

Model RTO

Temperature Recorders & Recorder Controllers

Models RTO10, RTO20, RTO30, RTO80, RTO90

- 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

Introduction

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 or pressure sensing systems.

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.

Specifications

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. Standard diameter is 12.7mm.

FITTINGS

Compression gland (adjustable). Stainless steel BS970 316 (1/2" BSP is standard). Other BSP, NPT and API are available on request. (suitable for pressures up to 3.5 bar)

Suitable for surface or panel mounting. (Pipe mounting and portable options available)

CHART DRIVE

Synchronous electric, battery or mechanical spring wound. 24 hour or 7 day. (other rotations on request)

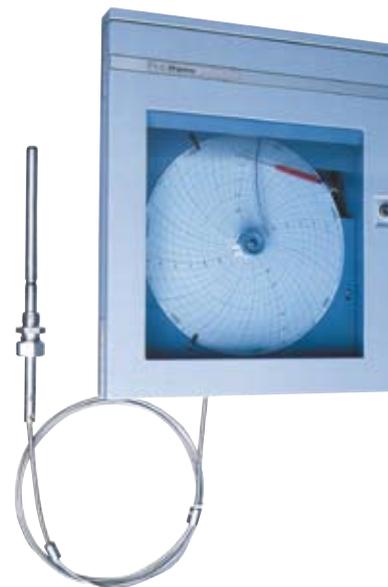
CHARTS

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



Rototherm Quality

The RTO Series of chart recorders are designed, manufactured and tested to ISO9001:2000. Each Recorder carries Rototherm's standard 12 month warranty.

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.

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 (when fitted):

0.1A at 250V AC (non inductive)

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)

Bulb Types

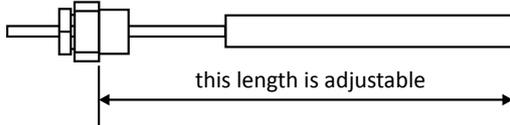
Type 301

This bulb is specified when no fitting is required. The bulb may be held in place by a bracket or a clip (not supplied by Rototherm)



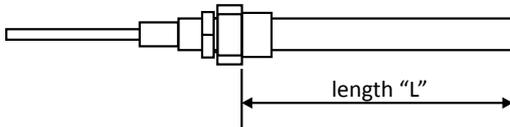
Type 302

This bulb has a fitting which slides along the capillary and is tightened into the required position. Bulb length cannot be specified and only type C1 plain capillary can be used.



Type 303

The fitting is located on the bulb. When ordering please confirm immersion length "L".



Compression Glands/Fittings

Compression glands tighten on stem to provide liquid and gas tight seal. Once fitted the position of the thermometer can only be altered by cutting off the olive and replacing it with a new one.

Add 50mm for BSP threads (75mm for NPT threads) to desired immersion length to obtain minimum "D" dimension).

Compression glands are available on type 302 and 303 bulbs only.



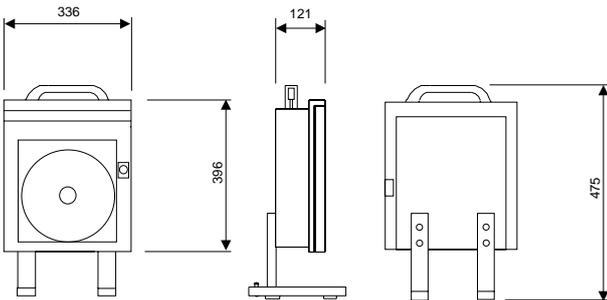
Standard Temperature Ranges

Temperature Ranges	
-40 to +40 Deg C	0 to 120 Deg C
-30 to +30 Deg C	0 to 160 Deg C
-30 to +50 Deg C	0 to 200 Deg C
-25 to +25 Deg C	0 to 300 Deg C
-25 to +30 Deg C	0 to 400 Deg C
0 to 40 Deg C	20 to 120 Deg C
0 to 50 Deg C	50 to 250 Deg C
0 to 60 Deg C	100 to 400 Deg C
0 to 100 Deg C	100 to 500 Deg C

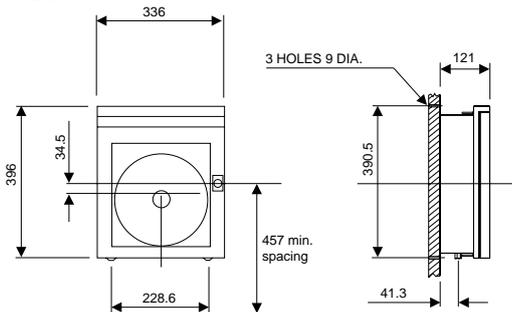
other ranges may be available on request

Dimensions & Fixings

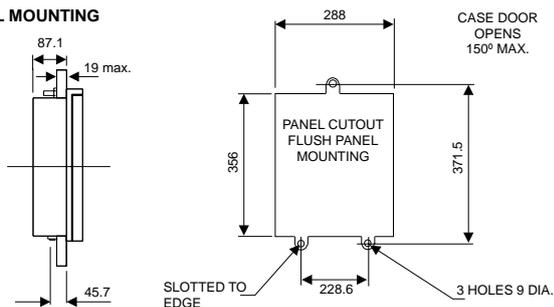
PORTABLE VERSION



SURFACE MOUNTING



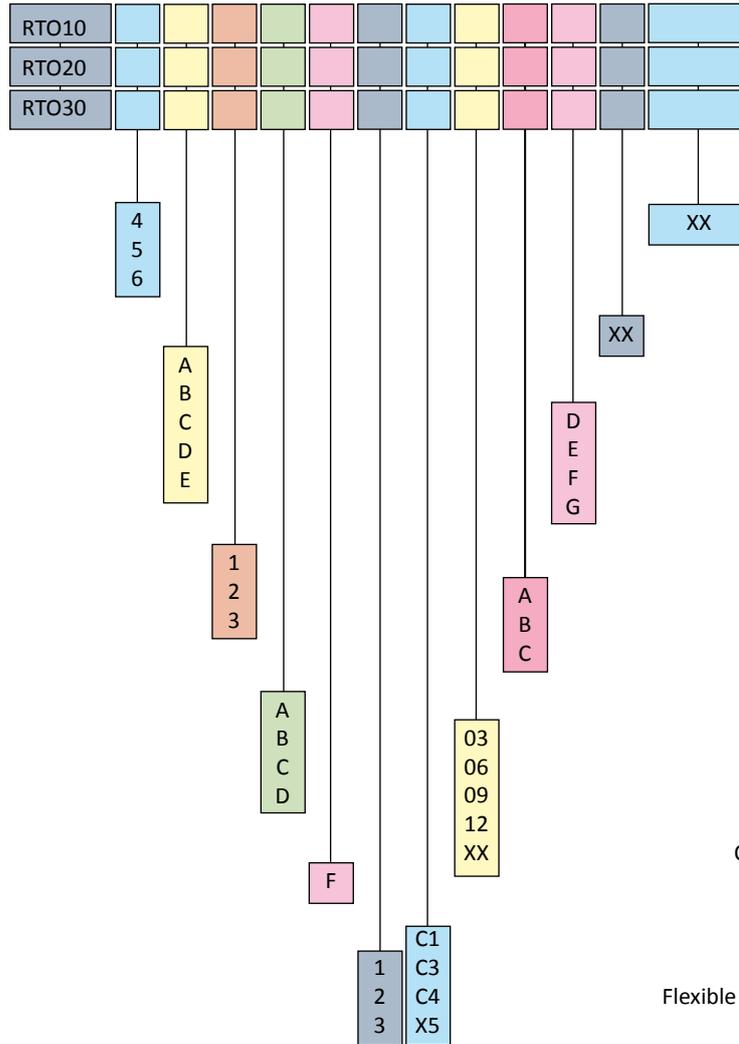
PANEL MOUNTING



All dimensions are in mm. Drawings are for illustration purposes only.

Ordering Information

RTO recorder 1 pen
 RTO recorder 2 pen
 RTO recorder 3 pen



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

Non-Toxic Filsafe

BULB OPTION

Type 301
 Type 302
 Type 303
 Other*

RANGE
 (specify °C or °F)

IMMERSION LENGTH "L"
 (only for type 303 bulbs)
 (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)

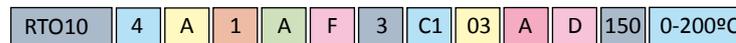
CAPILLARY

Stainless steel
 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.

Example Order Code



Single pen temperature recorder, wall mounted, electrical 240 volt 50hz chart drive, 24 hour rotation, non-toxic Filsafe filling, type 303 bulb, 3 metres of stainless steel capillary, immersion length 150 mm, range 0 to 200 Deg C.



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