

FILLED SYSTEM TEMPERATURE RECORDERS & RECORDER CONTROLLERS



The filled system range of temperature circular chart recorders uses the well proven and reliable Rototherm stainless steel thermal system.

These reliable and accurate instruments are suitable for most applications where there is a requirement for low cost temperature recording.

Up to 3 pens can be fitted with three temperature systems or combination of temperature, pressure or flow sensing systems.

FEATURES

- 1, 2 or 3 pen temperature recording and controlling at low cost
- Uses proven and reliable Rototherm filled temperature systems
- Simple installation and maintenance requirement
- Portable stand or pipe mounting available
- Fully mechanical versions available
- Electrical, battery or mechanical chart drive options
- Electrical control options
- Pneumatic control options

Pens

Fitted to the pen arms are disposable fibre tipped pens which are readily replaced without mess. Single pen recorders and the first pen of the two and three pen recorders trace in red ink, the second pen in blue, the third in green.

Control Options

Full pneumatic control is available on this range of recorders - for full details please refer to the Pneumatic recorder controller data sheet.

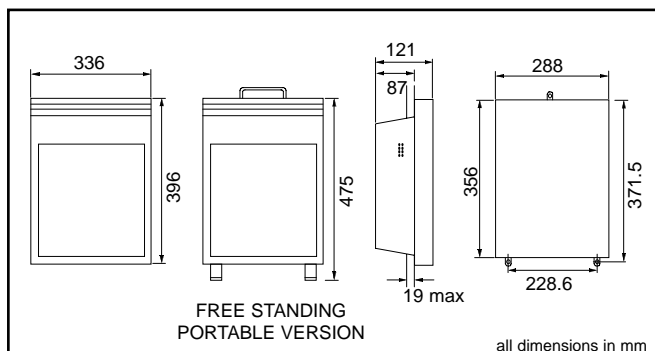
Electric Control / Alarm - One and two pen recorders in this range may be specified with electrical control options.

SPECIFICATION

ACCURACY	+/-1% FSD
AMBIENT TEMPERATURE	-20°C to +50°C
MEASURING ELEMENT	Rototherm thermal bourdon tube temperature compensated.
CAPILLARY	Microbore stainless steel tube with 3mm diameter stainless steel cover (type C1) as standard. Other capillary types are available.
BULB AND STEM	Stainless steel BS970 316 S16 Standard diameter is 12.7mm.
FITTINGS	Compression gland (adjustable). Stainless steel BS970 316 S16 (1/2" BSP is standard). Other BSP, NPT and API are available on request. (suitable for pressures up to 3.5 bar)
CHART DRIVE	Synchronous electric, battery or mechanical spring wound. 24 hour or 7 day. (other rotations on request)
CHARTS	Disc 240mm (9.5 inches) diameter. Standard dividing 40, 50, 60, 70 or 80 linear divisions.
INKING SYSTEM	Disposable fibre tipped pens. Single pen : Red. 2 pen : red & blue. 3 pen : red, blue and green.
CASE	Glass filled polyester resin. protection rated to IP55
WINDOW	Acrylic
POWER SUPPLY	200 to 250 volts, 50Hz (60Hz available); 100 to 110 volts, 50Hz (60Hz available); Instruments without electrical control require no power supply provided that a clockwork chart drive is fitted. Battery operated chart drives require 1.5 volt type "C" cell.
ELECTRICAL ALARM AND CONTROL	
Contact rating:	0.1A at 250V AC (non inductive)
(when fitted)	0.01A at 250V DC (non-inductive)
Relay contact rating	10A at 250V 50Hz
Contact adjustment range	2% to 100%
MOUNTING	Suitable for surface or panel mounting. (Pipe mounting and portable options available)
WEIGHT	Single pen : 6.5 kg (14.25lb) Two pen : 7.0 kg (15.5lb) Three pen : 7.5 kg (16.75lb)
The above weights include 3 metres of capillary. For each additional 3 metres add 0.25kg (0.5lb)	

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DIMENSIONS



STANDARD TEMPERATURE RANGES

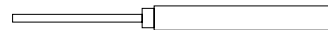
Range	System Filling	Range	System Filling
-40 to +40°C	f	0 to 160°C	f
-30 to +30°C	f, m	0 to 200°C	f, m
-30 to +50°C	f, m	0 to 300°C	f, m
-25 to +25°C	f, m	0 to 400°C	f, m
-25 to +30°C	f, m	20 to 120°C	f, m
0 to 40°C	f, m	50 to 150°C	f, m
0 to 50°C	f, m	50 to 250°C	f, m
0 to 60°C	f, m	100 to 400°C	f, m
0 to 100°C	f, m	100 to 500°C	f, m
0 to 120°C	f, m		

key f = non toxic filsafe m = mercury

BULB TYPES

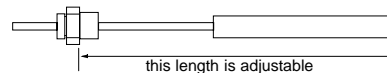
Type 301

This bulb is used when no fitting is required. The bulb may be held in place by a bracket or clip (not supplied by Rototherm) or may be left free. If a fitting is not requested at the time of ordering this type of bulb will usually be given.



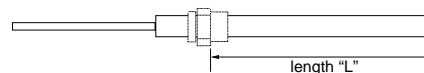
Type 302

This bulb has a fitting which slides along the capillary and is clamped into the required position. Bulb length cannot be specified.



Type 303

The fitting on this bulb is fitted on the actual bulb and not to the capillary. When ordering this type of bulb please specify the insertion length "L" of the bulb - i.e. is the bulb to be fitted into a thermowell? - if yes, what is the insertion length of the thermowell?



RTO SERIES ORDER CODE

1 pen RTO

2 pen RTO

3 pen RTO

MOUNTING

Wall/Panel

Portable

Pipe

CHART DRIVE

Electric 240V 50Hz

Electric 110V 50Hz

Electric other*

Spring Wound

Battery

CHART ROTATION

24 hour

7 day

Other*

CONTROLS / ALARMS

No control

1st pen High & Low

2nd pen High & Low

1st & 2nd pen High & Low

FILLING MEDIUM

Mercury

Non-Toxic Filsafe

BULB OPTION

Type 301

Type 302

Type 303

Other*

RTO 10																			
RTO 20																			
RTO 30																			

4

5

6

A

B

C

D

E

1

2

3

A

B

C

M

F

1

2

3

4

C1

C2

C3

C4

C5

XXX

XXX

D

E

F

G

A

B

C

03

06

09

12

XX

RANGE (specify °C or °F)

IMMERSION LENGTH "L"

(Length in mm)

GLAND MATERIAL

No gland

Mild steel

Stainless steel

Other*

FITTINGS/GLAND

No fitting

Gland 1/2" BSP

Other*

CAPILLARY LENGTH

3 metres (standard)

6 metres

9 metres

12 metres

Other* (enter length in metres)

CAPILLARY

Stainless steel

Copper

Flexible stainless armour

Flexible stainless armour over stainless

Other*

Notes

(a) Where Other* is specified please add note to order code stating exact requirements

(b) Should a combination of Pressure & Temperature be required please refer to the pressure recorder data sheet.

(c) When specifying different ranges for 2 or 3 pen recorders, care should be taken to use standard/compatible charts ranges.

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