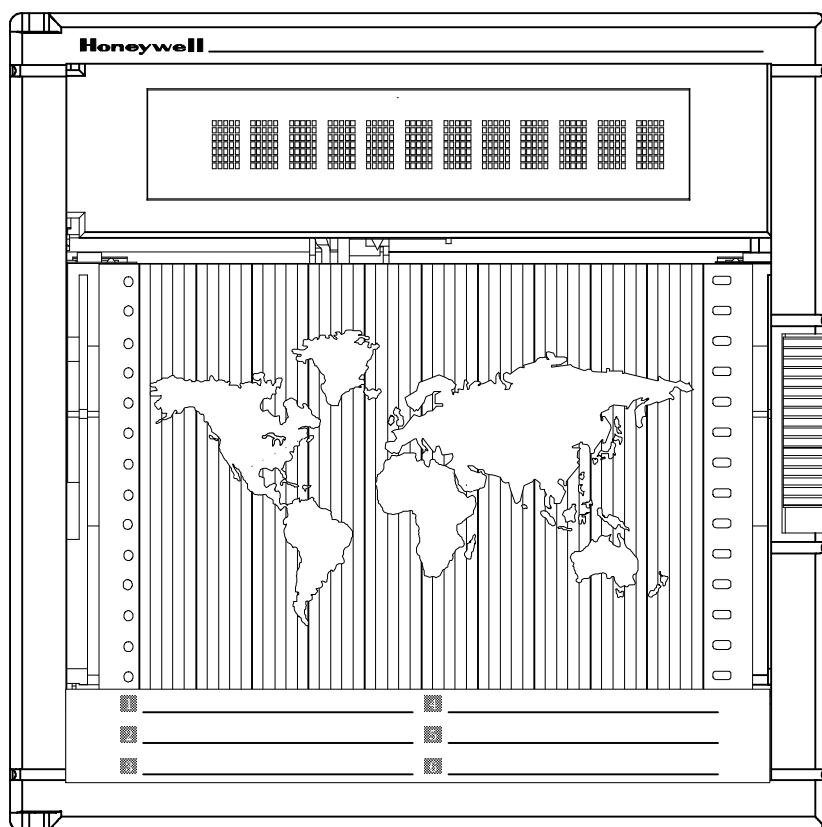


DPR100 C - DPR100 D

OPERATOR MANUAL



LEADERLINE

Better Record Your World



DPR 100 C - DPR 100 D

OPERATOR MANUAL

Ref. : EN1I-6136

Thank you for choosing a HONEYWELL DPR100 Recorder.

The product, designed and produced to ISO 9001, will serve you well and continue HONEYWELLS' tradition as a supplier of quality instrumentation.

To fully benefit from its many features and functions, we would ask you to carefully read this manual. It describes how to prepare, install, configure and use your new recorder.

From first use, we are confident you will appreciate the user-friendly configuration, flexibility and completeness of chart information. Should you require further information, please do not hesitate to contact your nearest HONEYWELL sales office.

Complete technical details for this product are given in the Product Manual [EN11-6137](#) including full configuration or via PC interface (with optional SW) and all maintenance and servicing details.

If ever you should need assistance, we would ask you to have available the product model number, serial number and date code. This information is printed on a label attached to the case. We recommend to complete the table below with the same information.

[A listing of HONEYWELL Sales and Service Offices is given at the end of this manual.](#)

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

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1.1 RECORDER OVERVIEW

This recorder is a precision measuring instrument with many features.

- Up to 3 pens for the pen recorder or up to 6 channels for the multipoint recorder,
- Compact size : 245 mm depth,
- 100 mm chart in either roll or fanfold presentation,
- Universal power supply :
with optional 24 Vdc output voltage to supply up to 2 transmitters,
- IP54 front of panel protection,
- Universal input with wide choice of actuation/range,
- High accuracy : 0.1 % F.S.,
- Easy interactive product configuration,
- Large, clear operator display,
- Fast scanning rate : 330 ms for 3 channels, 640 ms for 6 channels,
- Alphanumeric chart documentation,
- Up to 12 alarm setpoints with a wide choice of alarm types,
- Event alarm : end of chart paper, sensor burnout, clock battery low, etc.,
- Up to 12 customer messages,
- 4 Batch messages,
- Event precursor,
- Standard chart illumination,
- Up to 4 digital inputs,
- Product configurability and service diagnostic with PC software,
- Supervision display via PC software,
- Chart zoning configurable,

- Complies with IEC348 and IEC1010 safety requirements,

OPTIONS :

- Up to 12 alarm relay outputs,
- Maths functions,
- Up to 2 current output channels (4 to 20 mA).

2. INSTALLATION

2.1 WARNING



To avoid the risk of electrical shock which could cause personal injury, follow all safety notices in this documentation.



Protective earth terminal. Provided for connection of the protective earth supply system conductor.

☒ **POWER SUPPLY**

Ensure the source voltage matches the supply voltage of the recorder before power on.

☒ **PROTECTIVE GROUNDING**

Make sure to connect the protective grounding to prevent an electric shock before power on.

☒ **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.

☒ **DEFECT OF PROTECTIVE GROUNDING AND FUSE**

Do not operate the instrument when protective grounding or fuse might be defective.

☒ **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 vapors. 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 done by qualified personnel only.

☒ **EXTERNAL CONNECTION**

To ground securely, connect the protective grounding before connecting to measurement or control unit.

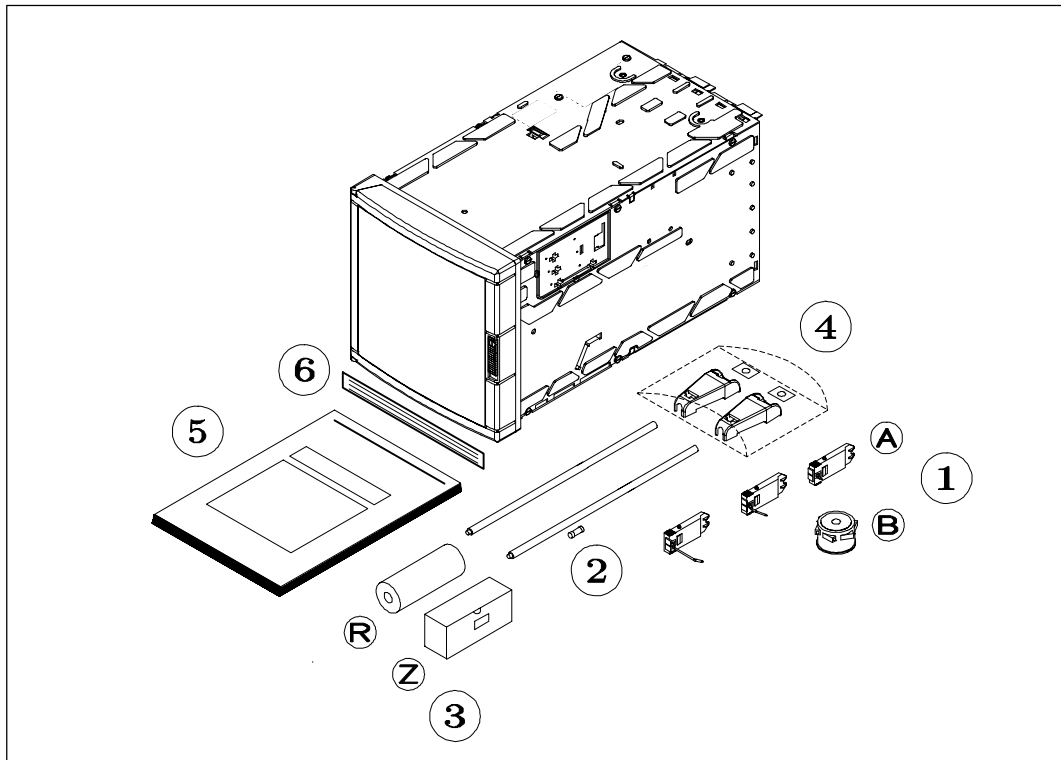
☒ If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

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

2. INSTALLATION

2.2 UNPACKING

Remove the accessories and check them against the figure below.



1. Ink cartridge(s) (A) or ink wheel (B)
2. Fuse (Spare) (Use only 1 A T. fuses)
3. Roll (R) or fan fold (Z) chart
4. Mounting brackets with nuts
5. Operator manual
6. Front label

NOTE: In case of missing item, please contact your nearest sales office.

2. INSTALLATION

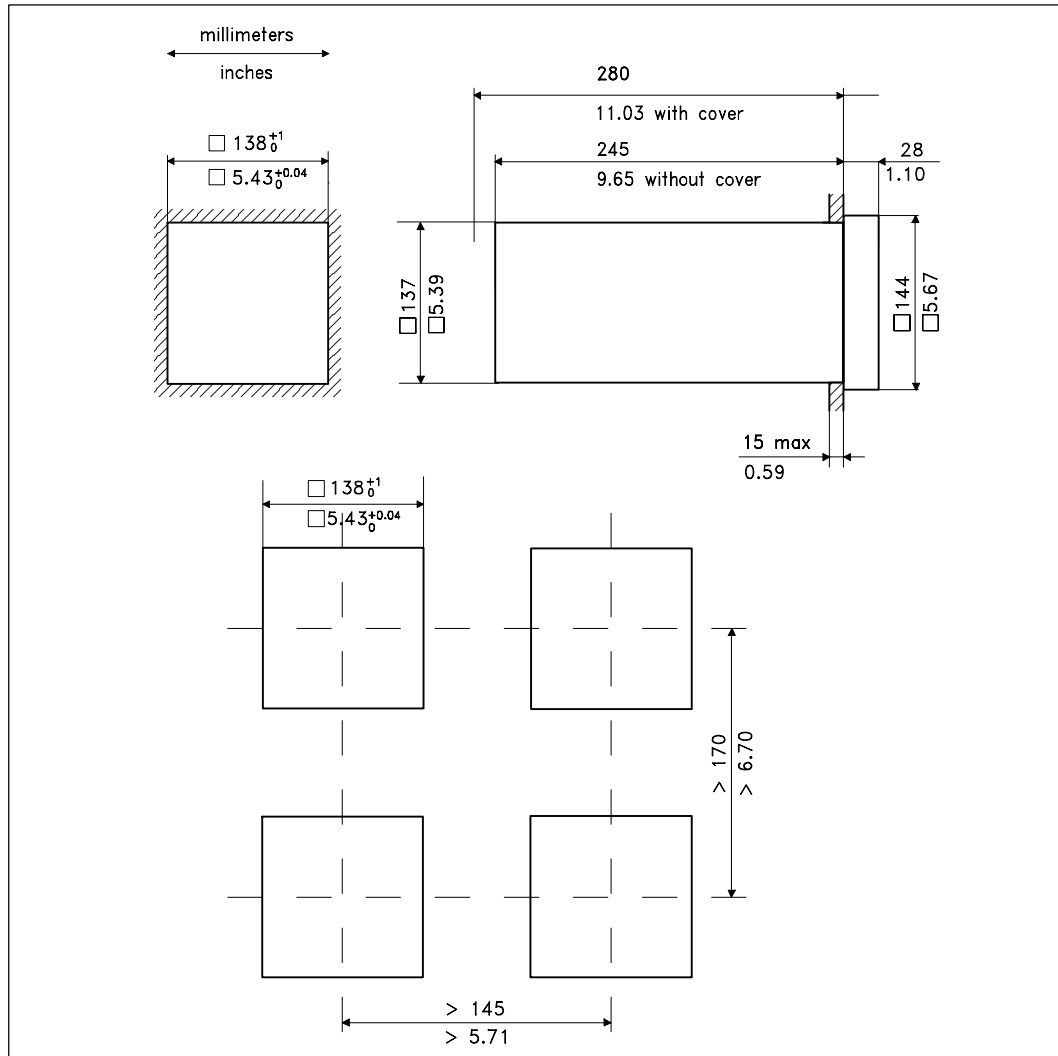
2.3 PANEL MOUNTING THE RECORDER

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 15 mm

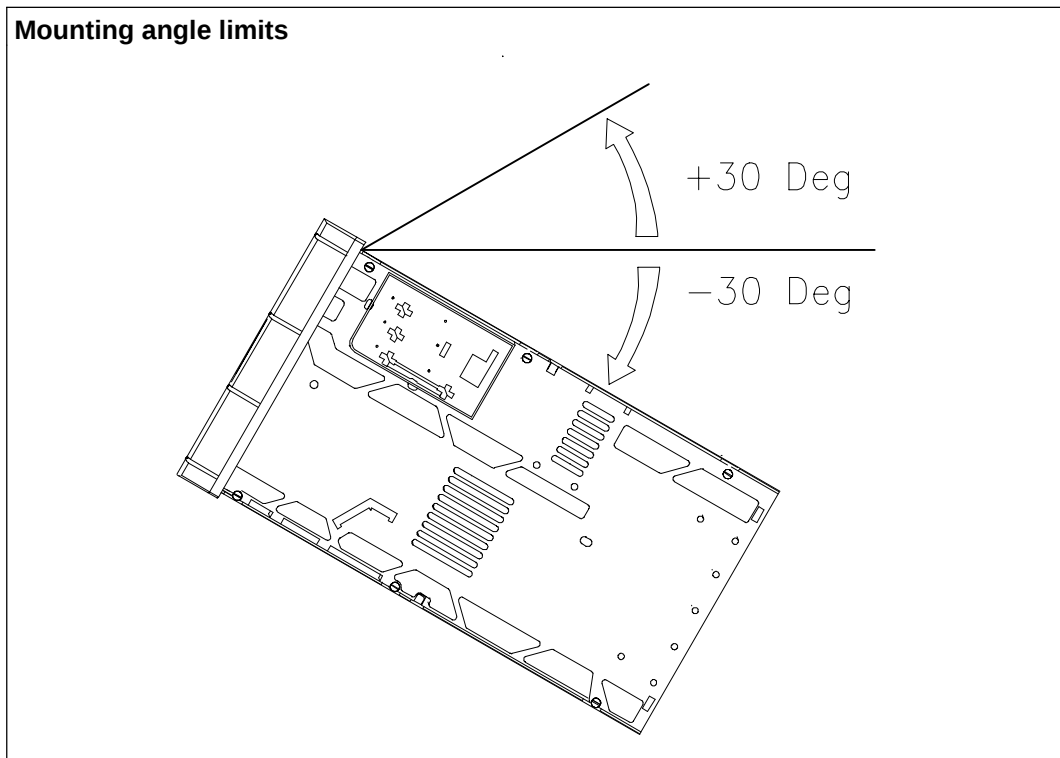
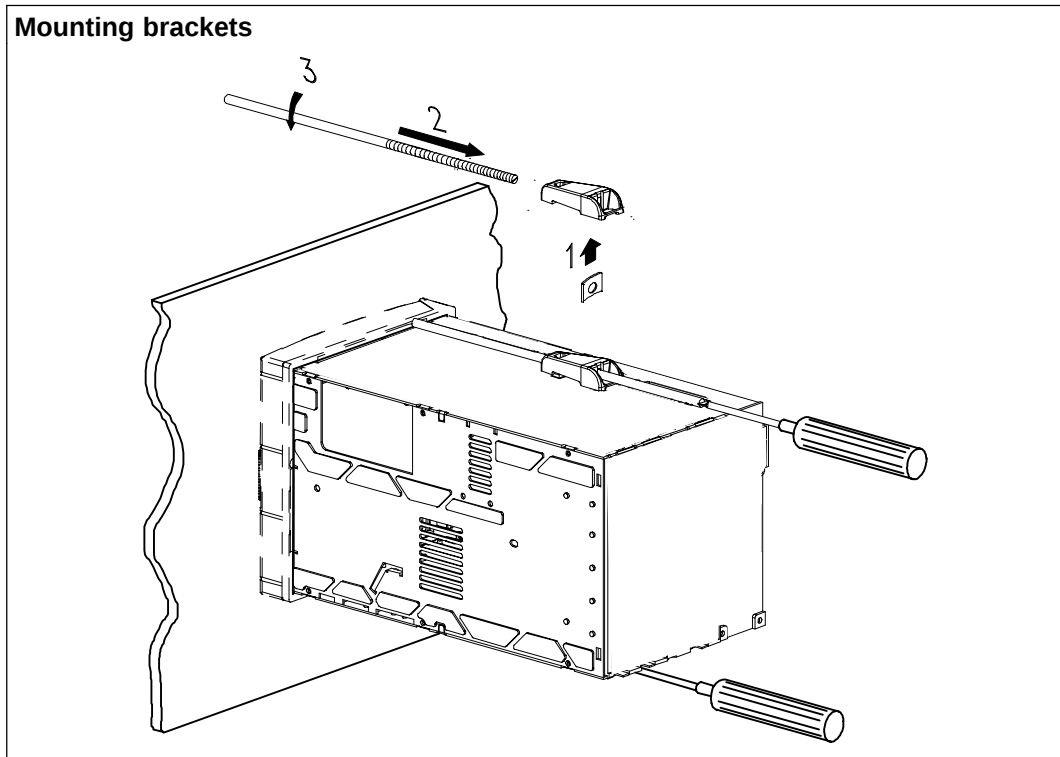
Warning: The maximum temperature inside the cabinet should not exceed the ambient conditions specific to the recorders.

The recorder must be mounted into a panel to limit operator access to the rear terminals.

2. INSTALLATION

2.3.3 Installing the recorder

To install the recorder, follow the figures below:

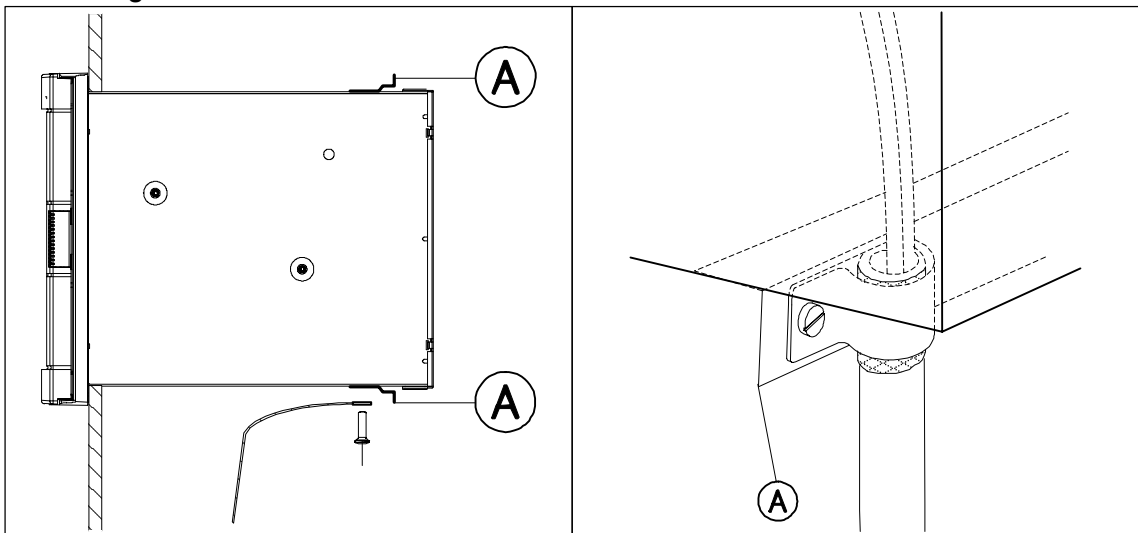


2. INSTALLATION

2.4 WIRING THE RECORDER

2.4.1 Recommendations

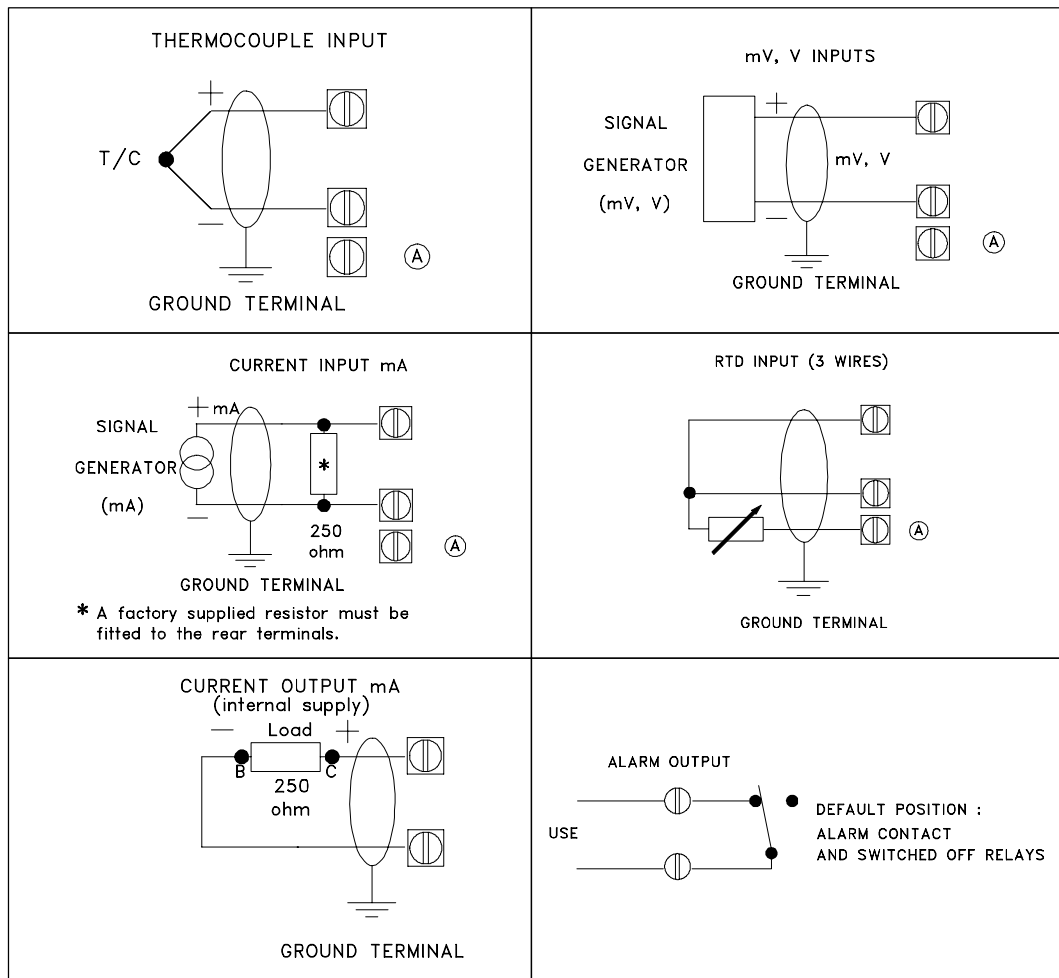
- All wiring must be in accordance with local norms and carried out by authorized experienced personnel.
- The ground terminal must be connected before any other wiring (and disconnected last).
- A switch in the main supply is required near the equipment.
- If an external fuse is used to protect the line supply to the recorder, the fuse should match the recorder fuse rating (fuse type) as well as for the fuseholder.
- Sensor wiring should be run as far as possible from power wiring.
- To reduce stray pick-up, we recommend the use of 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.



A: Square of screening recapture (46210075-501)

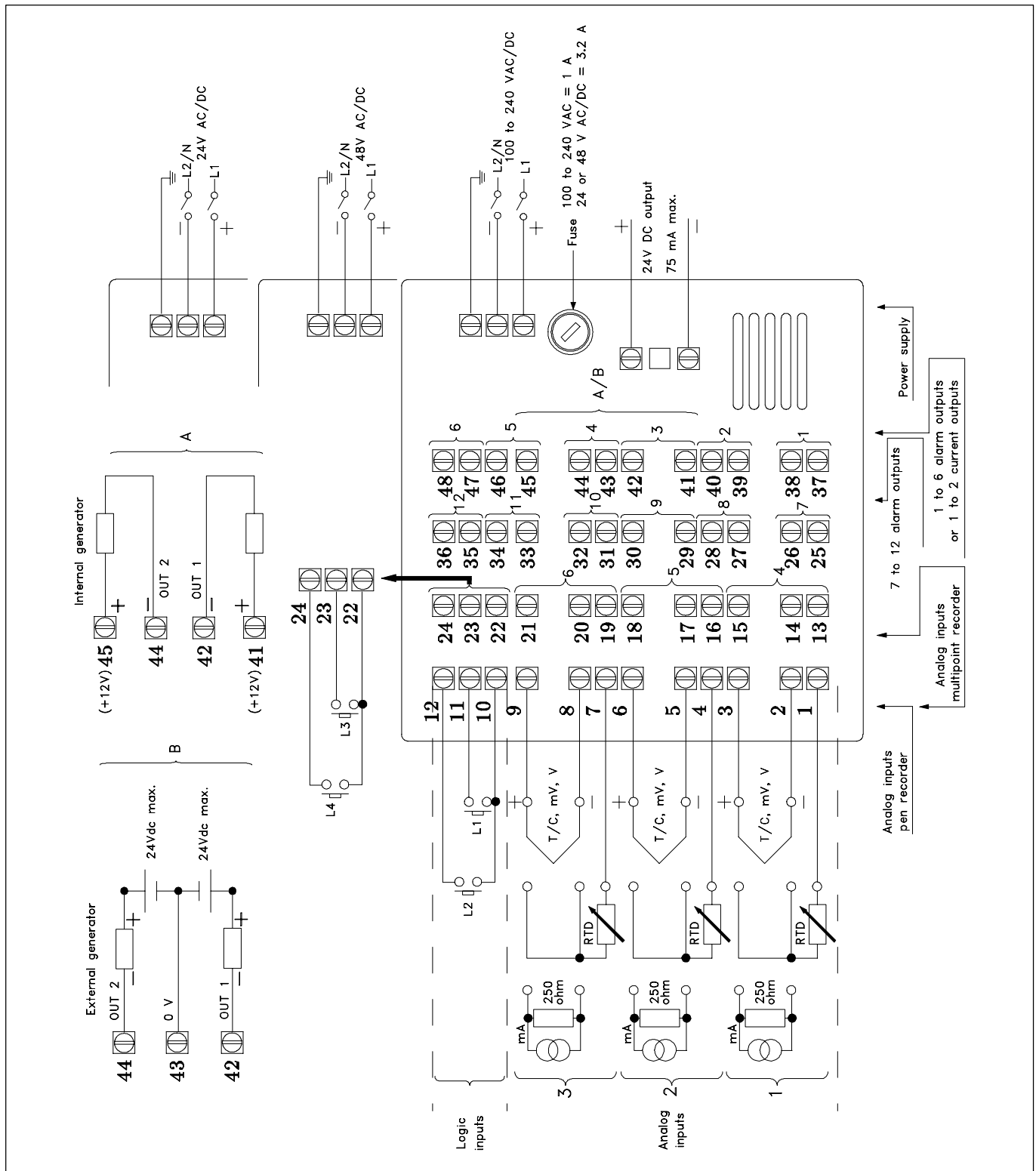
- The use of spade terminals on all wiring is recommended.

2. INSTALLATION



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

2.5 TERMINAL CONNECTIONS

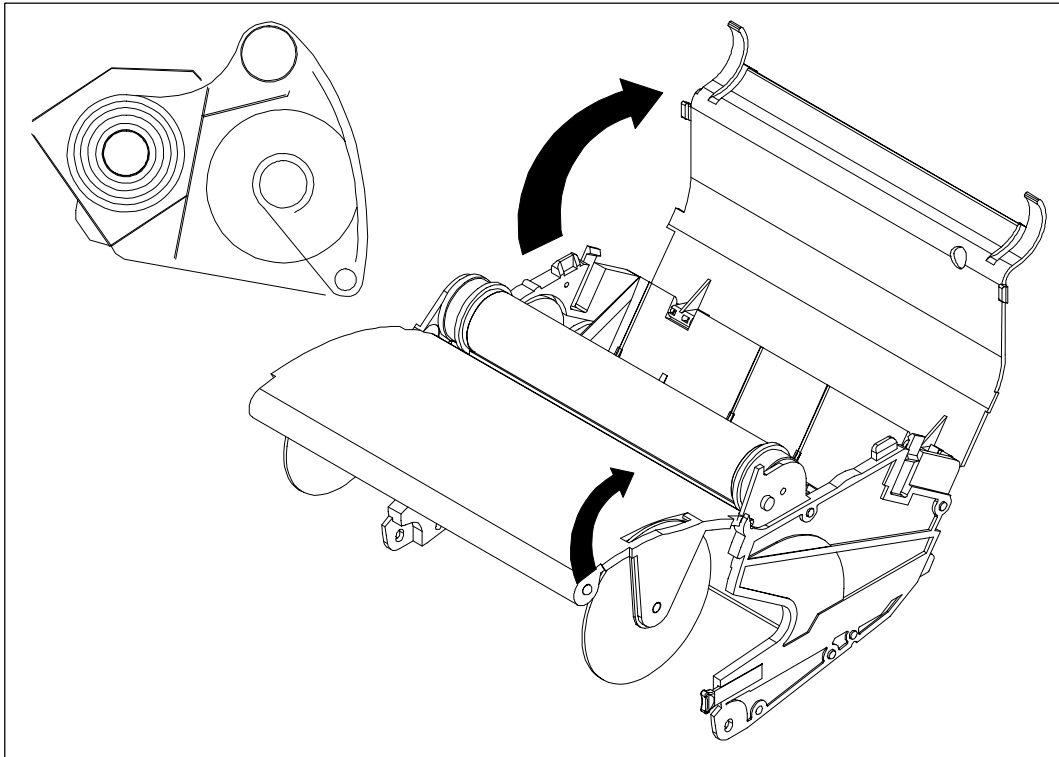


2. INSTALLATION

2.6 FITTING THE CHART

2.6.1 Roll chart

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



Note 1: To maintain print quality, the print carriage guide rods should be cleaned at six-monthly intervals with a dry cotton cloth. Lubricant should NOT be used.

If required, the chart cassette can be cleaned with a damp cotton cloth.

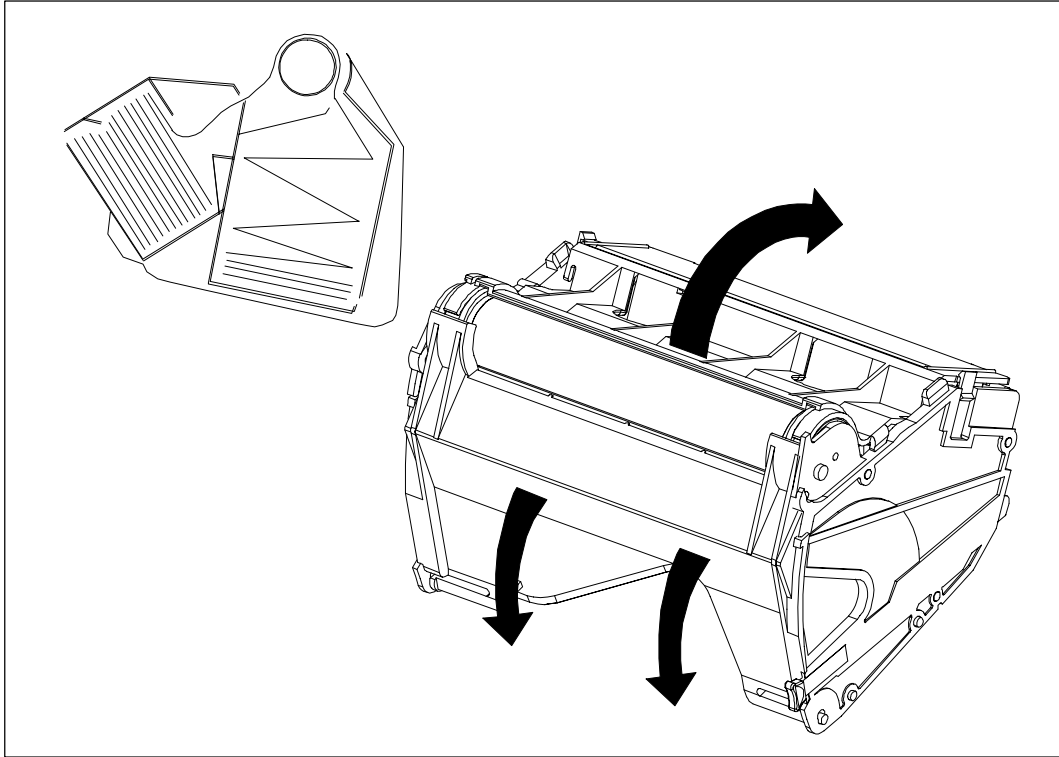
Note 2: After the installation of a new chart, close the display and reinsert the chart cassette.

WARNING: Reset the paper length if configured after installing the new chart. See [paragraph 3.2.1 "Operators keys"](#).

2. INSTALLATION

2.6.2 Fanfold chart

- Open the chart cassette as shown below and install the chart using the figure on the cassette.
- Place the fanfold chart in the upper compartment with the folds in the vertical plane and the slots on the right hand side.
- Pull out 4 folds of paper and then close the rear metal cover.



Note 1: To maintain print quality, the print carriage guide rods should be cleaned at six-monthly intervals with a dry cotton cloth. Lubricant should NOT be used.
If required, the chart cassette can be cleaned with a damp cotton cloth.

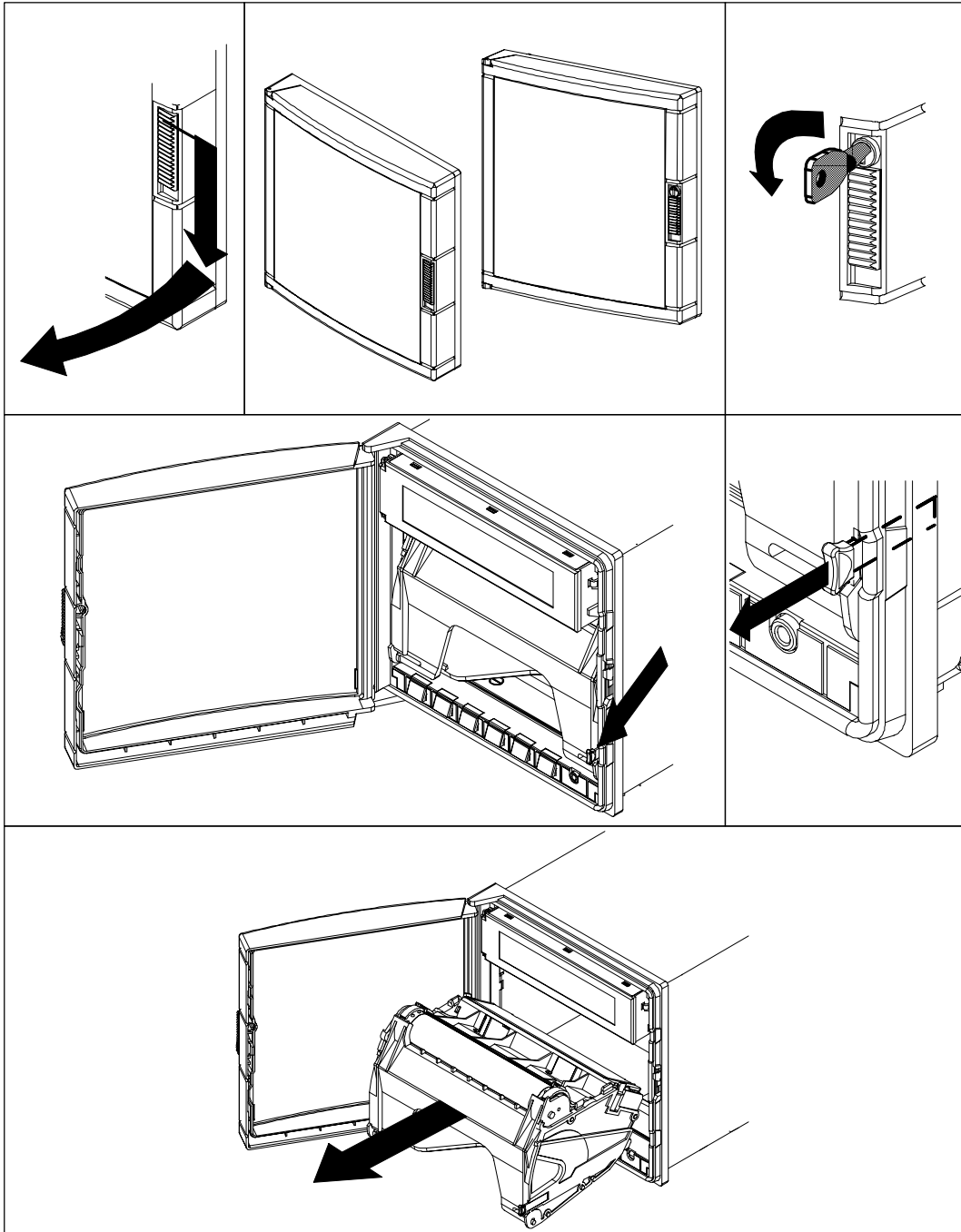
Note 2: After the installation of a new chart, close the display and reinsert the chart cassette.

WARNING: Reset the paper length if configured after installing the new chart. See [paragraph 3.2.1 "Operators keys"](#).

2. INSTALLATION

2.7 INSTALLING THE PRINTING SYSTEM

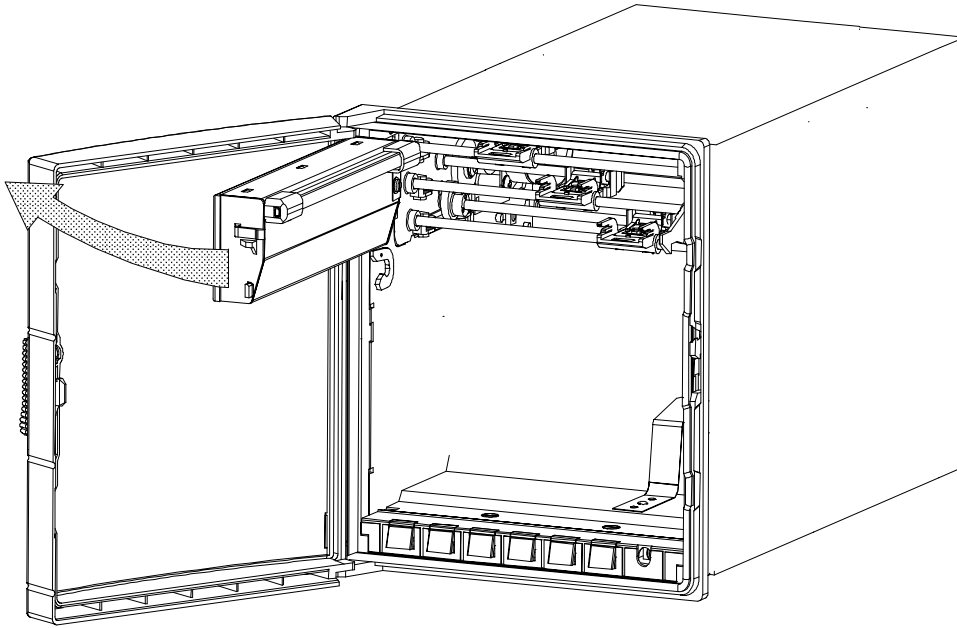
Remove the chart cassette from the chassis as shown below:



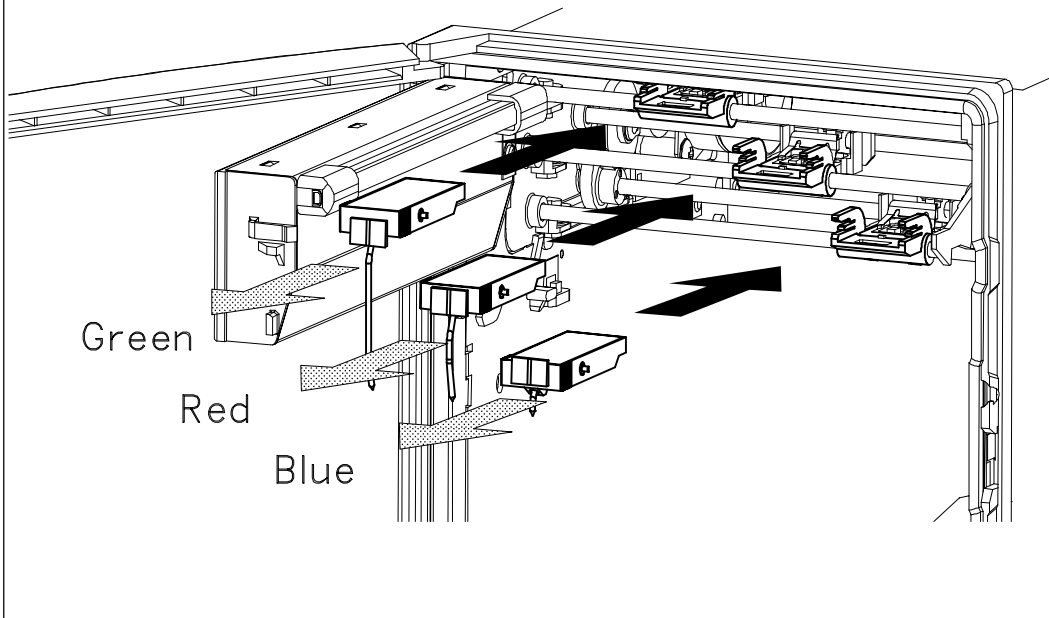
2. INSTALLATION

If you have a pen recorder, proceed as shown below:

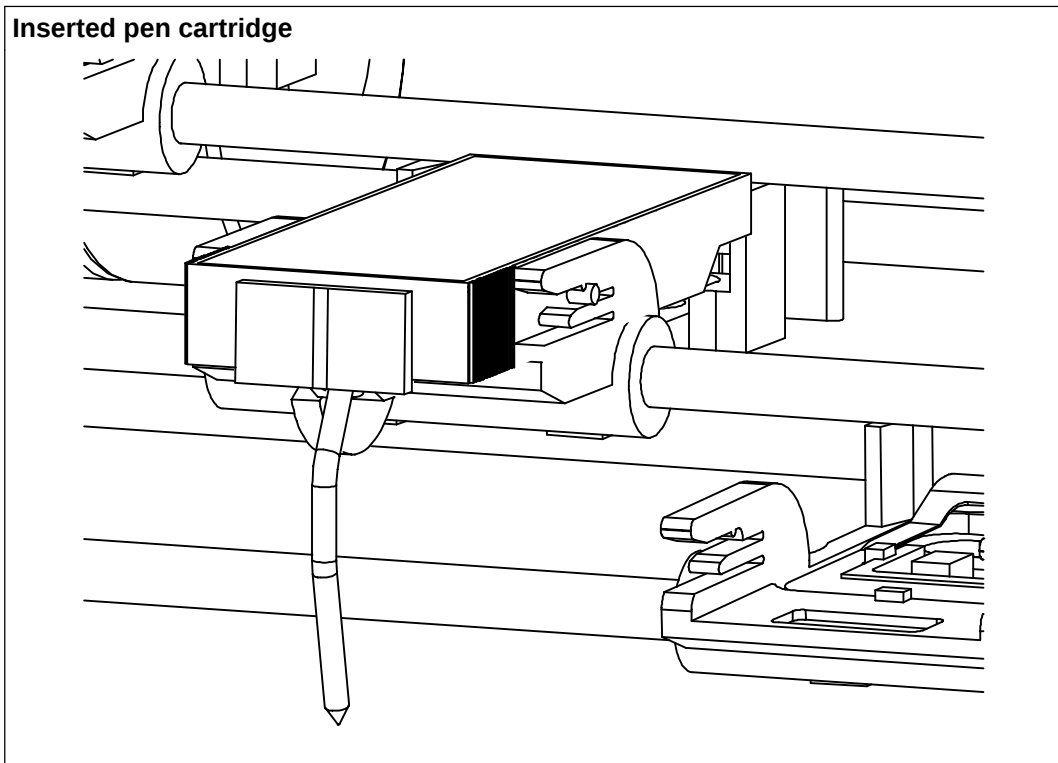
Open the front display after having removed the chart cassette



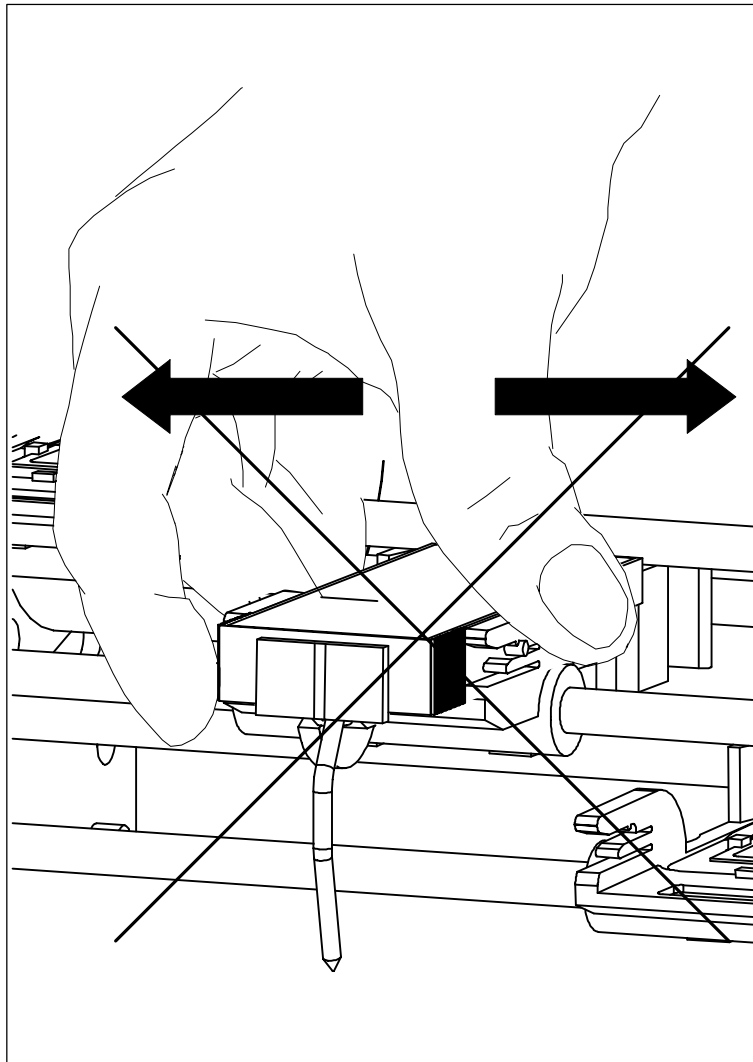
Insert the pen cartridges



2. INSTALLATION



2. INSTALLATION

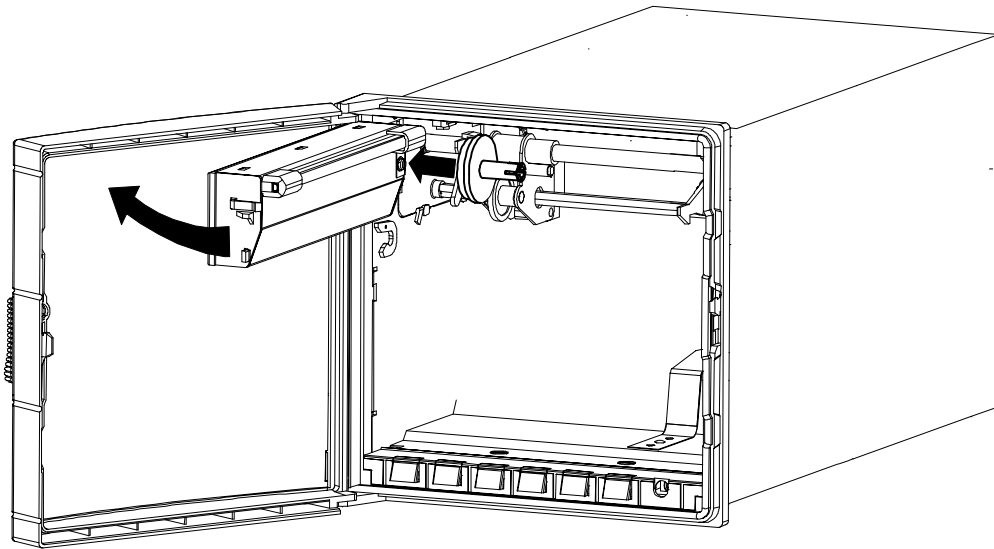


CAUTION: Do not move the print head mechanism when the recorder is working.

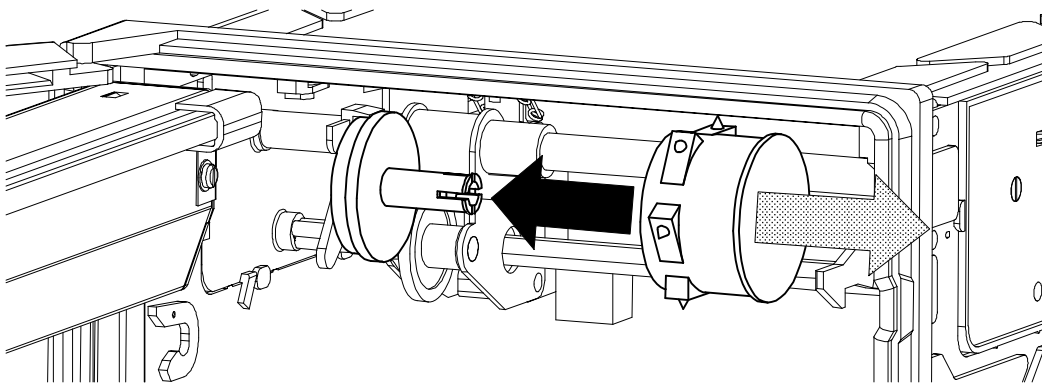
2. INSTALLATION

If you have a multipoint recorder, proceed as shown below:

Open the display after having removed the chart cassette

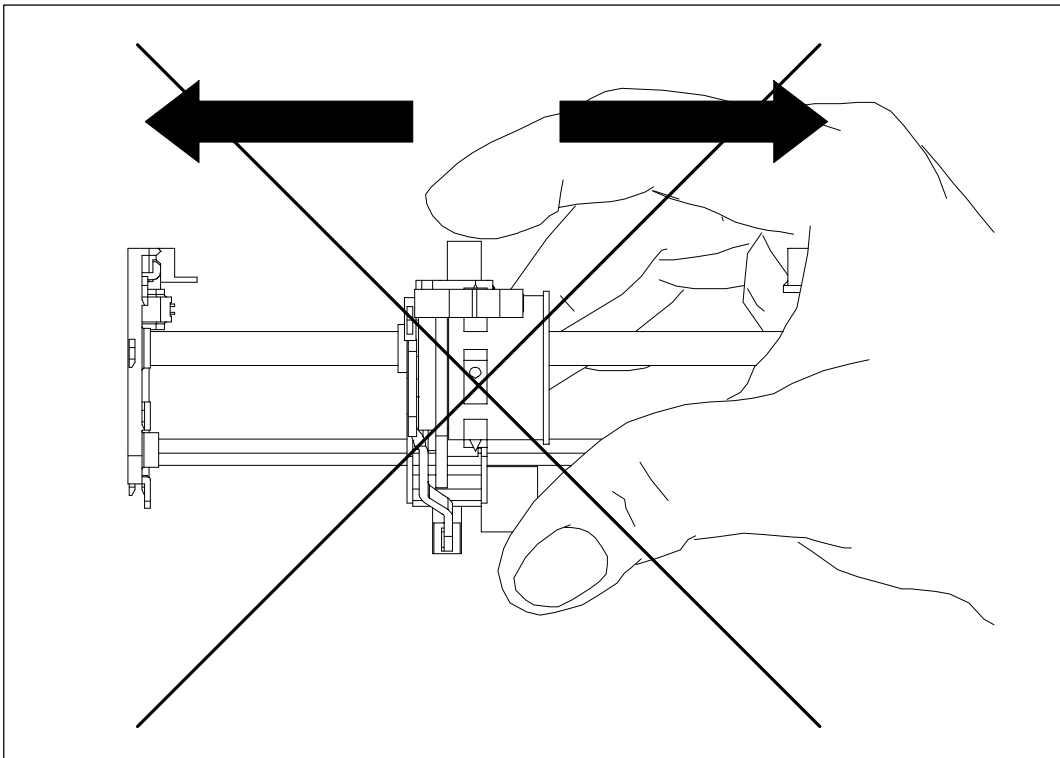


Insert the ink wheel



Note: The ink wheel should be inserted and rotated counter-clockwise until ratchet engages.

2. INSTALLATION



CAUTION: Do not move the print head mechanism when the recorder is working.

NOTE: After each change chart it is recommended to make a calibration again (See [0%](#) and [100% CHART](#)).

2. INSTALLATION

FUNCTION	TYPE OF SERVICE
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%**" 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 introduce a negative number.)

You can change the distance value by pressing the   keys.

You accept the value by pressing  .

You can leave the 0% chart service by pressing .

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

2. INSTALLATION

FUNCTION	TYPE OF SERVICE
PRINTER	100% CHT

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%**" 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 introduce a negative number.)

You can change the distance value by pressing the   keys.

You accept the value by pressing  .

You can leave the 100% chart service by pressing .

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

2. INSTALLATION

2.8 CHECK LIST

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 cartridge(s) or wheel ?
(See figures on [pages 2-11 to 2-15](#))

5

Have you installed the chart correctly ?
(See figures on [pages 2-8 and 2-9](#))

6

Have you closed the display ?

7

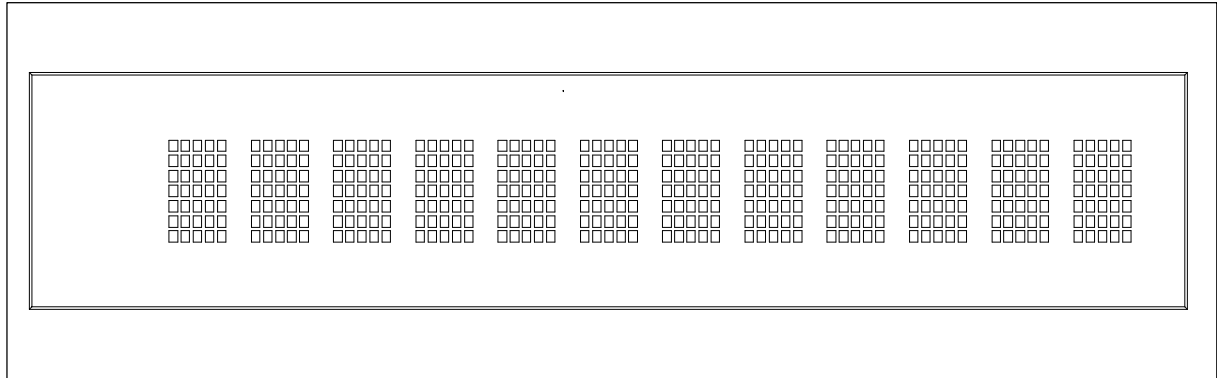
Have you fitted the chart cassette in the recorder ?

3. OPERATION

3.1 OPERATOR INTERFACE EXPLANATION

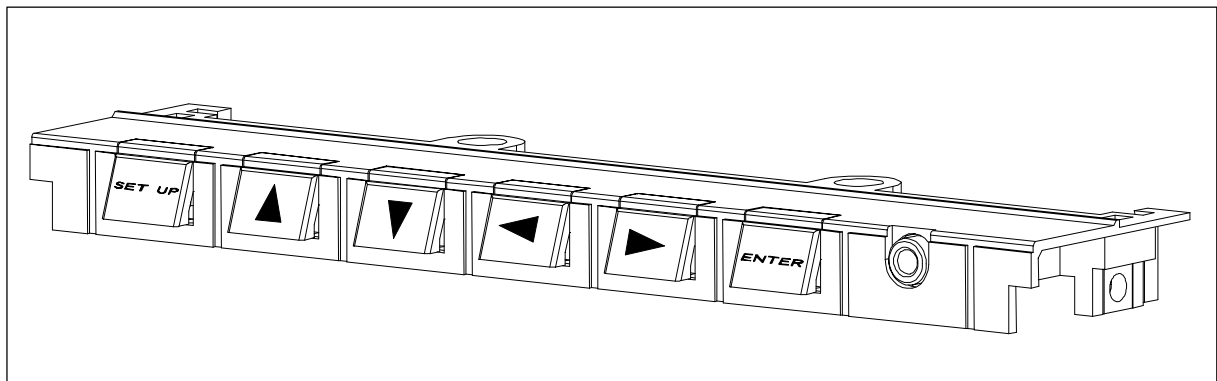
The operator interface comprises the display and keypad.

DISPLAY



The display gives a clear indication of action prompts by means of one line of 12 characters.

KEYPAD



The keypad consists of 6 keys :

- The **SET UP** key allows you to escape from any action menu and return to normal operating mode.
-  allows you to HOLD or SCAN the channel display.
-  allows you to select the DISPLAY TYPE desired.
-  allows you to select the PRINT action desired.
-  allows you to select the MATH or BATCH action desired.
- The **ENTER** key allows you to confirm your selected action.

3. OPERATION

3.2 BASIC ACTIONS

Basic actions are executed by using the     keys without entering the configuration mode. No configuration parameter can be modified.

NOTE :

The    keys are enabled and the  key is disabled by the default factory configuration. See [MMI sub-matrix in the "CONFIGURATION" chapter](#) to modify the actions above.

3.2.1 Operators keys

The 4 keys     can be used as operators keys. These keys can be enabled or disabled in configuration (MMI).

The selections are :

HOLD DISPLAY 	SELECT DISPLAY TYPE 	PRINTER 	MATH/BATCH 
- on CH1 - on CH2 - on CH3 - on CH4 - on CH5 - on CH6 - Display scan	- Analog Input - Math Res - Traces - Traces and Tag - 1 Bargraph - 2 Bargraphs - Date and Time - Speed in use - Alarm	- Print Time - Print PV Values - Chart Hold - Chg Speed - Chart Advance* - Reset Chart Length - Print Math Results**	- Reset Math 1 - Reset Math 2 - Reset Math 3 - Reset Math 4 - Reset Math 5 - Reset Math 6 - Reset All Math - Reset Batch # - Incr. Batch #

*As long as you keep  pressed, the chart advances.

**Only if the Math package is enabled.

- Press  to confirm the choice.

3.2.2 How to select the display type

Ten display types are available :

- **ANALOG INPUTS**

Analog input numbers, measured values and temperature actuation units will be displayed.

1 I N 3 2 7 2 . ° C

IN = mnemonic for analog input

Note: For linear actuations , if the lowest or the highest values are changed, the unit is no more displayed.

- **COMMUNICATION CHANNELS**

Communication channel numbers, values will be displayed.

C 1 1 2 9 5 2 0 . 5

C = mnemonic for communication channel

- **MATHS RESULTS**

Maths channel numbers, maths results will be displayed.

M 1 6 1 7 5 5 0 . 8

M = mnemonic for maths results

- **CHART TRACES**

Channel numbers, measured values and engineering units (configured in the CHART matrix) will be displayed.

1 3 2 7 . 2 U N I T S

If the channel is in alarm then the units

U N I T S

will be replaced by the alarm number

A L 1 2

3. OPERATION

- **TAG NAMES AND TRACES**

Channel numbers and tag names will be displayed

1	T	A	G	N	A	M	E
---	---	---	---	---	---	---	---

then alternately channel number value and unit will be displayed.

1	3	2	7	.	2	U	N	I	T	S
---	---	---	---	---	---	---	---	---	---	---

If the trace is in alarm condition then the units

										U	N	I	T	S
--	--	--	--	--	--	--	--	--	--	---	---	---	---	---

will be replaced by the alarm number

															A	L	1	2
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	---	---	---	---

- **ONE BARGRAPH**

A channel is represented by a 20 segment bargraph.

Channel number and bargraph will be displayed.

1	■	■	■																	>
---	---	---	---	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	---

An "A" will be displayed at the end of the bargraph if the channel is in alarm.

When there is no alarm, the last digit shows the trend of the channel.

> if the values are increasing, < if the values are decreasing.

- **TWO BARGRAPHS**

(Only for 2 or 3 pen recorder)

Two channels are represented by a 2x20 segment bargraphs.

I		■	■	■	■															
II		■	■	■	■	■	■	■	■	■	■	■	■	■	■					

The first digit represents the channel numbers displayed by the bargraphs.

("I" means trace #1, "II" means trace #2, "III" means trace #3)

An "A" will be displayed at the end of the line if one of the channels is in alarm.

3. OPERATION

- **DATE & TIME**

Day/month, hour : min will be displayed.

3 0 / N O V 1 2 : 0 1

- **CHART SPEED**

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

S P 1 1 2 0 0 m m / h

SP1 or SP2 = mnemonic for speed

If the recorder prints in tabular format, then tabular number, tabular interval and unit will be displayed.

T A B 1 1 2 0 m i n

TAB = mnemonic for tabular interval

min = mnemonic for minute

- **ALARMS**

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

A L 1 1 ☒ R L 1 1 _

☐ ON
ACTIVE

— OFF
INACTIVE

AL = mnemonic for alarm

RL = mnemonic for relay

DI = mnemonic for digital input

EV = mnemonic for event

Then alternately the time of alarm activation will be displayed. (Analog and digital alarms display)

A L 1 1 1 2 : 1 5

4. PARTS LIST

4.1 TO ORDER CONSUMABLES

Use this page (or a copy) to order your consumables.

ORDER TO : _____ _____ _____	Order Reference : _____ Date : _____
FROM : _____ _____ _____ _____	

Description / Part.	Reference	Quantities	Minimum Order Qty
Pen 1 Blue (See note)	46187001-001		5
Pen 2 Red	46187001-002		5
Pen 3 Green	46187001-003		5
Ink cartridge Multipoint (6 colours)	46180501-001		2
Chart Roll 40 divisions	46187044-040		25
50 divisions	46187044-050		5
60 divisions	46187044-060		25
65 divisions	46187044-065		25
70 divisions	46187044-070		25
75 divisions	46187044-075		25
100 divisions	46187044-100		25
Special	on request		100
Fan fold 40 divisions	46187045-040		25
50 divisions	46187045-050		5
60 divisions	46187045-060		25
65 divisions	46187045-065		25
70 divisions	46187045-070		25
75 divisions	46187045-075		25
100 divisions	46187045-100		25
Special	on request		100
Fuse - Universal Power Supply 85 to 264 V AC	46182886-004 (Europe : 5x20)		10
- Power Supply 24 V AC/DC or 48 V AC/DC	46182886-003 (US : 6.3x32)		10
	46182886-002 (Europe : 5x20)		10
	46182886-001 (US : 6.3x32)		10
Front label 1-2-3 channels	46187084-003		5
6 channels	46187084-006		

Note : As pen 1 prints all messages, it will require replacement before pens 2 or 3. It is recommended to order 3 times the quantity of pen 1.

5. MODEL SELECTION GUIDE

5.1 PRODUCT IDENTIFICATION

I N S T R U C T I O N S	* The model number consists of 16 characters or more. * Select digits from key number and tables I to VIII. * A complete model number has the requested number of digits from each table as follows ; the table VII can accept more than 4 digits.									
	D _ 1 0 _ - _ - _ - _ _ - _ - _ - _ _ , _ _ - _ _ - _ _ _ , _ _ _									
	Key number I II III IV V VI VII VIII IX									

K E Y N U M B E R (a)	Description (5 digits)		Selection	Availability
	1 pen recorder		DP101	◆
	2 pen recorder		DP102	◆
	2 pen TDC trend recorder (Vutronik replacement)		DP112	◆
	3 pen recorder		DP103	◆
	3 pen TDC trend recorder (Vutronik replacement)		DP113	◆
	3 channel recorder		DM103	◆
	6 channel recorder		DM106	◆

T a b l e I	Description (1 digit)		Selection	Availability
	Math function	None	0	◆
		Math Package 1 : Add, Sub, x, :, SqRt	1	◆
		Math Package 2 : (1 plus) Fo, Group Average Total, Gas/Liquid Mass/flow	2	◆
		Math Package 3 : (2 plus) Integ., group max, Min, Max-Min, energy consumption	3	◆
		Math Package 4 : (3 plus) RH, 10x, envelope, timers, carbon potential	4	◆

T a b l e II	Description (1 digit)			Selection	Availability
	Voltage (b)	- 85 to 264 Vac/dc	Chart speed mm/h	A	◆
		- 85 to 250 Vac/dc	Chart speed inch/h (U.S. version, CSA)	C	◆
		- 24 Volt ac/dc	Chart speed mm/h	E	◆
		- 24 Volt ac/dc	Chart speed inch/h (U.S. version, CSA)	F	◆
		- 48 Volt ac/dc	Chart speed mm/h	G	◆
		- 48 Volt ac/dc	Chart speed inch/h (U.S. version, CSA)	H	◆

NOTES : (a) : The units are built with universal input and are delivered with resistors 250 Ω to convert input current signal 4 to 20 mA into 1 to 5 Volt dc (or 0 to 5 Vdc). These are packed in the product accessories.

(b) : Chart speed unit and frequency can be easily modified on the unit by product configuration.

5. MODEL SELECTION GUIDE

T a b l e III	Description (2 digits)		Selection		Availability
	Outputs	Slot # 3 - None - Universal communication board - 6 alarm outputs (# 7 to 12) - 2 alarm outputs (# 7 to 8)	0		◆
		Slot # 4 - None - 6 alarm outputs (# 1 to 6) - 2 alarm outputs (# 1 to 2) - 2 retransmission outputs (c)	1		◆
			A		◆
			B		◆

T a b l e IV	Description (1 digit)		Selection	Availability
	Logic inputs	- None - 2 remote contacts - 4 remote contacts - 2 remote logic inputs 24 Vac	0	◆
			A	◆
			B	◆
			C	◆

T a b l e V	Description (1 digit)		Selection	Availability
	Chart cassette	- Fan fold - Roll	Z	◆
			R	◆

T a b l e VI	Description (1 digit)		Selection	Availability
	Door and case	- Dark grey door, plastic window, with latch - Dark grey door, plastic window, with key lock - Dark grey door, abrasion resistant window, with latch - Dark grey door, abrasion resistant window, with key lock - Portable case (d) - Black door, plastic window with black latch	1	◆
			2	◆
			3	◆
			4	◆
			5	◆
			7	◆

NOTES :

(c) : Option "NONE" available with CSA approval.

(d) : Portable case with dark grey door, plastic window, latch, rear main switch and IEC main plug connector.

5. MODEL SELECTION GUIDE

T a b l e VII	Description (2 digits)		Selection	Availability
	Options			
	- None		00	◆
	- Power supply for transmitter 24 Vdc (75 mA max.) (e)		0B	◆
	- High ambient temperature operation : 60 °C (j)		0D	◆
	- Rear terminal cover (e) (f)		0G	◆
	- Configuration to customer requirement (g)		0K	◆
	- CSA approved (e) (h) (k)		CS	◆
	- Calibration test report (i)		TR	◆
	- TDC trend configuration		OT	◆

T a b l e VIII	Description (2 digits)		Selection		Availability
	Language				
	Operator Manual and prompts	English	E		◆
		French	F		◆
		German	G		◆
		Italian	I		◆
		Spanish	S		◆
		Swedish	W		◆
		English US format	U		◆
	Product Manual including Product configuration	None		0	◆
		English		1	◆
		English US format		2	◆
		French		3	◆
		German		4	◆

T a b l e IX	Description (3 digits)		Selection	Availability
	Special			
	- None		000	◆
	- ST Number		XXX	(l)

NOTES :

- (e): The 24 Vdc has to be directly connected to the power supply terminals
(f): In addition to the cover on the power supply terminals (which is standard)
(g): Please complete and send with your order the configuration worksheet fully completed ([section 14 of product manual](#))
(h): Available with table II option C
(i): If this is applied to a specific range, please order also the option "OK"
(j): Not available with fan fold chart option Z table V
(k): Option not available with portable case
(l): Refer to special instrument list or contact factory for new requirements

5. MODEL SELECTION GUIDE

6. PRODUCT SPECIFICATION SHEET

Technical data	
Technology	Microprocessor based, with non-volatile memory. Flash memory for software upgrade via the front jack.
Analog inputs	
Pen recorder	1, 2 or 3 continuous traces.
Multipoint recorder	3 or 6 channels inputs are scanned by solid state switches and are galvanically isolated, except for RTD sensors.
Signal source	Thermocouple with individual cold junction compensation. Line resistance up to 1000 ohms T/C, mV, mA, V RTD Pt 100 3-wire connections, lead resistance per wire 40 Ω balanced.
Basic mathematic functions	Square Root extraction ($\sqrt{\quad}$) ; Differential = (ΔT)
Filter	A digital filter is configurable per input, 0 to 99 seconds.
Field calibration	A channel field calibration - 0 % and 100 % span - may be made to certify input sensor loop.
Burnout	T/C, mV, Volt, configurable to upscale, to downscale or none. RTD : inherent upscale. mA : inherent downscale
Scanning time (solid state relays)	Pen : 1 pen = 160 ms 2 pens = 240 ms 3 pens = 330 ms Multipoint : 3 channels = 330 ms 6 channels = 640 ms
Input impedance	10 Mohm for T/C, mV inputs, >1 Mohm for volt inputs.
Stray rejection	Series mode ≥ 60 dB. Common mode at 250 V AC ≥ 130 dB.
Display	12 digit fluorescent display : 8.5 mm high (function display) configurable in : - digital PV values with engineering unit in accordance with the input range - 1 or 2 bargraphs Can display analog input, tags, maths results, communication, alarms or event messages.
Brightness	The display brightness is configurable.
Recording span	
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 differently.
Zoning	Each input can be configured on 0 to 100 %, or 0 to 50 %, or 50 to 100 % of the chart.
Pen offset (Pen recorder)	Distance between pen : 2 mm - Offset compensation configurable. Chart definition : 1 step = 0.2 mm
Pen carriage speed	1 second full scale

6. PRODUCT SPECIFICATION SHEET

Technical data	
Chart length	Fanfold 18 m (as DIN 16230) Roll 24 m
Pen trace	
Pen	1400 m per pen
Multipoint	250 m per color
Chart speed	1 or 2 chart speeds, fully configurable, selected by a logic input, alarm or configuration. Speed 1 : fully adjustable per step of 1 mm/h, within limit Speed 2 : fully adjustable per step of 1 mm/h, within limit
Speed setting	Pen : 1 to 6000 mm/h (0.04 to 240 inch/h). Mpt : 1 to 1500 mm/h (0.04 to 60 inch/h) Continuous traces in color, dotted traces in configurable color with regular chart documentation (configurable).
Stepping chart motor	Resolution 0.12 mm
Product configuration	
Front configuration	- 2 product configurations can be stored and selected by the front keys. - A very simple and interactive product configuration can be carried out on the product with 6 front keys. A friendly program with prompt messages confirms the operation. The prompt messages can be selected in different languages : English, German, French, Spanish, Italian or Swedish. A 2-level password protects the unit from non-authorized modification (level 1 = limited access ; level 2 = full protection)
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, upload or download the product configuration or make a service diagnostic, or upgrade a new software or linearize 2 special customer sensors. (50 segments each).
Logic inputs	
Actions	Up to 4 dry contact inputs (1.5 mA - 12 V DC) Change chart speed 1 to speed 2, tab interval 1 to tab interval 2, digital print-out, print message, print inhibit, event trace, print a batch message, tabulate maths calculations. Event marking : Pen : Pen 1 used as operation marker on the right side of the chart for event 1 and on the left side of the chart for event 2. Mpt : 4 traces maximum on the chart. The trace position and the color are configurable.
Alarms	
Setpoint	12 alarm setpoints, freely assignable to any channel and output relay. Full configurability of setpoint, hysteresis and alarm type (high, low rate of change, deviation).
Function	Can trigger a message, print channel red in alarm, print in alarm, change the range, change the speed, print digital PV values, trigger the event precursor.
Output	2, 6 or 12 SPST relay outputs : 2 A, 250 V AC on resistive load. Contact N.C. in alarm condition (configurable in N.O.)

6. PRODUCT SPECIFICATION SHEET

Technical data	
Alphanumeric documentation	
Messages	12 freely assignable and configurable messages of 14 characters each, including the specific German and Swedish letters. Can be printed with the date/time on top of the traces by alarms, logic inputs or communication.
Batch header	One batch message of 4 lines of 14 characters, fully configurable, with incremented batch numbers and date/time. Printed through digital input and saved upon power interruption.
Process variable	The traces can be assigned to analog input, mathematics calculations or communication inputs, and are printed in channel color. Periodic digital printing at time intervals configurable from 1 to 1440 minutes. Digital print-out of PV values through alarms, digital inputs, communication or front keyboard.
Tag name	Each channel can be named by 8 characters.
Event precursor	
Stand-by	The acquisition data is stored in a buffer memory. (FiFo) A stand-by message is periodically printed.
Downloading	On event (alarm, digital input, front key, communication) the data is downloaded to be printed on the chart at pre-configured speed. The history before and after the event represents about 50 mm of chart paper.
Mathematics package (optional)	Many functions are available such as : - Basic mathematics functions - Square root - Fo sterilization - Totalization - Mass flows - Energy consumption - Vacuum pressure - Averages - Min., max. - Timers - Carbon potential The maths calculations and results are stored during power interruptions.
Digital communication (optional)	
Protocols	RS232 ASCII communication to PC application. RS422 or RS485 ASCII communication output. RS422 or RS485 Modbus RTU communication output.
PC supervision	Through ASCII communication, application software gives the facility to read PV's, alarms or event status, to store the information on a file, to send a message to the recorder or to modify the product configuration.
Autodial	The RS232 ASCII communication can dial automatically a phone number of a remote station to send via modem an alarm message or a periodic report.
Event	The recorder can be configured to deliver an output signal (alarm relay) on a recorder event such as burnout, paper cassette out, battery fail, alarm condition, communication interrupted.

6. PRODUCT SPECIFICATION SHEET

Technical data	
Current output (optional)	2 current output, signals 4 to 20 mA reference conditions. Configurable on analog inputs, mathematic calculations, communication signals. Accuracy 0.1% reference conditions. (Add measure accuracy for analog outputs). Temperature drift of 0.1% per 10° C in the rated limits. (0 to 50° C; 85 to 264V). Voltage supplied by the recorder : +12V with a max. resistance load of 400 ohms. or External supply voltage : $\leq 24V$ with a max. resistance load such as $(V_{ext} - 12) / 0.02 \leq R \leq (V_{ext} - 4) / 0.02$
Power supply	85 to 264 VAC 50 Hz or 24 or 48 VAC/DC (+10-15% nominal)
To transmitters	24 V, 75 mA max. (optional) (75 mA available from 100 V)
Power consumption	3 pens or Mpt : 55 VA max. (active power 30 W).
Supply voltage	100 - 240 VAC
Frequency range	50/60 Hz
Power	max. 55 VA
Clock timer	
Format	Year, month, hour, minute can be set.
Power interruption	Battery backed (10 years time, 3 years off power)
Accuracy	$\pm 10^{-5}$
Packaging	
Weight	Pen or Mpt : 3.5 kg
Front face	144 x 144 mm according to DIN 43718
Depth	245 mm/9.7 inch behind panel, including terminals and line protection cover
Front window	Polycarbonate
Front protection	IP 54 (IEC 529), optionally IP55
Lock	Latch or key (DIN 43832-N)
Construction	Silicon-free
Chart illumination	Fluorescent light
Option	Rear terminal cover, portable case.
Mounting	Panel mounting $\pm 30^\circ$ from horizontal
Wiring	Rear screw terminals. Terminal modules are plugged on the instrument.

6. PRODUCT SPECIFICATION SHEET

Technical data	
Writing	
Pen	1 cartridge per pen, fibre tip, 1400 m of trace per color (blue, red, green)
Multipoint	1 print wheel, 6 colors, 250 m of trace per color (purple, red, black, green, blue, brown).
Noise immunity	Meets or exceeds : IEC 801-2 : electrostatic discharge : meets level 3, (8 kV) IEC 801-3 : radiated electrostatic field : meets level 3, (10 V/m) IEC 801-4 : electrical fast transients : meets level 3, (2 kV) IEC 801-5 : line voltage surge : meets level 3, (2 kV) VDE 871 radio EMI interference (EN55022 class B) : meets level B (5 to 27 MHz)
Safety protection	Complies with IEC 1010-1 installation category 2 for personal protection. Designed to meet UL, CSA C22.2 N142 standard (certified)
Electrical insulation	
Input to input	Test voltage 280 VAC for 1 min (except for RTD input)
Input to ground	Test voltage 2.1kVDC for 1 min.
Input to line voltage	Test voltage 2.1kVDC for 1 min.
Line voltage to ground	Test voltage 2.1kVDC for 1 min.
Alarm relay to ground	Test voltage 2.1kVDC for 1 min.
Logic input to ground	Test voltage 500 VDC for 1 min.
Temperature	
Ambient	0 to 50° C (32 to 122° F) Optionally 0 to 60° C (32 to 140° F)
Storage	-40 to 70° C (-40 to 158° F)
Humidity	
Roll	10 to 90% RH non-condensing
Fanfold	15 to 80% RH non-condensing
Vibrations	Frequency : 10 to 60 Hz, amplitude 0.07 mm 60 to 150 Hz, acceleration 1 g
Seismic	Qualified according ANSI/IEEE std 344.1987
Quality assurance	ISO 9001 factory certified

6. PRODUCT SPECIFICATION SHEET

Accuracy			
Reference conditions			
Temperature	23° C ±2° C (73° F ±3° F)		
Humidity	65% RH ±5 % RH		
Line voltage nominal	±1 %		
Source resistance	0 Ω		
Series mode	0 V		
Common mode	0 V		
Frequency nominal	±1 %		
Accuracy		Accuracy of displayed values: 0.1 % of selected input range * (IEC 873) For a 4/20 mA input, you must add the resistor accuracy. Cold junction accuracy: 0.5° C Chart resolution: 0.2 mm	
Rated limits and associated drifts			
	Parameter	Rated limits	Influence on accuracy
	Temperature	0 to 50° C (32 to 122° F)	0.1 % per 10° C of change Cold junction 0.3° C/10° C
	Supply voltage	85 to 264 Vac	No influence
	Source resistance	T/C, mV	6 μV per 100 Ω of line resistance 1000 Ω max.
		RTD	0.1° C per Ω in each wire balanced leads 40 Ω max.
	Humidity	10 to 90 % RH at 25° C	0.1% max.
	Long-term stability		0.1% per year
	Vibrations	1,25 mm at 0 to 14 Hz 1 g at 14 to 250 Hz	
Extreme conditions			
Operating			
Temperature	0 to 60° C (32 to 140° F)		
Humidity	10 to 90 % RH non-condensing		
Storage			
Temperature	-40 to 70° C (-40 to 158° F)		
Humidity	5 to 95 % RH non-condensing		

* Refer to "Available ranges" table for exceptions.

6. PRODUCT SPECIFICATION SHEET

Available ranges					
Linear	RTD/OHMS		Thermocouple		
0/10 mV	Pt 100 Ω at 0° C		J -50/150° C	S 0/1600° C	U -50/150° C
-10/10 mV	IEC -50/150° C**	JIS -50/150° C**	J -58/302° F	S 32/2912° F	U -58/302° F
0/20 mV	IEC -58/302° F**	JIS -58/302° F**	J 0/400° C	S -20/1760° C	U 0/150° C
-20/20 mV	IEC 0/100° C **	JIS 0/100° C **	J 32/752° F	S -4/3200° F	U 32/302° F
0/50 mV	IEC 32/212° F **	JIS 32/212° F **	J -200/870° C		U 50/150° C
-50/50 mV	IEC 0/200° C**	JIS 0/200° C**	J -328/1598° F	N 0/400° C	U 122/302° F
10/50 mV	IEC 32/392° F**	JIS 32/392° F**		N 32/752° F	U -200/400° C
0/100 mV	IEC 0/400° C**	JIS 0/400° C**	L -50/150° C	N 0/800° C	U -328/752° F
-100/100 mV	IEC 32/752° F**	JIS 32/752° F**	L -58/302° F	N 32/1452° F	
0/500 mV	IEC -200/500° C**	JIS -200/500° C**	L 0/400° C	N 0/1200° C	NiMo 0/1400° C
-500/500 mV	IEC -328/932° F**	JIS -328/932° F**	L 32/752° F	N 32/2192° F	NiMo 32/2552° F
0/1 V			L -200/870° C	N -20/1300° C	
-1/1 V			L -328/1598° F	N -4/2372° F	W-W 26 -20/2320° C
0/2 V					W-W 26 -4/4208° F
-2/2 V	Ni 50 Ω -80/320° C**		K 0/400° C	T -50/150° C	W5-W 26 -20/2320° C
0/5 V	Ni 50 Ω -112/608° F**		K 32/752° F	T -58/302° F	W5-W 26 -4/4208° F
-5/5 V	Ni 508 Ω -50/250° C**		K 0/800° C	T 0/150° C	
1/5 V	Ni 508 Ω -58/482° F**		K 32/1452° F	T 32/302° F	PR 20-40 0/1800° C
0/10 V	Cu 10 Ω -20/250° C **		K 0/1200° C	T 50/150° C	PR 20-40 32/3272° F
-10/10 V	Cu 10 Ω -4/482° F **		K 32/2192° F	T 122/302° F	
0/20 mA*	OHM 0/200		K -200/1370° C	T -200/400° C	B 40/1820° C
4/20 mA*	OHM 0/2000		K -328/2498° F	T -328/752° F	B 104/3308° F
			R -20/1760° C		
			R -4/3200° F		

* mA inputs for 250 ohms input resistor
(Accuracy: the tolerance for the Resistor must be added to the specifications).

** Accuracy = 1° C or 1.8° F

Note :

For non-linear temperature transmitter (1 to 5 V DC, 4 to 20 mA, 0 to 5 V DC, 0 to 20 mA), the transmitter range must be identical to the full actuation range of the recorder.

Provision for T/C input for remote compensation box at fixed temperature of 50° C or 60° C. When temperature is not fixed, any input can be used as remote compensation temperature measurement.

6. PRODUCT SPECIFICATION SHEET

7. CONFIGURATION

7.1 OPERATOR INTERFACE

The operator interface comprises the display and keypad used for recorder configuration.

DISPLAY

The display gives a clear indication of the configuration prompts by means of one line of 12 characters.

KEYPAD

The keypad consists of 6 keys :

A clear understanding of keypad use is vital for any operation like Reading/Writing (R/W), Printing (PRN) or Service (SRV).

☒ ACCESS TO CONFIGURATION

Access to Read/Write Configuration (R/W), Print Configuration (PRN) or Service (SRV) is obtained by pressing the  key.

☒ THE PASSWORDS

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

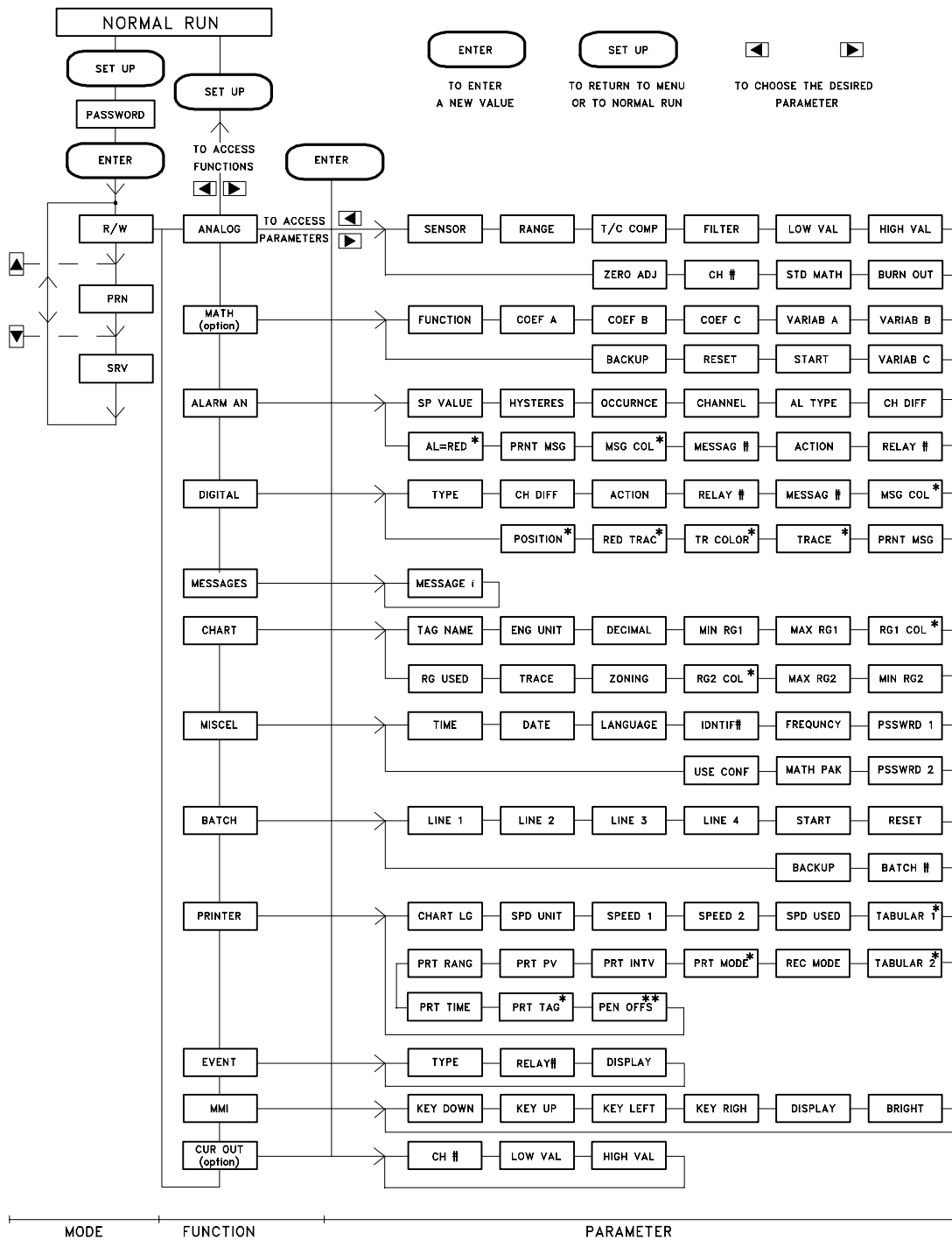
- o Password #1 allows limited access to configuration.
- o Password #2 allows full access to Read/Write Configuration, Print Configuration or Service.

☒ HOW TO ENTER THE PASSWORDS

- o Use of   keys allows you to modify the value of one digit of the password and the   keys are used to select the different digits of the modified value.
- o Press  to update your modification.
- o Or press  to exit configuration mode.

NOTE : If you lost your password, please contact your nearest service center.

7. CONFIGURATION

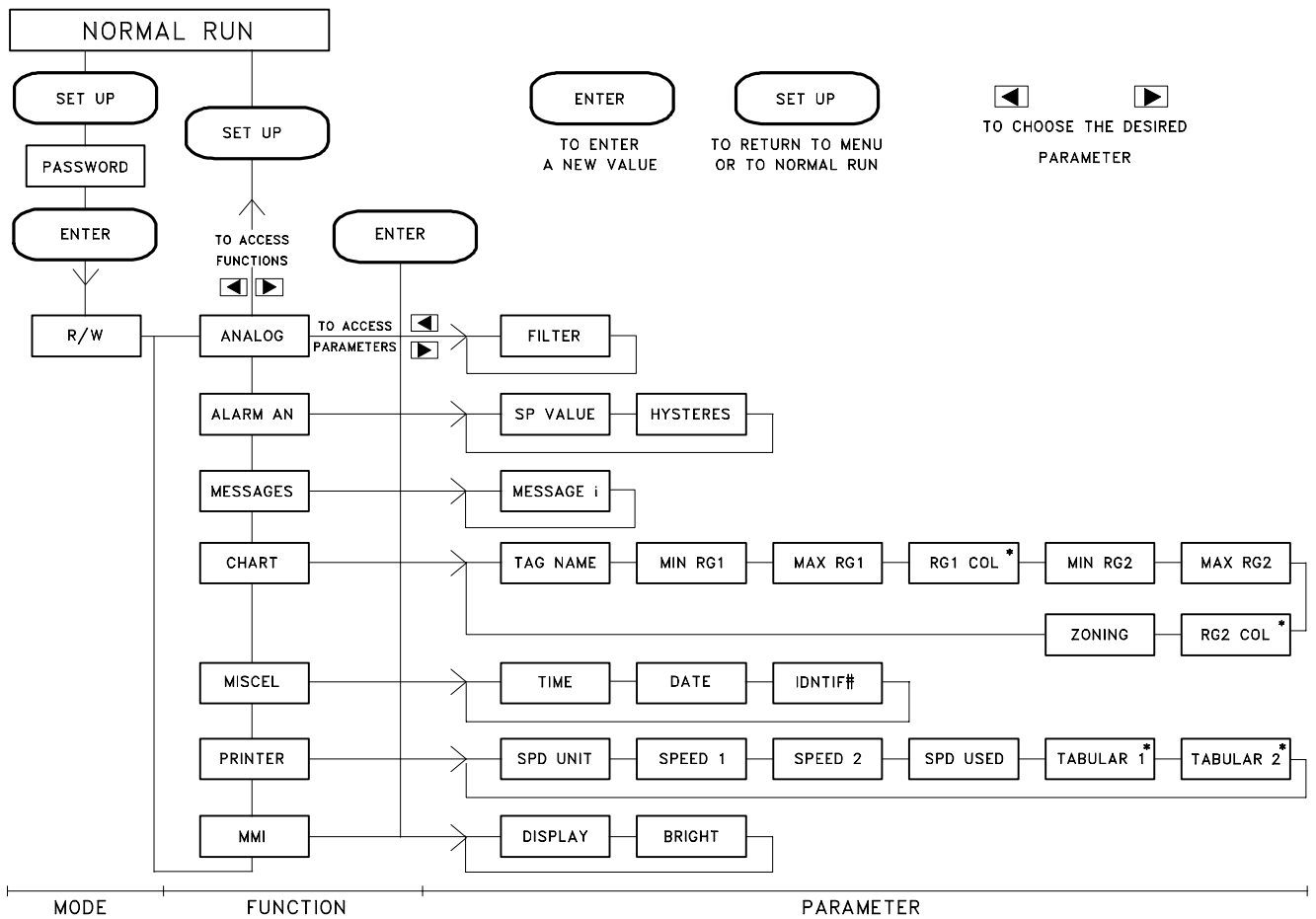


* Available on Multipoint recorders only.

** Available on Pen recorders only.

FUNCTION ORGANIZATION WITH PASSWORD #2

7. CONFIGURATION



* Available on Multipoint recorders only.

FUNCTION ORGANIZATION WITH PASSWORD #1

7. CONFIGURATION

☑ READ/WRITE ACCESS TO PARAMETER VALUES

o Parameter selection

Use of   keys allows you to select the parameter you want to read/write.

Use of   keys allows you to select the channel on which you want to read/write the parameter.

Press  to confirm your selection, or press  to return to main function.

If necessary, the recorder stops measuring and printing during configuration access. In this case, the "CONFIRM." message will be displayed. Press  to confirm or press  to escape.

o Value of parameter

If you leave a key for a few seconds, the recorder will display alternately the name and the current value.

o Parameter modification

Press  to begin the modification of a parameter.

The current value blinks.

Some parameters require text selection while others require numerical values.

 and  keys permit, as applicable, the selection of desired text or increment/decrement of numerical value.

 and  keys can be used to shift the position of the digit to be changed.

Press  to confirm your change.

Or press  to come back to parameter selection.

7. CONFIGURATION

7.2 ONE EXAMPLE : HOW TO SET THE CHART SPEED

- ☑ Press **SETUP** key.
- ☑ Enter password #1.
- ☑ Press **ENTER**
- ☑ Use of **▲** **▼** keys allows you to select the R/W configuration mode (read/write configuration)
- ☑ Use of **◀** **▶** keys allows you to select the PRINTER function.
- ☑ Press **ENTER** to confirm your function type selection.

☑ **Parameter selection**

Use of **◀** **▶** keys allows you to select SPEED 1.

Press **ENTER** to confirm your selection.

Use of **▲** **▼** keys allows you to modify the value of one digit. If necessary, the **◀** **▶** keys are used to shift the position of the digit to be changed.

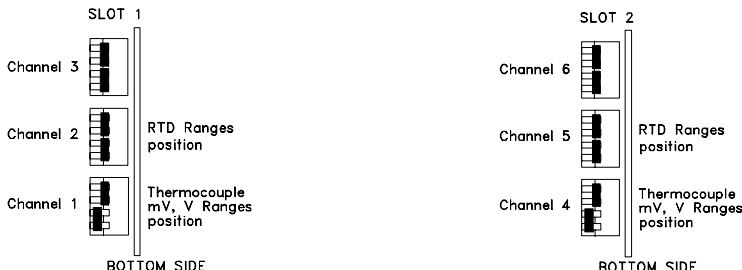
Press **ENTER** to confirm your modification.

Press **SETUP** to come back to main function.

Press **SETUP** to return in normal operation.

7. CONFIGURATION

7.3 PROMPTS EXPLANATION

ANALOG FUNCTION	
PARAMETERS :	
SENSOR	Basic sensor type used on each channel. <u>Factory configuration</u> : All CH are configured in T/C, mV, V range position. 
RANGE	DISPLAY ACTUATION RANGE For directly connected temperature sensors and non-linear temperature transmitters, the actuation selection defines the linearisation routine used to produce a linear chart scale. For linear transmitters, the selection simply defines the transmitter's electrical range/span. The choice of actuation offered by the recorder during configuration will depend upon the sensor selected.
T/C COMP	To select the channel number to measure the temperature of a remote compensation box. This setting eliminates the variable cold junction and implements the hot box temperature. Application : To use an uncontrolled remote compensation box channel #.
FILTER ♣	You may wish to apply a filter to noisy signals. However if you want to display and record pulses, square waves or other rapidly changing inputs without damping, choose 0 filter value.
LOW VAL	Engineering value corresponding to low limit of the selected input actuation range.
HIGH VAL	Engineering value corresponding to high limit of the selected input actuation range.
BURN OUT	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 (upscale) or on the left (downscale).
STD MATH	2 mathematical functions are included as standard in the recorder. These functions apply only to analog inputs.
CH #	Second channel used when OPT MATH = CH DIFF
ZERO ADJ	Zero adjustment means to offset/bias the calibration of the input. Otherwise chose 0 Value = Factory Calibration Adjustments are made directly in Engineering unit. (ex. : 5 = 5 °C)

♣ Accessible with the password #1

7. CONFIGURATION

ALARM AN FUNCTION	
PARAMETERS :	
SP VALUE ♣	The alarm switches from OFF to ON when the SP value is reached
HYSTERES ♣	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.
OCCURANCE	Defines the number of alarm occurrences needed after power on for alarm operation or after start up a new batch.
CHANNEL	Channel on which alarm is applied (Analog 1..6, com 1..6, math 1..6)
AL TYPE	Type of alarm (High, low, differential ...)
CH DIFF	Second channel used if alarm type is differential.
RELAY #	Selection of relay activated in alarm.
ACTION	Action on printer in case of alarm (None, print on alarm, change range...)
MESSAG #	Selection of alarm message to be printed.
MSG COL	Multipoint only. Color of alarm message
PRNT MSG	Defines the conditions to print the message on alarm change.
AL = RED	Multipoint only. Specify if the trace of channel must be printed in red during alarm.

♣ Accessible with the password #1

7. CONFIGURATION

DIGITAL FUNCTION

PARAMETERS :

TYPE	Type of digital input.
CH DIFF	Second digital input to use if the type is differential.
ACTION	Action on printer in case of digital input change.
RELAY #	Selection of relay activated.
MESSAG #	Selection of message to be printed.
MSG COL	Multipoint only. Color of the message.
PRNT MSG	Defines the condition to print the message on Event Change.
TRACE	Enable/disable the trace of the event.
TR COLOR	Multipoint only. Defines color of trace.
RED TRAC	Multipoint only. Specify if digital input trace must be printed in red on event.
POSITION	Multipoint only. Defines the trace position (open contact) on the chart. (in %)

MESSAGES FUNCTION

PARAMETERS :

MESSAGE ♣	To configure the messages (14 characters)
------------------	---

♣ Accessible with the password #1

7. CONFIGURATION

C H A R T FUNCTION	
PARAMETERS :	
TAG NAME ♣	Tag of name corresponding chart channel.
ENG UNIT	Chart channel units.
DECIMAL	Decimal point configuration.
MIN RG1 ♣	Lower limit of chart range 1.
MAX RG1 ♣	Upper limit of chart range 1.
RG1 COL ♣	Multipoint only. Color of range 1
MIN RG2 ♣	Lower limit of chart range 2.
MAX RG2 ♣	Upper limit of chart range 2.
RG2 COL ♣	Multipoint only. Color of range 2
ZONING ♣	Defines chart zone for printing. (0%-50%, 50%-100%, 0%-100%)
TRACE	Defines the variable to print (Analog input 1..6. Comm 1..6, Math 1..6. None)
RG USED	You may select whether the input channel will be printed normally (range 1 or 2) or on alarm (with range 1 or 2).

♣ Accessible with the password #1

7. CONFIGURATION

MISCEL FUNCTION

PARAMETERS :

TIME ♣	Real time clock setting
DATE ♣	Real time clock date
LANGUAGE	Operator information and configuration language.
IDNTIF # ♣	Identification number of the instrument which will be printed on the chart.
FREQUENCY	To select the line frequency.
PSSWRD 1	Used to provide a limited access to configuration.
PSSWRD 2	Used to provide full access to configuration.
MATH PAK	Type of optional maths package
USE CONF	Selection of the desired configuration number.

♣ Accessible with the password #1

BATCH FUNCTION

PARAMETERS :

LINE 1	Configuration of the first line of the batch message.
LINE 2	Configuration of the second line of the batch message.
LINE 3	Configuration of the third line of the batch message.
LINE 4	Configuration of the fourth line of the batch message.
START	BATCH ACTIVATION CONDITION : The START condition defines when batch printing must start. The recorder pauses each time the start condition occurs and then prints the batch description and increments the batch number.
RESET	BATCH NUMBER RESET CONDITION : The RESET condition defines when the batch number must reset.
BATCH #	Batch number used at RESET condition.
BACKUP	Store the batch number in case of power interruption.

7. CONFIGURATION

PRINTER FUNCTION	
PARAMETERS :	
CHART LG	Total chart length of the chart roll or fanfold
SPD UNIT ♣	Speed unit. (mm/h or inch/h)
SPEED1 ♣	Value of speed 1. (Using speed unit)
SPEED2 ♣	Value of speed 2.
SPD USED ♣	Defines the speed in use or the tabular in use.
TABULAR 1 ♣	Multipoint only. Tab 1 prints interval. (In minute)
TABULAR 2 ♣	Multipoint only. Tab 2 prints interval.
REC MODE	Recording mode allows you to print normally, to stop the printer, to trigger the printer on alarm with (or without) return to stand-by.
PRT MODE	Multipoint only. Under this heading you must choose whether recording will be in trend mode or tabular mode.
PRT INTV	Separation (in millimeters) of PRT PV interval for periodic printing.
PRINT PV	Periodic printing of PV values, time and digital input status.
PRT RANG	Periodic printing of the chart ranges.
PRT TIME	Periodic printing of "TIME, DATE, SPEED, CHANNEL ID"
PRT TAG	Multipoint only. Printing of the tag name with the channel number.
PEN OFFS	Pen only. Pen offset.

♣ Accessible with the password #1

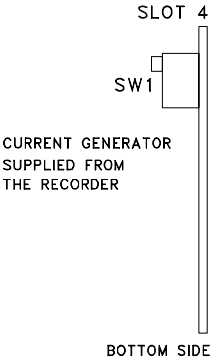
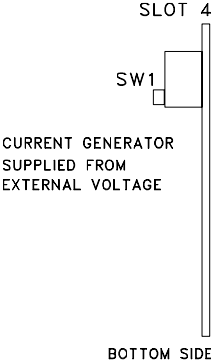
EVENT FUNCTION	
PARAMETERS :	
TYPE	Type of event.
RELAY #	Selection of relay activated in event condition.
DISPLAY	Enable/disable a display warning in event occurrence.

7. CONFIGURATION

M M I FUNCTION		
PARAMETERS :		
KEY DOWN		To modify the display indication in normal operation. *
KEY UP		To stop the display scanning in normal operation. *
KEY LEFT		To modify the printer operation. *
KEY RIGH		To reset the maths functions or batch number. *
DISPLAY 		Type of information to display in run mode at power on.
BRIGHT 		To modify the display brightness during operation.

 Accessible with the password #1

* See [paragraph 3.2 "Basic actions" in Operation section.](#)

CUR OUT FUNCTION *		
PARAMETERS :		
		
CH #	Defines the variable to output. (Analog input 1..6, comm 1..6, math 1..6, none)	
LOW VAL	Low value for a 4 mA output.	
HIGH VAL	High value for a 20 mA output.	

* This function appears only if the current output board is present.



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.
- Al ledningsforbindelse skal følge stærkstrømsbekendtgørelsen (DK) og udføres af autoriseret erfarent personel.
- Den beskyttende jordterminal skal forbindes først af alle forbindelser (og fjernes som den sidste).
- Jvf. stærkstrømsreglementet skal der installeres en afbryder til forsyningssapændingen nær udstyret.
- Hver leder skal have ekstra beskyttelse ifølge stærkstrømsbekendtgørelsen (DK).

UDSTYRS SPECIFIKATIONER

Strømforsyning : 85 til 264 V AC

Frekvens : 50/60 Hz

Effektforbrug : 55 VA max.

OMGIVELSE SPECIFIKATIONER

Placer ikke udstyret i nærheden af brandbare væsker eller dampe.

Fugtighed	Rullepapir	10 - 90 % RH ikke kondenserende
	Foldepapir	15 - 80 % RH ikke kondenserende
Temperatur	Drift	0 til 50°C (32 til 120°F)
	Opbevaring	-40 til 70°C (-40 til 160°F)
Vibrationer	Frekvens	10 til 60 Hz, amplitude 0.07 mm
		60 til 150 Hz, acceleration 1 g

UDSTYRS INSTALLATION

Skriveren skal monteres i en tavle for at forhindre adgang til bagterminaler.
(Maksimal tavletykkelse 15 mm)

INSTRUKTION FOR RENGØRING

Brug kun en tør bomuldsklud til rengøring af udstyret.

UDSKIFTNING AF SIKRING

Sikring : For at forebygge brand, vær sikker på at sikringen opfylder kravene til strøm, spænding og karakteristik. Sluk for spændingen før sikringen udskiftes. Brug ikke en sikring af anden type.



Ter vermindering van het gevaar van elektrische schokken die lichamelijk letsel kunnen veroorzaken, dient u alle veiligheidsaanwijzingen in dit document 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 plaatselijke standaards en zijn uitgevoerd door geautoriseerd ervaren personeel.
- De aardingsdraad moet worden aangesloten vóórdat alle andere bedrading wordt aangesloten (en als laatste worden verbroken).
- Een schakelaar in de netstroomtoevoer is vereist, vlakbij het instrument.
- Elke stroomdraad moet beveiligd zijn met een zekering gelijkwaardig aan zowel de recorderzekering (zekering type) als die van de zekeringhouder.

Apparatuur voorwaarden

Aansluitspanning: 85 tot 264 V AC

Frequentie: 50/60 Hz

Toegestane belasting: 55 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.	0 tot 50°C (32 tot 120°F)
	Opslag	-40 tot 70°C (-40 tot 160°F)
Trillingen	Frequentie	10 tot 60 Hz, amplitude 0.07 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 15 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.



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 komponenttia tai osaa, jota valmistaja ei ole määritellyt käyttäjän vaihdettavaksi.
- Johdotukset on tehtävä noudattaen paikallisia määräyksiä ja tekijällä on oltava riittävä ammattitaito.
- Ensimmäiseksi on kytkettävä suojamaa-liitin (ja viimeiseksi irroittettava).
- Syöttöjännitekytkin on sijoitettava lähelle laitetta.
- Suojaa johtimet asianmukaisilla sulakkeilla.

LAITTEEN VAATIMUKSET

Syöttöjännite: 85 ... 264 V AC

Taajuus: 50/60 Hz

Tehonkulutus: 55 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	0 ... 50 ast. C (32 ... 120 ast. F)
	Varastointi	-40 ... 70 ast. C (-40 ... 160 ast. F)
Tärinä	Taajuus	10 ... 60 Hz, amplitude 0.07 mm
		60 ... 150 Hz, kiihtyvyys 1 g

LAITTEEN ASENNUS

Piirturi on asennettava paneeliin siten, että peräliittimille jää riittävästi tilaa.
(Paneelin maksimi paksuus 15 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.



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 ΚΑΤΑΣΚΕΥΑΣΤΗ ΠΙΘΑΝΟΝ ΝΑ ΜΕΙΩΘΕΙ Η ΠΡΟΣΤΑΣΙΑ ΠΟΥ ΠΡΟΣΦΕΡΕΙ.
- ΝΑ ΜΗΝ ΑΝΤΙΚΑΘΙΣΤΑΤΑΙ ΚΑΝΕΝΑ ΕΞΑΡΤΗΜΑ Η' ΤΜΗΜΑ ΤΟΥ ΟΡΓΑΝΟΥ ΠΟΥ ΔΕΝ ΑΝΑΦΕΡΕΤΑΙ ΣΑΦΩΣ ΑΠΟ ΤΟΝ ΚΑΤΑΣΚΕΥΑΣΤΗ ΩΣ ΑΝΤΑΛΛΑΞΙΜΟ.
- ΟΛΕΣ ΟΙ ΚΑΛΩΔΙΩΣΕΙΣ ΠΡΕΠΕΙ ΝΑ ΕΙΝΑΙ ΣΥΜΦΩΝΕΣ ΜΕ ΤΗΝ ΤΟΠΙΚΗ ΝΟΜΟΘΕΣΙΑ ΚΑΙ Η ΕΓΚΑΤΑΣΤΑΣΗ ΤΟΥΣ ΠΡΕΠΕΙ ΝΑ ΓΙΝΕΙ ΑΠΟ ΕΙΔΙΚΕΥΜΕΝΟ ΚΑΙ ΕΜΠΕΙΡΟ ΠΡΟΣΩΠΙΚΟ.
- Η ΓΕΙΩΣΗ ΠΡΕΠΕΙ ΝΑ ΣΥΝΔΕΘΕΙ ΠΡΙΝ ΑΠΟ ΟΠΟΙΑΔΗΠΟΤΕ ΑΛΛΗ ΚΑΛΩΔΙΩΣΗ, ΚΑΙ ΤΕΛΕΥΤΑΙΑ ΚΑΤΑ ΤΗΝ ΑΠΟΣΥΝΔΕΣΗ.
- ΕΝΑΣ ΔΙΑΚΟΠΤΗΣ ΤΗΣ ΚΥΡΙΑΣ ΠΑΡΟΧΗΣ ΑΠΑΙΤΕΙΤΑΙ ΚΟΝΤΑ ΣΤΟ ΟΡΓΑΝΟ.
- ΚΑΘΕ ΚΑΛΩΔΙΟ ΠΡΕΠΕΙ ΝΑ ΠΡΟΣΤΑΤΕΥΕΤΑΙ ΑΠΟ ΑΣΦΑΛΕΙΑ ΙΣΟΔΥΝΑΜΗ ΜΕ ΤΗΝ ΑΣΦΑΛΕΙΑ ΤΟΥ ΚΑΤΑΓΡΑΦΙΚΟΥ, ΚΑΘΩΣ ΕΠΙΣΗΣ ΚΑΙ ΜΕ ΑΣΦΑΛΕΙΟΘΗΚΗ.

ΤΕΧΝΙΚΑ ΣΤΟΙΧΕΙΑ ΟΡΓΑΝΟΥ

ΤΡΟΦΟΔΟΣΙΑ: 85 - 264 V ac

ΣΥΧΝΟΤΗΤΑ: 50/60 Hz

ΙΣΧΥΣ: 55 VA ΜΕΓΙΣΤΗ

ΣΥΝΘΗΚΕΣ ΠΕΡΙΒΑΛΛΟΝΤΟΣ

ΝΑ ΜΗΝ ΧΡΗΣΙΜΟΠΟΙΕΙΤΑΙ ΤΟ ΟΡΓΑΝΟ ΣΕ ΧΩΡΟΥΣ ΜΕ ΠΑΡΟΥΣΙΑ ΕΥΛΕΚΤΩΝ ΥΓΡΩΝ Η ΑΤΜΩΝ. ΧΡΗΣΗ ΟΠΟΙΟΥΔΗΠΟΤΕ ΗΛΕΚΤΡΙΚΟΥ ΟΡΓΑΝΟΥ ΣΕ ΤΕΤΟΙΟ ΠΕΡΙΒΑΛΛΟΝ ΑΠΟΤΕΛΕΙ ΚΙΝΔΥΝΟ ΑΤΥΧΗΜΑΤΟΣ.

ΥΓΡΑΣΙΑ	ΧΑΡΤΙ ΡΟΛΛΟ	10 - 90 % RH ΜΗ ΣΥΜΠΤΥΚΝΩΜΕΝΗ
	ΧΑΡΤΙ ΔΙΠΛΩΜΕΝΟ	15 - 80 % RH ΜΗ ΣΥΜΠΤΥΚΝΩΜΕΝΗ
ΘΕΡΜΟΚΡΑΣΙΑ	ΠΕΡΙΒΑΛΛΟΝΤΟΣ	0 / 50 DEG C (32 / 120 DEG F)
	ΑΠΟΘΗΚΕΥΣΗΣ	- 40 / 70 DEG C (- 40 / 160 DEG F)
ΤΑΛΑΝΤΩΣΗ	ΣΥΧΝΟΤΗΤΑ	10 - 60 Hz, ΜΕΓΕΘΟΣ 0.07 mm
		60 - 150 Hz, ΕΠΙΤΑΧΥΝΣΗ 1 g

ΤΟΠΟΘΕΤΗΣΗ ΜΗΧΑΝΗΜΑΤΟΣ

ΤΟ ΚΑΤΑΓΡΑΦΙΚΟ ΟΡΓΑΝΟ ΠΡΕΠΕΙ ΝΑ ΤΟΠΟΘΕΤΗΘΕΙ ΣΤΗΝ ΠΡΟΣΟΨΗ ΤΟΥ ΠΙΝΑΚΑ, ΕΤΣΙ ΩΣΤΕ ΝΑ ΜΗΝ ΜΠΟΡΕΙ Ο ΧΕΙΡΙΣΤΗΣ ΝΑ ΕΧΕΙ ΠΡΟΣΒΑΣΗ ΣΤΟ ΠΙΣΩ ΜΕΡΟΣ ΜΕΓΙΣΤΟ ΠΑΧΟΣ ΠΙΝΑΚΟΣ 15 mm.

ΟΔΗΓΙΕΣ ΚΑΘΑΡΙΣΜΟΥ

ΧΡΗΣΙΜΟΠΟΙΗΣΤΕ ΜΟΝΟ ΕΝΑ ΣΤΕΓΝΟ ΒΑΜΒΑΚΕΡΟ ΥΦΑΣΜΑ 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.



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 cabelagem tem que estar de acordo com as normas locais e deve ser conduzida por pessoal autorizado com experiência.
- O terminal de terra deve ser ligado antes de ser feita qualquer outra cabelagem (e desligado em último lugar).
- Deve haver um interruptor da alimentação principal junto do equipamento.
- Cada fio deve estar protegido com um fusível equivalente ao do Registador (tipo de fusível), o mesmo se aplicando ao suporte do fusível.

Especificações do Equipamento

Voltagem: 85 a 264 Vca

Frequência: 50/60 Hz

Potência ou consumo de Corrente: 55 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	10 a 90 % RH não condensado
	Leque	15 a 80 % RH não condensado
Temperatura	Ambiente	0 a 50°C (32 a 120°F)
	Armazenagem	-40 a 70°C (-40 a 160°F)
Vibrações	Frequência	10 a 60 Hz, amplitude de 0.07 mm
		60 a 150 Hz, 1g de aceleração

Instalação do Equipamento

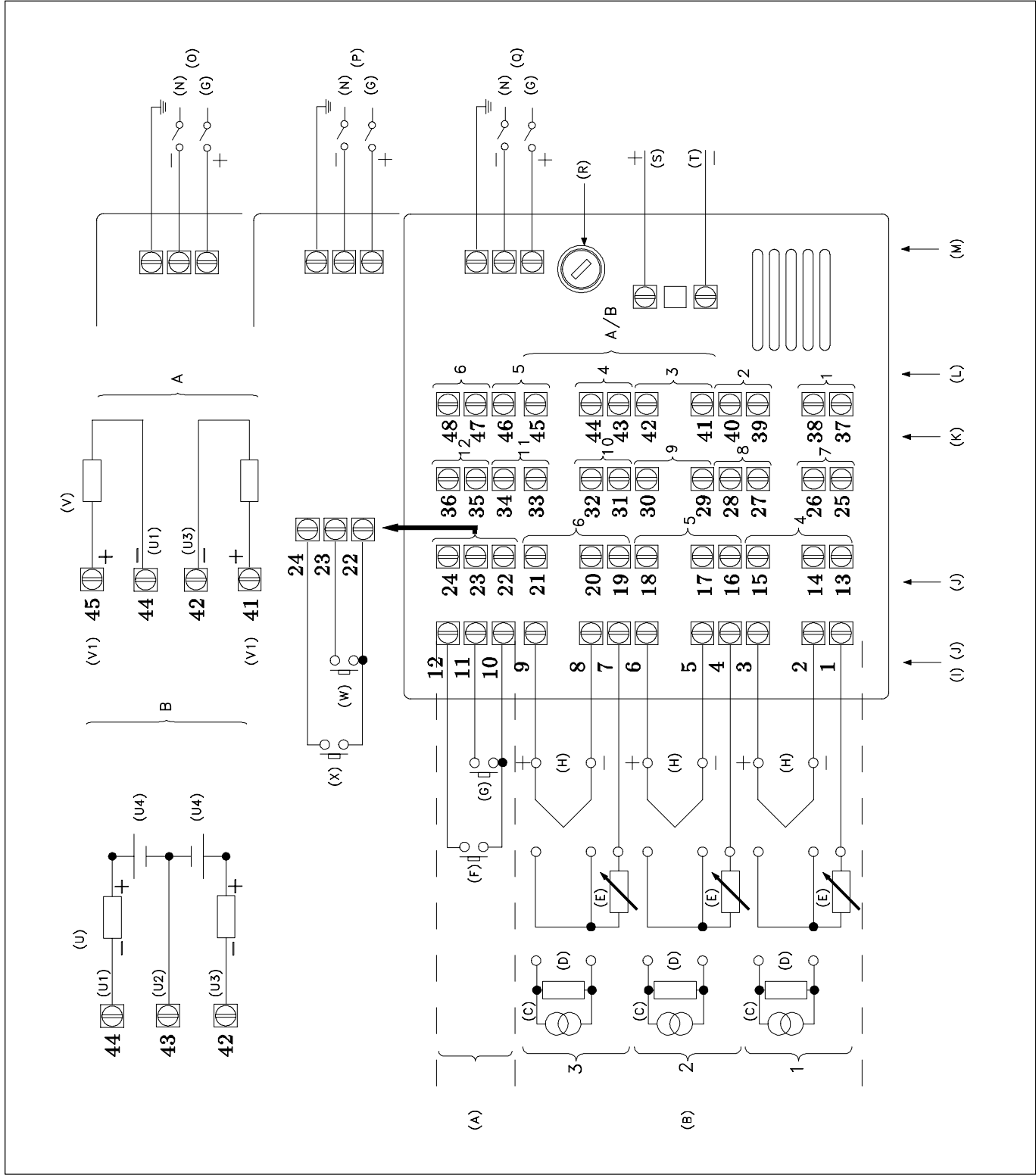
O Registador deve ser montado num painel para limitar o acesso do operador aos terminais traseiros (espessura máxima do painel 15 mm).

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.



PO

- (A) Entradas lógicas
- (B) Entradas analógicas
- (C) mA
- (D) 250 ohms
- (E) RTD
- (F) L2
- (G) L1
- (H) T/C, mV, V
- (I) Entradas analógicas para registador de caneta
- (J) Entradas analógicas para registador multiponto
- (K) 7 a 12 saídas de alarme
- (L) 1 a 6 saídas de alarme ou 1 a 2 saídas corrente
- (M) Fonte de alimentação
- (N) L2/N
- (O) 24 V ca/cc
- (P) 48 V ca/cc
- (Q) 100 a 240 V ca/cc
- (R) Fusível de 100 a 240 V ca = 1 A
24 ou 48 V ca/cc = 3.2 A
- (S) Saída de 24 V cc
- (T) Máximo de 75 mA
- (U) Gerador externo
- (U1) OUT 2
- (U2) 0 V
- (U3) OUT 1
- (U4) 24 V DC max.
- (V) Gerador interno
- (V1) +12 V
- (W) L3
- (X) L4

DU

- (A) Logische ingangen
- (B) Analoge ingangen
- (C) mA
- (D) 250 ohm
- (E) RTD
- (F) L2
- (G) L1
- (H) T/C, mV, V
- (I) Analoge ingangen, pen recorder
- (J) Analoge ingangen, meerpunts recorder
- (K) 7 tot 12 alarm uitgangen
- (L) 1 tot 6 alarm uitgangen of 1 tot 2 stroom uitgangen
- (M) Netvoeding
- (N) L2/N
- (O) 24 V AC/DC
- (P) 48 V AC/DC
- (Q) 100 tot 240 V AC/DC
- (R) Zekering 100 tot 240 V AC = 1 A
24 of 48 V AC/DC = 3.2 A
- (S) 24 V DC uitgang
- (T) 75 mA max.
- (U) Externe generator
- (U1) OUT 2
- (U2) 0 V
- (U3) OUT 1
- (U4) 24 V DC max.
- (V) Interne generator
- (V1) +12 V
- (W) L3
- (X) L4

GR

- (A) ΛΟΓΙΚΗ ΕΙΣΟΔΟΣ
- (B) ΑΝΑΛΟΓΙΚΗ ΕΙΣΟΔΟΣ
- (C) mA
- (D) 250 ohms
- (E) RTD
- (F) L2
- (G) L1
- (H) T/C, mV, V
- (I) ΑΝΑΛΟΓΙΚΕΣ ΕΙΣΟΔΟΙ ΚΑΤΑΓΡΑΦΙΚΗΣ ΠΙΝΝΑΣ
- (J) ΑΝΑΛΟΓΙΚΕΣ ΕΙΣΟΔΟΙ ΚΑΤΑΓΡΑΦΙΚΟΥ ΠΟΛΛΑΠΛΩΝ ΕΓΓΡΑΦΩΝ
- (K) 7 - 12 ΣΥΝΑΓΕΡΜΟΙ ΕΞΟΔΟΥ
- (L) 1 - 6 ΣΥΝΑΓΕΡΜΟΙ ΕΞΟΔΟΥ Η' 1 - 2 ΡΕΥΜΑΤΑ ΕΞΟΔΟΥ
- (M) ΤΡΟΦΟΔΟΣΙΑ
- (N) L2/N
- (O) 24 V AC/DC
- (P) 48 V AC/DC
- (Q) 100 - 240 V AC/DC
- (R) ΑΣΦΑΛΕΙΑ
- (S) ΕΞΟΔΟΣ ΣΥΝΕΧΗΣ ΤΑΣΗΣ
- (T) ΕΞΩΤΕΡΙΚΗ / ΕΣΩΤΕΡΙΚΗ ΤΡΟΦΟΔΟΣΙΑ
- (U) ΕΞΩΤΕΡΙΚΗ ΓΕΝΝΗΤΡΙΑ
- (U1) OUT 2
- (U2) 0 V
- (U3) OUT 1
- (U4) 24 V DC max.
- (V) ΕΣΩΤΕΡΙΚΗ ΓΕΝΝΗΤΡΙΑ
- (V1) +12 V
- (W) L3
- (X) L4

DA

- (A) Logiske indgange
- (B) Analoge indgange
- (C) mA
- (D) 250 Ohm
- (E) RTD (PT 100)
- (F) L2
- (G) L1
- (H) T/C, mV, V
- (I) Analoge indgange lineskriver
- (J) Analoge indgange multipunktskriver
- (K) 7 til 12 alarm udgange
- (L) 1 til 6 alarm udgange eller 1 til 2 strømudgange
- (M) Strømforsyning
- (N) L2/N
- (O) 24 V AC/DC
- (P) 48 V AC/DC
- (Q) 100 - 240 V AC/DC
- (R) Sikring 100 - 240 V AC = 1 A
24 eller 48 V AC/DC = 3.2 A
- (S) 24 V DC udgang
- (T) 75 mA max.
- (U) Extern generator
- (U1) OUT 2
- (U2) 0 V
- (U3) OUT 1
- (U4) 24 V DC max.
- (V) Intern generator
- (V1) +12 V
- (W) L3
- (X) L4

FI

- (A)** Logiikkatulot
- (B)** Analogiatulot
- (C)** mA
- (D)** 250 ohms
- (E)** RTD
- (F)** L2
- (G)** L1
- (H)** T/C, mV, V
- (I)** Analogiatulot kynäpiirturi
- (J)** Analogiatulot monipistepiirturi
- (K)** 7 ... 12 hälytyslähdöt
- (L)** 1 ... 6 hälytyslähdöt tai 1 ... 2 virtalähdöt
- (M)** Jännitelähde
- (N)** L2/N
- (O)** 24 V AC/DC
- (P)** 48 V AC/DC
- (Q)** 100 ... 240 V AC/DC
- (R)** Sulake 100 ... 240 V AC = 1 A
24 tai 48 V AC/DC = 3.2 A
- (S)** 24 V DC lähtö
- (T)** 75 mA max.
- (U)** External generator
- (U1)** OUT 2
- (U2)** 0 V
- (U3)** OUT 1
- (U4)** 24 V DC max.
- (V)** Internal generator
- (V1)** +12 V
- (W)** L3
- (X)** L4

