DigiTemp Digital Thermometers & Transmitters

Rototherm
instrumentation and control

DigiTemp Digital Thermometers & Transmitters

■ DT1 General Purpose Digital Thermometers

DT1 DigiTemp

The Rototherm DT1 is a micro processor based, battery operated, continuous reading, type K thermocouple input digital thermometer. Two basic versions are available, both have clear four digit LCD displays with 12.7mm high characters and 1ºC/ºF resolution. 4/20mA signal re-transmission and MAX / MIN temperature logging can also be incorporated - see OPTIONS for further details

The DT1-1 is a 316 stainless steel rigid stem temperature indicator. The stem can be either 12.7mm or 6.35mm diameter with a reduced tip for fast response. The stem length and fitting, if required, can be user specified. The DT1-1 can be mounted directly on to a pipe line or vessel where direct, local temperature indication is required.

The DT1-2 is a remote reading instrument, designed for mounting on a panel, either with a three hole front flange or a back flange for surface mounting. The indicator is connected to the sensor by a 3mm diameter stainless steel mineral insulated cable which can be fitted with a compression fitting if required.

■ DT1 Specifications

Case:	100mm (4") diameter 304 stainless steel, back or bottom entry. IP67 / NEMA 4X
Window:	Acrylic.
Display:	4 digit LCD with 12.7mm (1/2") high characters.
Display Units:	ºC or ºF. User selectable.
Measurement	
Range:	-100ºC to 800ºC : 1ºC Resolution
	-150ºF to 1500ºF : 1ºF Resolution
Sensor :	Type K (Nickel-Chromium / Nickel-Aluminium) Thermocouple
Accuracy :	+/- 1ºC +/- 1 Digit.
Display Update:	0.5 seconds (not Tx version)
Temperature	
Stability:	Zero: +/- 0.05ºC per ºC ambient temperature change from 20ºC
	Span: +/- 0.01% of reading per ºC ambient temperature change from 20ºC
Operating	
Temperature:	-10 to 70ºC (14 to 160ºF)
Cold Junction	
Compensation:	Automatic:Error included in basic accuracy statement.
Linearisation:	+/- 1ºC / ºF
Protection:	Protected against reverse battery polarity.
EMC	Immunity :BS EN 50081-1 : 1992
	Emissions: BS EN 50082 -2 : 1992
Batteries:	2 x 1.5V Alkaline Manganese AA cells
Battery Life:	2 years, continuous operation.
CE Marking:	All DigiTemps are fully CE compliant

■ DT2 High Accuracy Digital Thermometers

DT2 DigiTemp

Using common construction to the DT1, the DT2 is a high accuracy, high resolution digital temperature indicator. The DT2 uses a precision three wire thin film PT1000 resistance element as a sensor and can be supplied in both rigid stem and remote reading variants. In common with the DT1 series the DT2 can be supplied with 4/20mA signal re-transmission and MAX / MIN temperature logging - see OPTIONS for further details.

The DT2 -1 is a rigid stem, direct mounted instrument for local indication, stem configurations are common with the DT1-1. A special derivative of this product is the DT2-3, this is fitted with a 12.7mm stem with a reduced tip and a captive 3/4" or 1" BSP hygienic fitting - primary application are Dairy, Brewing and Food Industries.

The DT2-2 enables the measuring instrument to be mounted remotely from the sensor and is available in two variants with differing cable protection systems and sensor housings.

The standard instrument has a PTFE protected cable and a 6mm diameter, 50mm long stainless steel sensor housing. A cable gland can be supplied loose on the cable to enable a sealed connection to be made to tanks, pipes etc. Where cable protection is required 6mm diameter stainless steel armoured cable is available, the stainless steel sensor housing is 12.7mm diameter with a reduced tip, a standard compression fitting can be supplied either loose or captive on the housing.

■ DT2 Specifications

As per DT1 specification, except

Measurement	
Range:	-50 to 200ºC : 0.1ºC resolution
	-60 to 400ºF : 0.1ºF resolution
Sensor:	Three wire Pt1000 platinum resistance thermometer.
Accuracy:	+/- 0.2ºC +/- 1 digit
Temperature	
Stability:	Zero : +/- 0.005ºC per ºC ambient temperature change.
	Span: +/- 0.003 % of reading per ºC ambient temperature change.
Linearisation:	< +/- 0.05ºC
Resolution:	0.1ºC

■ ATEX Approved Intrinsically Safe Versions

The addition to the range of an intrinsically safe version allows this product to be standardised in all Pharmaceutical and Petro Chemical industries.
Both Thermocouple (DT1X) and RTD (DT2X) sensor instruments are offered.
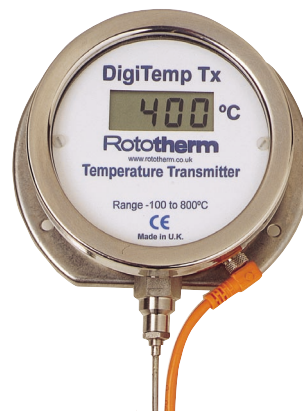
ATEX Category:

⟨Ɛx⟩ II 1G EEx ia IIC T4 (-20ºC ≤ Ta ≤ +60ºC)

■ DigiTemp Tx Transmitter

Any non intrinsically safe DigiTemp variant can be supplied as a two wire 4/20mA indicating temperature transmitter. Operating from a two wire DC power supply, the DigiTemp Tx can be configured during set up to re-transmit a 4/20mA signal across either the full, or part of the instruments measurement range. DigiTemp Tx. is supplied with a 2 metre long connecting cable. Retransmission range must be advised at the time of ordering.

Tx Specification

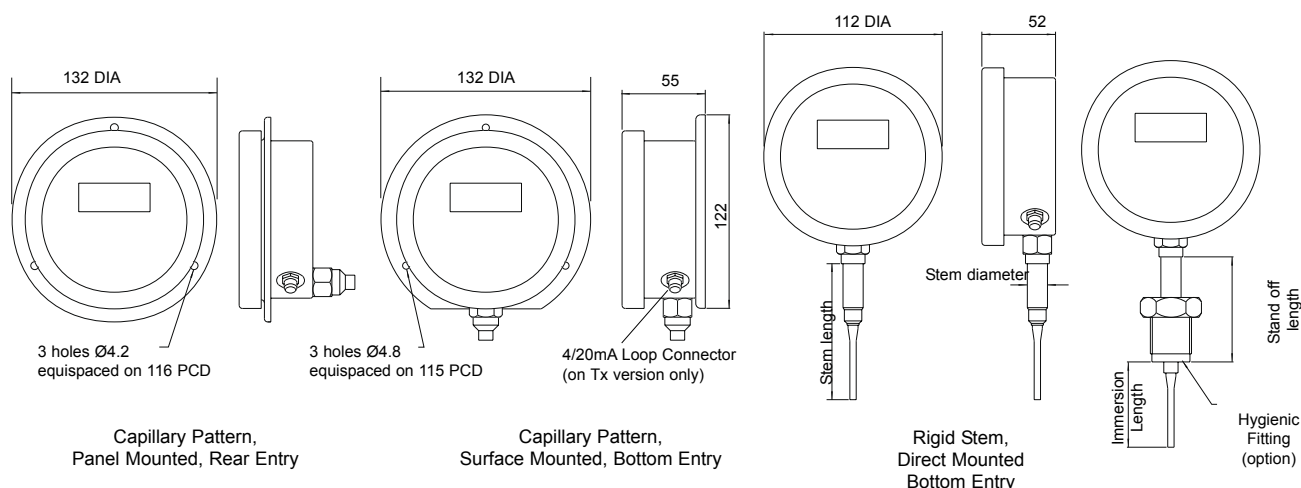|	
Loop Supply :	12 to 32V DC
Connection:	3 pole miniature M8 connector sealed to IP 68
Protection:	Reverse loop polarity protected.
Adjustments:	Multi-turn potentiometers for zero and span. Separate pairs of potentiometers for trimming of local indication and loop current.
EMC:	Immunity : BS EN 50082-2 Emissions : BS EN 50081-2

DT1Tx with 4 to 20 mA retransmission

■ Max Min Temperature Logging

All Digitemps can be supplied with a maximum and minimum temperature logging facility. Information is held in memory and is accessed and cleared by a non-intrusive magnetic key.

■ Dimensions DT1 & DT2

132 DIA · 132 DIA · 55 · 112 DIA · 52 · 122

3 holes Ø4.2 equispaced on 116 PCD

3 holes Ø4.8 equispaced on 115 PCD

4/20mA Loop Connector (on Tx version only)

Stem diameter · Stem length · Immersion Length · Stand off length · Hygienic Fitting (option)

Capillary Pattern, Panel Mounted, Rear Entry

Capillary Pattern, Surface Mounted, Bottom Entry

Rigid Stem, Direct Mounted Bottom Entry

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

■ DT3 Digital Thermometer

The Rototherm DT3 Digital Thermometer is the latest addition to the already successful DigiTemp range of Process Digital Thermometers.

The DT3 Digital Thermometer offers a low cost digital alternative to more traditional analogue gauges and is suitable for use in many industrial applications including food processing, tank and pipeline temperature measurement.

■ DT3 Specifications

Case:	81.0 mm diameter 304 stainless steel, back or bottom entry. IP65
Window:	Standard instrument glass
Stem Material:	304 stainless steel
Stem Diameter:	8.0 mm
Stem Length:	200 mm standard stem length (other lengths are available upon request)
Temperature Range:	-50 to +150 Deg C
Display:	3 digit LCD display with 11mm high characters
Resolution:	0.1 Deg C
Accuracy:	±1.0 Deg C from -10 to +100 Deg C ±2.0 deg C for remainder of range
Battery Type:	1 x 1.5V G10 or equivalent
Battery Life:	Approximately 1 year of continuous operation

DigiTemp Digital Thermometers & Transmitters

■ DigiTemp Order Code

	Code									
DigiTemp Digital Thermometer *Thermocouple Sensor*	DT1									
DigiTemp Digital Thermometer *Thermocouple Sensor Intrinsically Safe*	DT1X									
DigiTemp Digital Thermometer *RTD Sensor*	DT2									
DigiTemp Digital Thermometer *RTD Sensor Intrinsically Safe*	DT2X									

STEM TYPE
Rigid Stem — 1
Cable — 2

STEM / CABLE ENTRY
Bottom — A
Back — B

MOUNTING
Direct — 1
Surface — 2
Panel — 3

STEM LENGTH
100mm — A
200mm — B
Other (*Insert Length Required*) — X̲
Cable

STEM DIAMETER (*Rigid stem models only*)
6.35mm — 1
12.7mm — 2

CABLE TYPE
Stainless Steel Mineral Insulated Cable — M
Stainless Steel Armoured Cable — S
PTFE covered Cable — P
Rigid Stem — X

CABLE LENGTH
1 metre — 1
Other (*Insert Length Required*) — _

COMPRESSION FITTING
½" BSP — A
½" NPT — B
Other (*Please State Requirement*) — X̲
Not required

OPTIONS
4/20mA Retransmission (not available on Intrinsically Safe versions) *
Required — T
Not Required — X

MAX & MIN Temperature Logging
Required — M
Not Required — X

*Please state Retransmission range required (minimum 10% of span)

■ Example Order Codes

DigiTemp Digital Thermometer, Thermocouple sensor, cable type, surface mounting, 1 metre of mineral insulated cable, no fitting required, with 4 to 20 mA retransmission and maximum and minimum temperature logging:

Order : DT1 / 2 / A / 2 / X / M / 1 / X / T / M

DigiTemp Digital Thermometer, RTD sensor, rigid stem type, bottom direct mounting, 300 mm stem length, 12.7 mm stem diameter, 1/2" BSP compression fitting, no options required:

Order : DT2 / 1 / A / 1 / 300mm / 2 / X / A / X / X

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ISO9001:2000
FM11958