟΙΗΘΕΙ ΕΞΩΤΕΡΙΚΗ ΑΣΦΑΛΕΙΑ ΠΡΟΣΤΑΣΙΑΣ ΓΙΑ ΤΟ ΗΛΕΚΤΡΙΚΟ ΚΥΚΛΩΜΑ ΣΤΟ ΚΑ ΤΑΓΡΑΦΙΚΟ, Η ΑΣΦΑΛΕΙΑ ΚΑΙ Η ΑΣΦΑΛΕΙΟΦΗΚΗ ΠΡΕΠΕΙ ΝΑ ΕΙΝΑΙ ΑΝΤΙΣΤΕΙΧΗΣ ΙΣΧΥΟΣ.

ΤΕΧΝΙΚΑ ΣΤΟΙΧΕΙΑ ΟΡΓΑΝΟΥ

ΤΡΟΦΟΔΟΣΙΑ : 100 – 240 V ac/dc
ΣΥΧΝΟΤΗΤΑ : 50/60 Hz
ΙΣΧΨΣ : 100 VA ΜΕΓΙΣΤΗ

ΣΥΝΘΗΚΕΣ ΠΕΡΙΒΑΛΛΟΝΤΟΣ

ΝΑ ΜΗΝ ΧΡΗΣΙΜΟΠΟΙΕΙΤΑΙ ΤΟ ΟΡΓΑΝΟ ΣΕ ΧΩΡΟΥΣ ΜΕ ΠΑΡΟΥΣΙΑ ΕΥΦΛΕΚΤΩΝ ΥΓΡΩΝ Η ΑΤΜΩΝ. ΧΡΗΣΗ ΟΠΟΙΟΥΔΗΠΟΤΕ ΗΛΕΚΤΡΙΚΟΥ ΟΡΓΑΝΟΥ ΣΕ ΤΕΤΟΙΟ ΠΕΡΙΒΑΛΛΟΝ ΑΠΟΤΕΛΕΙ ΚΙΝΔΥΝΟ ΑΤΥΧΗΜΑΤΟΣ.

ΥΓΡΑΣΙΑ	ΧΑΡΤΙ ΡΟΛΛΟ	10 – 90 % RH ΜΗ ΣΥΜΠΥΚΝΩΜΕΝΗ
	ΧΑΡΤΙ ΔΙΠΛΩΜΕΝΟ	15 – 80 % RH ΜΗ ΣΥΜΠΥΚΝΩΜΕΝΗ
ΘΕΡΜΟΚΡΑΣΙΑ	ΠΕΡΙΒΑΛΛΟΝΤΟΣ	ΧΑΡΤΙ ΡΟΛΛΟ: 0 / 50 DEG C (32 / 122 DEG F) ΧΑΡΤΙ ΔΙΠΛΩΜΕΝΟ: 0 / 40 DEG C (32 / 104 DEG F)
	ΑΠΟΘΗΚΕΥΣΗΣ	– 40 / 70 DEG C (– 40 / 158 DEG F)
ΤΑΛΑΝΤΩΣΗ	ΣΥΧΝΟΤΗΤΑ	10 – 60 Hz, ΜΕΓΕΘΟΣ 0.14 mm 60 – 150 Hz, ΕΠΙΤΑΧΥΝΣΗ 1 g

ΤΟΠΟΘΕΤΗΣΗ ΜΗΧΑΝΗΜΑΤΟΣ

ΤΟ ΚΑΤΑΓΡΑΦΙΚΟ ΟΡΓΑΝΟ ΠΡΕΠΕΙ ΝΑ ΤΟΠΟΘΕΤΗΘΕΙ ΣΤΗΝ ΠΡΟΣΟςΗ ΤΟΥ ΠΙΝΑΚΑ, ΕΤΣΙ ΩΣΤΕ ΝΑ ΜΗΝ ΜΠΟΡΕΙ Ο ΧΕΙΡΙΣΤΗΣ ΝΑ ΕΧΕΙ ΠΡΟΣΒΑΣΗ ΣΤΟ ΠΙΣΩ ΜΕΡΟΣ. ΜΕΓΙΣΤΟ ΠΑΧΟΣ ΠΙΝΑΚΟΣ 40 mm.

ΟΔΗΓΙΕΣ ΚΑΘΑΡΙΣΜΟΥ

ΧΡΗΣΙΜΟΠΟΙΗΣΤΕ ΜΟΝΟ ΕΝΑ ΣΤΕΓΝΟ ΒΑΜΒΑΚΕΡΟΥ ΦΑΣΜΑ ΓΙΑ ΤΟΝ ΚΑΘΑΡΙΣΜΟ ΤΟΥ ΟΡΓΑΝΟΥ

ΑΝΤΙΚΑΤΑΣΤΑΣΗ ΑΝΑΛΩΣΙΜΟΥ ΥΛΙΚΟΥ

ΑΣΦΑΛΕΙΑ: ΠΡΟΣ ΑΠΟΦΥΓΗ ΠΥΡΚΑΙΑΣ Η ΑΣΦΑΛΕΙΑ ΘΑ ΠΡΕΠΕΙ ΝΑ ΑΝΤΙΚΑΘΙΣΤΑΤΑΙ ΜΕ ΝΕΑ, ΒΑΣΗ ΤΩΝ ΠΡΟΤΕΙΝΟΜΕΝΩΝ ΠΡΟΔΙΑΓΡΑΦΩΝ (ΤΑΣΗ, ΕΝΤΑΣΗ, ΤΥΠΟΣ). ΠΡΙΝ ΑΠΟ ΤΗΝ ΑΝΤΙΚΑΤΑΣΤΑΣΗ ΝΑ ΔΙΑΚΟΠΤΕΤΑΙ Η ΠΑΡΟΧΗ ΤΑΣΗΣ Η϶ ΝΑ ΑΠΟΣΥΝΔΕΕΤΑΙ Η ΚΑΛΩΔΙΩΣΗ ΠΑΡΟΧΗΣ. ΝΑ ΜΗΝ ΧΡΗΣΙΜΟΠΟΙΗΤΑΙ ΑΣΦΑΛΕΙΑ ΔΙΑΦΟΡΕΤΙΚΗ ΑΠΟ ΤΗΝ ΠΡΟΤΕΙΝΟΜΕΝΗ, ΚΑΙ ΝΑ ΜΗΝ ΒΡΑΧΥΚΥΚΛΩΝΕΤΑΙ Η ΑΣΦΑΛΕΙΟΘΗΚΗ.

VEILIGHEIDSVEREISTEN

⚠	Ter vermindering van het gevaar van elektrische schokken die lichamelijk letsel kunnen veroorzaken, dient u alle veiligheidsaanwijzingen in dit dokument te volgen.
⏚	Beschermende aarde-aansluiting. Bestemd voor aansluiting van de aardingsdraad van de voeding.

- Indien de apparatuur wordt gebruikt anders dan door de fabrikant gespecificeerd, kan de bescherming, die de apparatuur biedt ongedaan worden gemaakt.
- Alleen die onderdelen mogen worden vervangen die door de fabrikant als uitwisselbaar zijn aangemerkt.
- Alle bedrading moet in overeenstemming zijn met de lokale elektriciteitseisen en moet aangelegd worden door geauthoriseerd, ervaren personeel.
- De aardingsdraad moet worden aangesloten vóórdat alle andere bedrading wordt aangesloten (en als laatste worden verbroken).
- Het verdient aanbeveling een netschakelaar aan te brengen vlakbij het instrument.
- Indien een externe zekering wordt toegepast om de elektrische stroomkring naar de recorder te beschermen, moet deze zekering voldoen aan de specificaties die gelden voor zowel de zekering van de recorder (type zekering) als die voor de zekeringhouder.

Apparatuur voorwaarden

Aansluitspanning: 100 tot 240 V AC/DC
Frequentie: 50/60 Hz
Toegestane belasting: 100 VA max.

Omgevingscondities

Gebruik het instrument niet in de aanwezigheid van ontvlambare vloeistoffen of dampen. Het gebruik van elk elektrisch instrument in een dergelijke omgeving vormt een gevaar voor uw veiligheid.

Relatieve vochtigheid	Rol	10 tot 90 % RH niet condenserend
	Vouwkaart	15 tot 80 % RH niet condenserend
Temperatuur	Omgevingstemp.	Rol: 0 tot 50°C (32 tot 122°F) Vouwkaart: 0 tot 40°C (32 tot 104°F)
	Opslag	-40 tot 70°C (-40 tot 158°F)
Trillingen	Frequentie	10 tot 60 Hz, amplitude 0.14 mm 60 tot 150 Hz, versnelling 1 g

Montage van de apparatuur

De recorder moet worden gemonteerd in een paneel om de toegankelijkheid tot de achterste aansluitpunten te beperken (paneeldikte maximaal 40 mm)

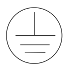
Schoonmaken

Alleen een droge katoenen doek gebruiken voor het schoonmaken van het instrument.

Vervanging van verbruiksmaterialen

Zekering: ter voorkoming van brand dient u de zekering met de gespecificeerde standaard te gebruiken (stroom spanning, type). Voor u de zekering vervangt moet u de netspanning uitschakelen en de stroomtoevoer onderbreken. Gebruik geen andere zekering en sluit de zekeringhouder niet kort.

Instruções de segurança

	Para reduzir o risco de choque eléctrico que pode causar danos corporais, seguir todas as normas de segurança contidas nesta documentação.
	Terminal de protecção de terra. Fornecido para ligação do condutor do sistema da protecção de terra.

- Se este equipamento for usado de modo não especificado pelo fabricante, a protecção fornecida pelo equipamento pode não ser adequada.
- Não se deve substituir qualquer componente (ou peça) que não seja explicitamente especificado como substituível pelo nosso revendedor.
- Toda a cablagem deve estar de acordo com os códigos eléctricos locais e deve ser realizada por pessoal experiente devidamente autorizado.
- O terminal de terra deve ser ligado antes de ser feita qualquer outra cabelagem (e desligado em último lugar).
- Recomenda-se um comutador na fonte de alimentação principal pr[ximo do equipamento.
- Se um fusível externo é utilizado para proteger o circuito eléctrico ao registador, o fusível tem de coincidir com o fusível do registador regulamentado (tipo de fusível) bem como com o "fuseholder" (porta de suporte).

Especificações do Equipamento

Voltagem: 100 a 240 Vca/cc
Frequência: 50/60 Hz
Potência ou consumo de Corrente: 100 VA max.

Condições Ambientais

Não operar o instrumento na presença de líquidos ou vapores inflamáveis. A operação de qualquer instrumento eléctrico em tal ambiente constitui um perigo para a segurança.

Humidade	Rolo Leque	10 a 90 % RH não condensado 15 a 80 % RH não condensado
Temperatura	Ambiente	Rolo: 0 a 50^{o}C (32 a 122^{o}F) Leque: 0 a 40^{o}C (32 a 104^{o}F)
	Armazenagem	-40 a 70^{o}C (-40 a 158^{o}F)
Vibrações	Frequência	10 a 60 Hz, amplitude de 0.14 mm 60 a 150 Hz, 1 g de aceleração

Instalação do Equipamento

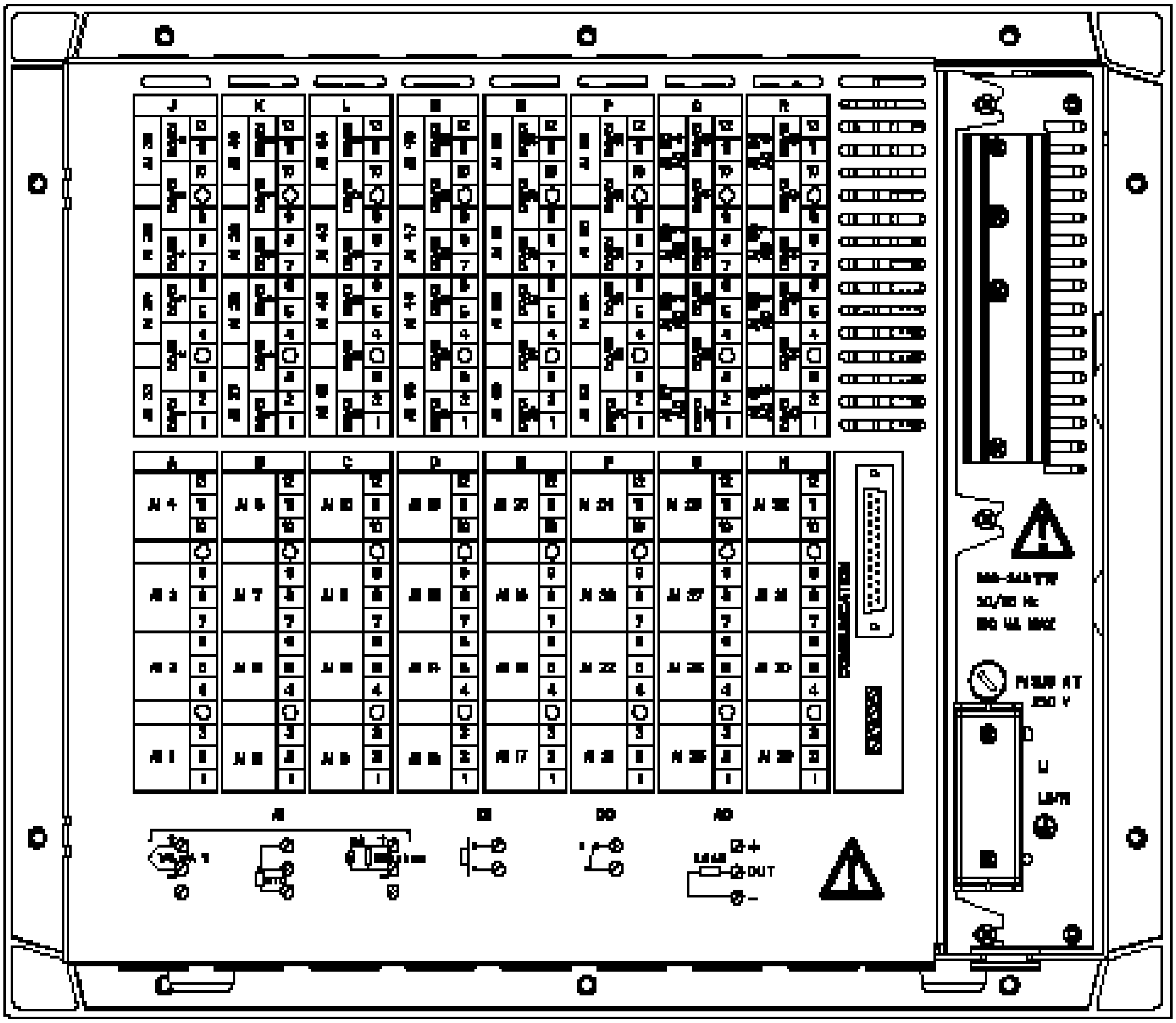
O Registador deve ser montado num painel para limitar o acesso do operador aos terminais traseiros (espessura máxima do painel 40 mm).

Instruções de Limpeza

Usar apenas um cotonete seco para limpar a unidade.

Substituição de Consumíveis

Fusível: Para evitar um incêndio certifique-se de que usa um fusível com especificações standard (voltagem, corrente, tipo). Antes de substituir o fusível, desligue a alimentação e desligue os fios da fonte de alimentação. Não usar fusíveis diferentes ou fazer curto circuito do suporte de fusível.


J
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AI
DO
AO
OUT

→ DA	Positioner		
AI = Analog indgange **AO** = Externe udgange **DI** = Digitale indgange **DO** = Digitale udgange (Relæ)	Fra **A** til **F** Fra **N** til **P** Fra **J** til **P** Fra **J** til **P**	(laveste rack) (øverste rack) (øverste rack) (øverste rack)	**(A)** KOMMUNIKATION **(B)** BELASTNING **(C)** 100 VA MAX **(D)** F 3,15 A T
Bemærk: Alle terminalstik kan tages fra printkortene for at gøre installationen nemmere.			

→ FI	Liitäntäpaikat		
AI = Analogiatulo **AO** = Apulähtö **DI** = Kosketintulo **DO** = Kosketinlähtö (Rele)	**A - F** **N - P** **J - P** **J - P**	(alemmat liitynnät) (ylemmät liitynnät) (ylemmät liitynnät) (ylemmät liitynnät)	**(A)** Väyläliityntä **(B)** Kuorma **(C)** 100 VA MAX **(D)** Sulake 3,15 A hidas
HUOM: Liitäntärimat voidaan irrottaa kotelosta kytkentä-ja huoltotöiden helpottamiseksi.			

→ SW	Positioner		
AI = Analog ingång **AO** = Extra utgång **DI** = Digital ingång **DO** = Digital utgång (Relä)	Från **A** till **F** Från **N** till **P** Från **J** till **P** Från **J** till **P**	(Undre rack) (Övre rack) (Övre rack) (Övre rack)	**(A)** KOMMUNIKATION **(B)** LAST **(C)** 100 VA MAX **(D)** F 3,15 A T
Obs.: Kopplingsplinten kan tagas bort ifrån kretskortet för att underlätta inkopplingen och eventuellt kortbyte.			

→ IT	Posizioni		
AI = Ingresso analogico **AO** = Uscita ausiliaria **DI** = Ingresso digitale **DO** = Uscita digitale (Relè)	Da **A** a **F** Da **N** a **P** Da **J** a **P** Da **J** a **P**	(parte inferiore) (parte superiore) (parte superiore) (parte superiore)	**(A)** COMUNICAZIONE **(B)** CARICO **(C)** 100 VA MAX **(D)** F 3,15 A T
Nota: I blocchi terminali possono essere rimossi dalla scheda per un piu' facile cablaggio e per la sostituzione della scheda.			

→ SP	Posiciones		
AI = (EA) Entrada Analógica **AO** = (SA) Salida Auxiliar **DI** = (ED) Entrada Digital **DO** = (SD) Salida Digital (Relé)	De **A** a **F** De **N** a **P** De **J** a **P** De **J** a **P**	(Bastidor Inferior) (Bastidor Superior) (Bastidor Superior) (Bastidor Superior)	**(A)** COMUNICACION **(B)** CARGA **(C)** 100 VA MAX **(D)** F 3,15 A T
Nota: Los bloques de terminales pueden desmontarse de la tarjeta, esto facilita el cableado y sustitución de la tarjeta.			

→ **GR**	ΤΟΠΟΘΕΤΗΣΕΙΣ		**(A)** ΕΠΙΚΟΙΝΩΝΙΑ **(B)** ΦΟΡΤΙΟ **(C)** 100 ςΑ ΜΕΓΙΣΤΗ ΚΑΤΑΝΑΛ ΩΣΗ **(D)** Φ 3,15 Α Τ
AI = ΑΝΑΛΟΓΙΚΗ ΕΙΣΟΔΟΣ **AO** = ΒΟΗΘΠΤΙΚΗ ΕΟΛΟΣ **D** Ι = ΥΠΦΙΑΚΗ ΕΙΣΟΔΟΣ **D** Ο = ΥΗΦΙΑΚΗ ΕΞΟΔΟΣ (Ρελε)	ΑΠΟ ΤΟ Α ΣΤΟ **F** ΑΠΟ ΤΟ Ν ΣΤΟ **P** ΑΠΟ ΤΟ **J** ΣΤΟ **P** ΑΠΟ ΤΟ **J** ΣΤΟ **P**	(ΚΑΤΩ ΡΑΚ) (ΑΝΩ ΡΑΚ) (ΑΝΩ ΡΑΚ) (ΑΝΩ ΡΑΚ)	
ΣΗΜΕΙΩΣΗ: ΤΑ ΒΗΖΜΑΤΑ ΜΠΟΡΟ UN ΝΑ ΑΠΟΣ UNΔΕΝΘΟΥΝ ΑΠΟ ΤΗΝ ΠΛΑΚΕΤΑ ΓΙΑ Ε UKOΛΟΤΕΡΗ ΚΑΠΩΔΙΩΣΗ ΚΑΙ ΑΝΤΙΚΑΤΑΣΤΑΣΗ ΠΛΑΚΕΤΑΣ.			

→ **DU**	Posities		**(A)** COMMUNICATIE **(B)** BELASTING **(C)** 100 VA MAX **(D)** F 3,15 A T
AI = Analoge ingang **AO** = Extra uitgang **DI** = Digital ingang **DO** = Digital uitgang (Relais)	Van **A** naar **F** Van **N** naar **P** Van **J** naar **P** Van **J** naar **P**	(onderste rek) (bovenste rek) (bovenste rek) (bovenste rek)	
Opmerking: De aansluitngsstrippen kunnen van de kaart worden verwijderd voor vereenvoudiging van het bedraden en vervaging van de kaart.			

→ **PO**	Posições		**(A)** Comunicação **(B)** Carregar **(C)** 100 VA MAX **(D)** F 3,15 A T
AI = Entrada Analógica **AO** = Sa da Auxiliar **DI** = Entrada Digital **DO** = Sa da Digital (Relé)	De **A** a **F** De **N** a **P** De **J** a **P** De **J** a **P**	(Bastidor Inferior) (Bastidor Superior) (Bastidor Superior) (Bastidor Superior)	
Nota: Os blocos de terminais poderão ser retirados da carta electrónica para facilitar a cablagem e a substituição da carta electr nica.			

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