2-WIRE TEMPERATURE TRANSMITTER

ULTRA FAST, PROGRAMMABLE RTD TRANSMITTER

RTD INPUT :
PT100 / PT500 / PT1000

MOUNTING :
IN RTD HEAD / WALL / PIPE

RESPONSE TIME
2 MS

RANGE SELECTION USING
UTILITY SOFTWARE

OPERATING TEMPERATURE
UPTO 85 °C

2-WIRE TECHNOLOGY

FLAMEPROOF - SURFACE MOUNT

FLAMEPROOF - PIPE MOUNT

ABOUT SCC671

SCC671 is 2-wire temperature transmitter RTDs with ultra fast response time. Range, unit, sensor break detection can be changed using utility software.

There are two versions of SCC671 :

1) Factory configured (Order Code : 2757)
   User can change range. However instrument must be recalibrated and for this user will require
   1. Decade box
   2. DMM current meter
   3. USB programmer DCC511
   4. Utility software

2) User configurable (Order Code : 2768)
   User can change range and for this user will require USB programmer DCC511 and Utility software. No recalibration required

FEATURES

- Extremely fast response time of output
- 2-wire technology, 4~20mA analog output
- Continuous analog measurement because of analog signal path
- Supply range 7.5~30 VDC
- PC based utility software allows to set sensor break detection option, Range, Unit, Fine calibration

APPLICATION AREAS

- Head mount temperature transmitter to convert Pt100 (2-wire or 3-wire) input into scalable 4 to 20mA analog output signal (Pt500 or Pt1000 linearization upon request)
- Mounting : In B-type head

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SPECIFICATIONS

All specifications at ambient of 25 °C, 24VDC unless specified otherwise

INPUT

Input type	
RTD	Pt100, Pt500, Pt1000 (2-wire, 3-wire)
Range limits	-200 to 1050 °C (See Table1 for range & span limits)
Maximum span	1050 °C
Minimum span	See Table1 for range & span limits Note: for spans smaller than 75°C, the only permissible low scale are: -40°C, -20°C, 0°C, +20°C and +40°C
Unit	Measuring range configuration in °C or °F
RTD current	<=0.5 mA
Lead resistance effect, Pt100, 3-wire	0.1 °C upto 33ohm individual lead resistance
Underranging	<=3.6 mA
Overranging	>=22 mA to <= 28 mA (typically 24 mA)

SENSOR BREAK DETECTION

RTD short-circuit	3.6mA
RTD and connecting wires break	Positive: 22 ~ 28 mA (typically 24mA) Negative: <3.6mA (Programmable parameter)

OUTPUT

Output signal	Loop powered 4~20 mA
Transfer accuracy	± 0.1%, linear wrt temperature
Load	Max (V power supply - 7.5V)/0.0208A
Response time	2 msec
Sampling time	Continuous measurement because of analog signal path
Calibration / configuration accuracy	See Table2 for accuracy
Temperature error	± 0.015% per °C deviation

POWER SUPPLY

Supply voltage	7.5~30 VDC
Reverse polarity	Protected
Supply voltage effect	± 0.001% of span / V
Supply ripple effect, 50/60hz, 5 Vp - p	± 0.005% of span

ENVIRONMENTAL CONDITIONS

Ambient, storage	-40 to 85 °C (-40 to 185 °F)
Ambient, operation	-20 ~ 85 °C
Relative humidity	0 ~ 95%, no condensation

ENCLOSURE - IN-HEAD

Material	
Body	PC
Cover	ABS
Mounting	DIN B-head or larger
Connection	2.5 mm^2, AWG 14 single/stranded wires
Weight	40 grams
Protection	IP00

ENCLOSURE - FLAMEPROOF

Dimensions	142(H) x 84(D) mm See fig. 2
Material	Light Alloy (Lm6)
Protection	IP66 as per IS/IEC:60529-2009
Cable gland	Two 1/2" NPT cable entry
Certification	IS/IEC:60079-1-2007 for gas groups IIA, IIB & IIC

PROGRAMMABLE PARAMETERS *

List of parameters	Input type Unit Sensor break detection Range Wire

* USB programmer DCC511 is used to configure the SCC671 transmitter

Important Note:
Input/Output isolation is not provided. In certain applications the product may not work satisfactorily.
In addition, there is risk of damage of connected equipment in case of high voltage getting connected to the input.
Customers are advised to use models with input/output isolation wherever necessary.

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TABLE 1 - RANGE & SPAN

Low scale	Minimum possible span	Minimum possible high scale
150°C	>=550°C	>=700°C
100°C	>=300°C	>=400°C
50°C	>=75°C	>=125°C
0°C	>=40°C	>=40°C
-50°C	>=75°C	>=25°C
-100°C	>=325°C	>=225°C
-150°C	>=500°C	>=350°C
-200°C	>=800°C	>=600°C

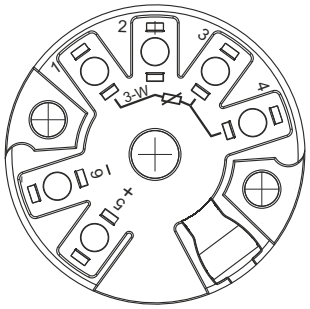
1. The Low scale & Span values are inter-related
   There are limitations on Low scale/Span combinations
2. Low scale can not be >150 °C
3. For Span less than 75°C, the Low scale values permitted are -40°C, -20°C, 0°C, +20°C and +40°C
4. If user sets Low scale and High scale different from values given in TABLE1 & if Span i.e. (High scale - Low scale) is less than minimum possible Span as per TABLE1. Then High scale will automatically set to scale calculated as per TABLE1

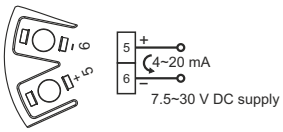
Example : If user sets
Low scale =-125°C
High scale=250°C then
Span i.e. (High scale - Low scale) will be 375°C
But as per calculation Span should be >375°C
so High scale automatically get set to 287.5.5°C
now Span become 412.5°C

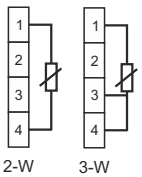
TABLE 2 - ACCURACY

Transmitter	Order code	Conditions	Accuracy
Factory configured	2757	For all ranges	± 0.2% or ± 0.2°C (whichever is greater)
User configurable	2768	Low scale >=0°C	± 0.2% or ± 0.2°C (whichever is greater)
		Low scale <0°C and Span <100°C	± 0.7°C
		Low scale <0°C and Span >100°C	± 200uA.This error can be minimized by two point calibration using decade box and DMM current meter

ELECTRICAL CONNECTIONS







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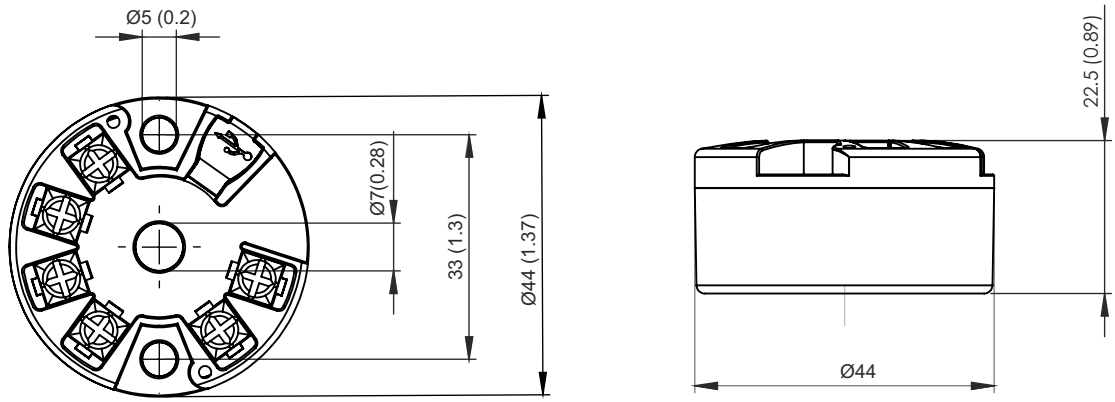
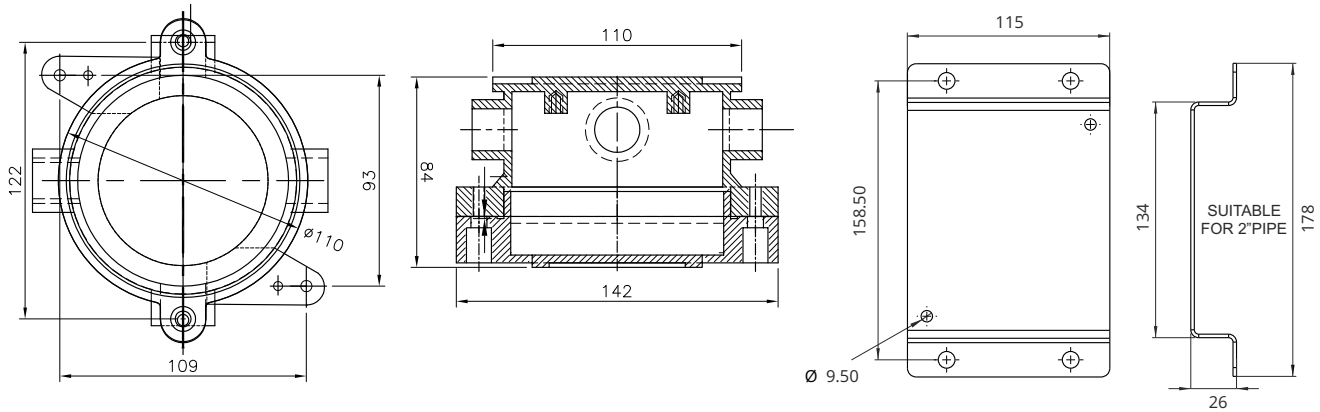
DIMENSIONS mm

IN-HEAD
Fig.1



FLAMEPROOF
Fig 2



Front View | Section View | Pipe Mounting Bracket

SCC671

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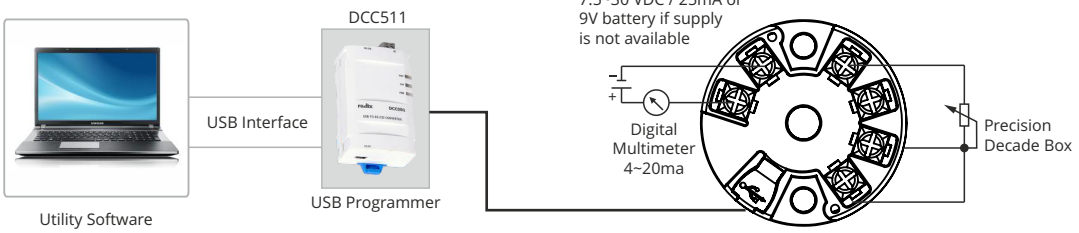
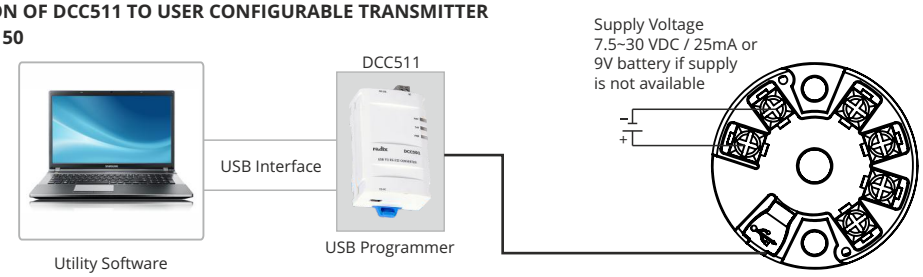
PROGRAMMING OF INSTRUMENT VIA PC CONFIGURATOR

CONNECTION OF DCC511 TO FACTORY CONFIGURED TRANSMITTER
2757 0 1 0~150



CONNECTION OF DCC511 TO USER CONFIGURABLE TRANSMITTER
2768 0 1 0~150

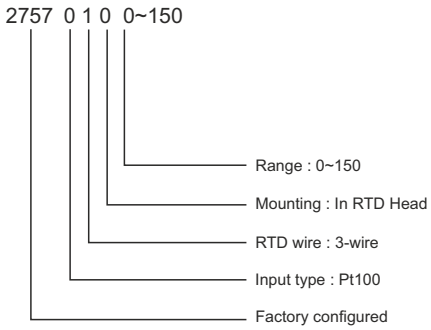


PC configurator software utility is available for calibrating/configuring transmitter using PC.
DCC511 USB programmer is the hardware interface between SCC671 transmitter and PC.

ORDERING INFORMATION

Example	2757	0	1	0	0~150	2757 0 1 0 0~150
	2768	0	1	0	0~150	2768 0 1 0 0~150
Order code	2757					Factory configured
	2768					User configurable
Input type		0				Pt100
		1				Pt500
		2				Pt1000
RTD wire			0			2-wire
			1			3-wire
Mounting				0		In-Head
				1		Flameproof - Surface Mount
				2		Flameproof - Pipe Mount
Range					User range	User specified range

EXAMPLE



ACCESSORIES*	RADIX PART NO.
1/2" NPT CABLE GLAND**	AMA-365

ITEM	MODEL	ORDER CODE
USB Converter *	DCC511	2761
Utility Software	-	2794

** For FLP Enclosure
*Accessories & Converter to be purchased separately

Default Parameters
Input type : Pt100, 3-wire
Range : 0~150 °C (if user range not specified)
Sensor break : Upscale, 22 ~ 28mA

If user requires a specific input & range to be calibrated before dispatch, both must be specified in the order.

If user wishes to program the input and range, user must purchase separately the USB Converter DCC511 and Utility Software.

CAT#632R3/A

ENQUIRIES
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