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Temperature indicators

Data sheet



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Temperature indicators

Application

	Features	Liquid temperature indicators	Winding temperature indicators
Standard configuration	Type	Comem OTI	Comem WTI
	Scale	-20 / +130°C, -20 / +140°C, 0 / +150°C, 0 / +160°C	
	Display	Polycarbonate	Polycarbonate
	CT nominal current	-	1, 2, and 5A
	Ventilation System	YES	YES
	Micro switches	2 or 4	2 or 4
	Capillary length	up to 18 m	up to 18 m
	Max pointer	Yes	Yes
Options	PT100	Up to 2	Up to 2
	Vibration damping	Available	Available
	MBO contacts	Available (up to 4)	Available (up to 4)
	Analog output 4-20 mA	Embedded (Comem eOTI) or external transducer	Embedded (Comem eWTI) or external transducer
	Digital output Modbus RTU	Embedded (Comem eOTI) or external transducer	Embedded (Comem eWTI) or external transducer
	Display	Glass	Glass
	Thermal well	Available	Available

Temperature indicators

Technical data

Temperature Indicators	Technical data
Material	
Housing	Aluminum casting, RAL 7032, powder coated (C4); Off shore model on request (C5-M surface treatment, not painted)
Viewing display	Polycarbonate (standard) / Glass (optional)
Max pointer	Standard
Temperature sensor	Brass
Temperature sensor protection	Brass
Capillary tube	Copper capillary tube with Rilsan protection (standard) or stainless steel protection (optional)
Cable gland	3; M25 x 1.5 made of plastic (C4) or nickel-plated brass (C5-M)
Characteristics data	
Installation	Indoors and outdoors, tropical proof
Ambient temperature	-50 to 80°C / -58 to 176°F
Degree of protection	IP65 in accordance with EN60529 (on demand IP66)
Measuring range	-20 / +130°C, -20 / +140°C, 0 / +150°C, 0 / +160°C
Measuring accuracy	1.5% of Full Scale
Ventilation	Ventilation system to prevent condensation (C4 plastic valve; C5 stainless steel valve)
Wires	Min 0,25 mm ² / Max 2,5 mm ² (Comem eOTI/eWTI) - Min 0,33 mm ² / Max 4 mm ² (Comem OTI/WTI)
Vibration damping	Optional anti-vibration supports available
Sinusoidal (EN 60721-3-4)	cl 4M4: 2-9 Hz (6mm peak to peak), 9-200 Hz (1g) - All axis
Shock	cl 4M4: 10g (11 ms) in all the directions (EN 60721-3-4)
Micro switches, PT100	
Number and types	2 or 4 adjustable change over switches
Contact load	AC: 250V / 5A / cosΦ=1, DC: 250V / 0.25A, 125V / 0.5A, 50V / 1A, 30V / 5A (non-inductive) (On customers request can be provide contacts with higher performances see pag. 3)
Minimum switching distance	4% Full Scale .
Rated insulation voltage	2500 V AC/1 min, terminals to ground
Switching accuracy	2% of Full Scale
Commutation differential	4% of Full Scale (On customers request the differential can be increased)
Rated insulation voltage	2.5 kV AC 1 min between contacts and earth, 1.0 kV AC 1 min between open contacts
PT100	Max n° 2
Winding temperature indicator	
Nominal current availability	For CT nominal current: 1, 2 and 5A

Temperature indicators

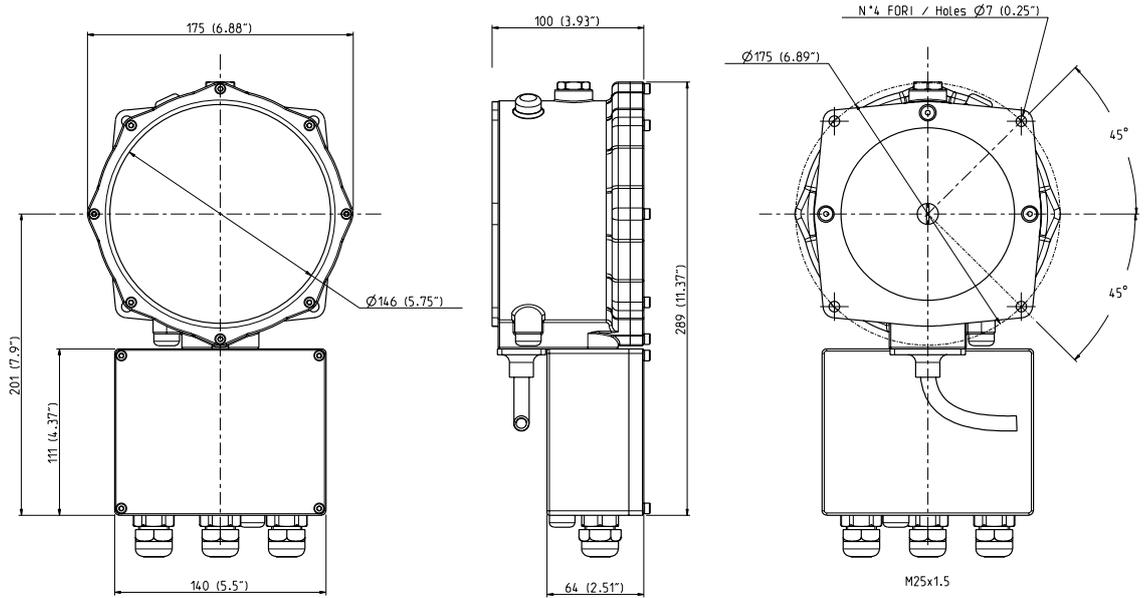
Technical data

Temperature indicators	Technical data
Higher performances micro switches	
Number and types	2 or 4 adjustable change over switches
Contact load	AC: 250V / 10A / $\cos\Phi=1$ DC: 250V / 0.25A, 125V / 0.5A, 50V / 3A, 30V / 10A (non-inductive)
Measuring accuracy	1.5% of Full Scale
Switching accuracy	2% of Full Scale
Commutation differential	4% of Full Scale (On customers request the differential can be increased)
MBO contact	
Number and types	2 or 4 adjustable change over switches
Contact load	AC/DC: 250V / 3A, 125V / 10A (non-inductive)
Measuring accuracy	$\pm 3^{\circ}\text{C}$ between 30-150 $^{\circ}\text{C}$
Switching accuracy	$\pm 4^{\circ}\text{C}$ between the range 30-150 $^{\circ}\text{C}$
Resetting tolerance	10 $\pm 2^{\circ}\text{C}$
Comem eOTI / Comem eWTI	
Technical data	
Analog output (embedded in the device)	
Wires	Max 2.5mm ² – advised 4x1mm ² o 6x1mm ² shielded twisted pair cable for analog/digital output
Supply voltage	24 VDC $\pm 10\%$ polarized (protected against pole reversal)
Output signal	4 - 20 mA
Measuring range	In agreement with the indicator scale
Rated insulation voltage	2000 V AC/1 min, terminals to ground
Maximum resistance	450 Ω at 24 VDC
Power consumption	0.5 W
Max distance for analogical output	Max 30 m / 98 ft (for different demands contact ABB)
Measure Accuracy	1.5% of Full Scale
Digital output (embedded in the device)	
Output signal	Serial RS485 Modbus RTU (for more information contact ABB)
Distance for digital output	Max 30 m / 98 ft (for different demands contact ABB)

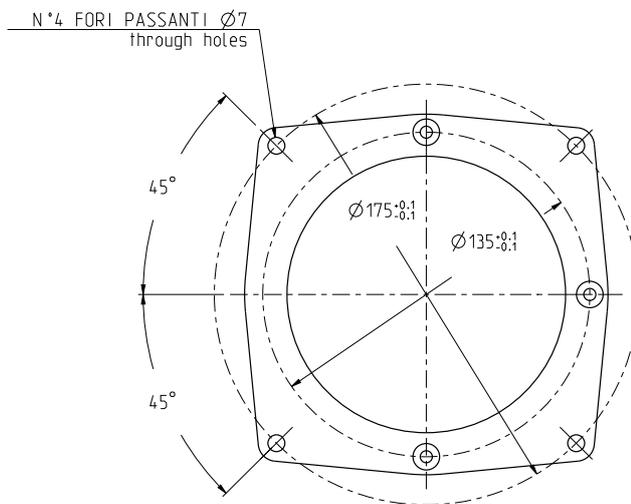
Temperature indicators

Dimensions

Liquid temperature indicator Comem OTI / Winding temperature indicator Comem WTI



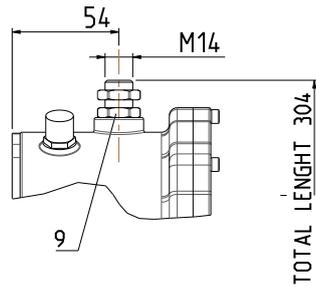
Flange connection (Type A)



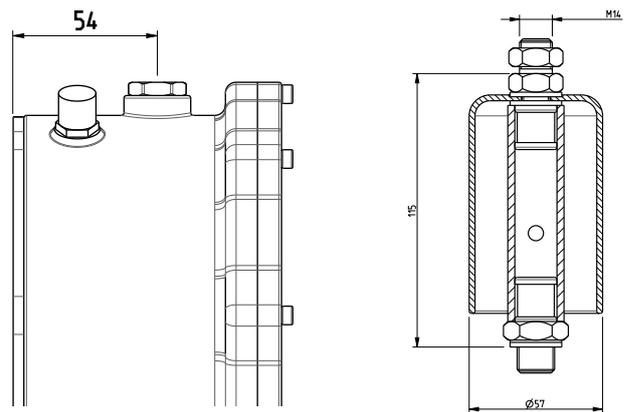
Temperature indicators

Mounting type

Rigid screw (Type B)



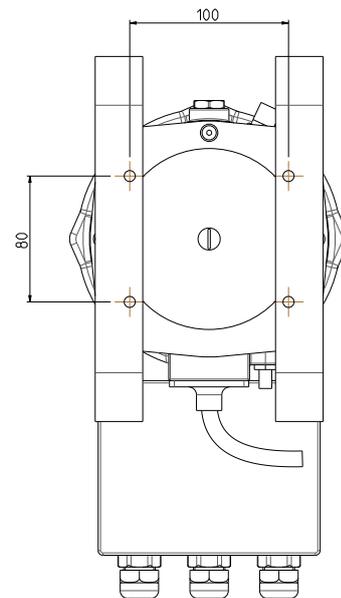
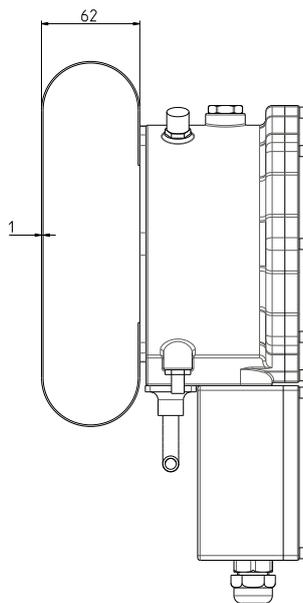
Elastic suspension (Type C)



Unscrew the upper rigid locking M14 screw located on the top of the thermometer

Assembly the elastic suspension on the top of the thermometer with a M14 screw that let install the instrument in the plant

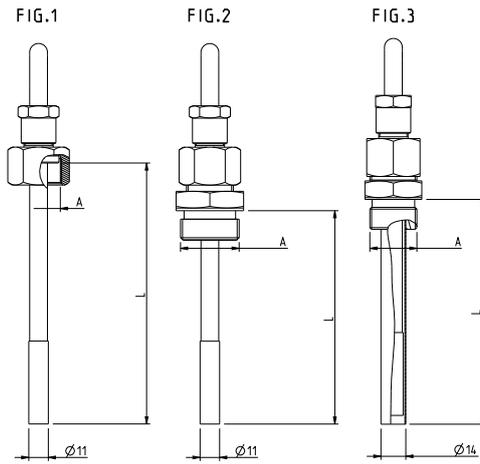
Back metallic sheets (Type D)



Temperature indicators

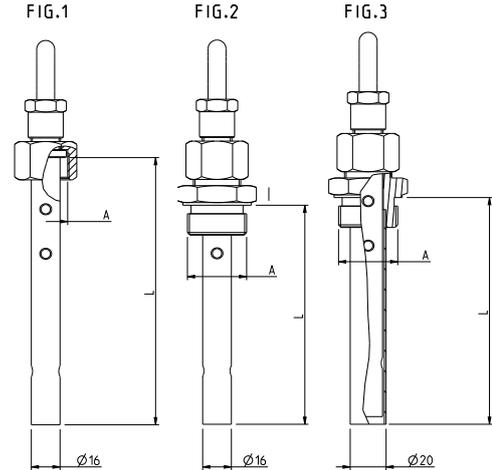
Bulbs

Liquid temperature indicator Comem OTI



Comem OTI

Fig. 1				
A	3/4" BSP	1/2" BSP		
L	Min 80mm / Std. 150mm			
A Fig. 2/3				
	3/4" BSP	1/2" BSP	1" BSP	M27x2 M22x1.5
L	Min 80mm / Std. 150mm			



Comem OTI equipped with PT100 sensor

Fig. 1			
A	3/4" BSP		
L	Min 150mm / Std. 150mm		
A Fig. 2/3			
	3/4" BSP	1" BSP	M27x2 M22x1.5
L	Min 120 mm / Std. 150 mm		

Winding temperature indicator Comem WTI

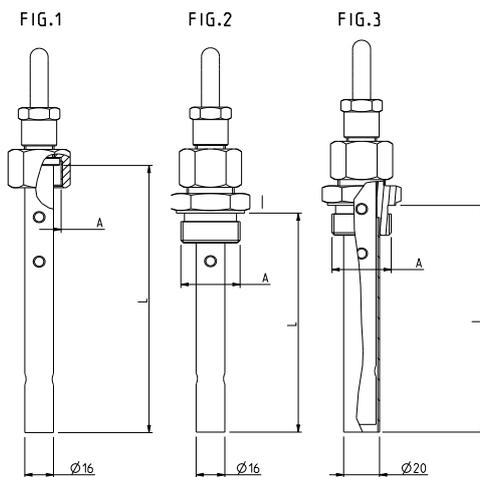
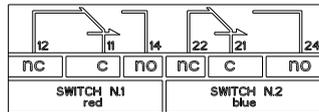


Fig. 1			
A	3/4" BSP		
L	Std. 150mm		
A Fig. 2/3			
	3/4" BSP	1" BSP	M27x2 M22x1.5
L	Min 120mm / Std. 150mm		

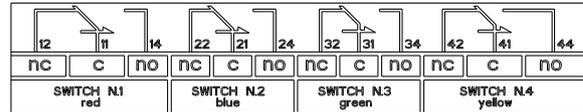
Temperature indicators

Electrical scheme

Liquid temperature indicator (Comem OTI)

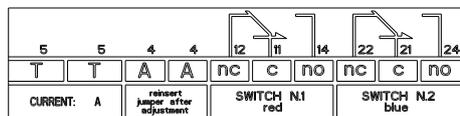


Comem OTI – Comem eOTI (2 contacts)

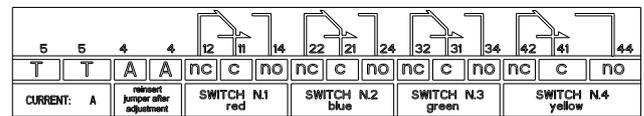


Comem OTI – Comem eOTI (4 contacts)

Winding temperature indicator (Comem WTI)

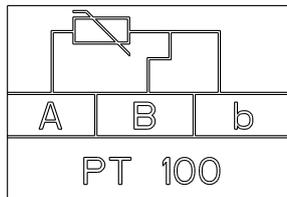


Comem WTI – Comem eWTI (2 contacts)

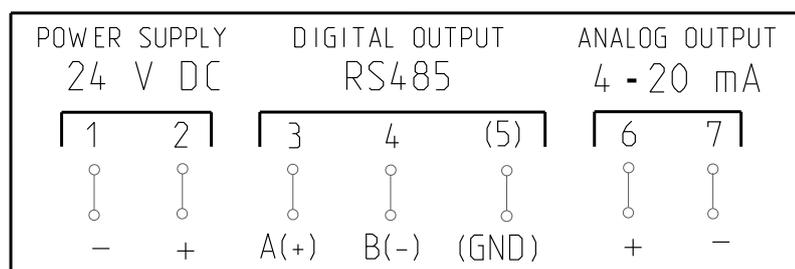


Comem WTI – Comem eWTI (4 contacts)

PT100



Comem eOTI and Comem eWTI with embedded analog and digital output



Terminals number

Supplier Voltage 24 VDC	1(-) / 2(+)
Analog output 4-20 mA	6(+)/ 7(-)
Modbus RTU (RS485 gate)	3 (A+) / 4(B-)
Optional PT100	A, B, b

For further information or clarification, please contact our support team:
E-mail address: it-support.comem@abb.com

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Temperature indicators

Order sheet

Date	
Rev.	
Customer reference	

Type
Comem OTI (Liquid temperature indicator)
Comem WTI (Winding temperature indicator)
Comem eOTI (Liquid temperature indicator with analog and digital output)
Comem eWTI (Winding temperature indicator with analog and digital output)

Mounting type	Reference (Page 7)
Flange	Type A
Rigid screw	Type B
Elastic suspension	Type C
Back metallic sheets	Type D

Scale	Scale
-20/+130 °C	0/+150°C
-20/+140°C	0/+160°C

Dial minimum division
5° (standard)
2° (special)

Type of micro switches	Contact load
Standard	AC: 250V / 5A / $\cos\phi=1$, DC: 250V / 0.25A, 125V / 0.5A, 50V / 1A, 30V / 5A
High performances	AC: 250V / 10A / $\cos\phi=1$, DC: 250V / 0.25A, 125V / 0.5A, 50V / 3A, 30V / 10A
MBO	AC/DC: 250V / 3A, 125V / 10A

Number of micro switches
2
4
Special micro switch connection (Select on page 13)

Capillary tube protection	Note
RILSAN (Standard)	
Stainless steel (AISI 304) (Optional)	

Capillary length
2 m
6 m
8 m
10 m
12 m
18 m

Bulb thread	Note
½" BSP	Not for PT100, Comem eOTI and Comem eWTI
¾" BSP	
M22x1.5	Male only; without PT100
M27x2	Male only
1" BSP	Male only

Bulb type	Note
Fig.1	Female
Fig.2	Male
Fig.3	Male with well

Bulb length (thread included)	Note
.....mm	Without PT100 (min 80 mm)
.....mm	With PT100 (min 150 mm)

Corrosion protection
C4 acc. to ISO 12944 (standard)
C5-M acc. to ISO 12944 (not paintable)

Notes:

Temperature indicators

Order sheet

Date	
Rev.	
Customer reference	

Lens	
<input type="checkbox"/>	Polycarbonate (Standard)
<input type="checkbox"/>	Glass (Optional)

PT100	
<input type="checkbox"/>	No. 1 (3 wires) ⁽¹⁾
<input type="checkbox"/>	No. 2 (3 wires) ⁽²⁾

(1) For Comem eOTI/Comem eWTI not available in the terminal board (the PT100 is the electronic board input)

(2) For Comem eOTI/Comem eWTI one PT100 is available in the terminal board (the other one is the electronic board input)

Accessories	
<input type="checkbox"/>	Temperature display for remote visualization (C 40)
<input type="checkbox"/>	Supply adaptor (IN 110/230 VAC/DC, OUT 24VDC)

Comem WTI/ Comem eWTI – CT nominal current	
<input type="checkbox"/>	1A
<input type="checkbox"/>	2A
<input type="checkbox"/>	5A

Comem WTI /Comem eWTI– optional values	
<input type="checkbox"/>	Specify set thermal gradient (with thermowell thickness between 2,5 and 4 mm) °C
<input type="checkbox"/>	Specify set nominal current for Comem WTI & Comem eWTIA

Notes:

For different configuration / options, please contact ABB

Temperature indicators

Mechanical pointer identification

Date	
Rev.	
Customer reference	



Pointer 1	Pointer 2	Pointer 3	Pointer 4	Description (n° micro switches connected to the terminal board (pointers indication))	Selection
■	■	■	■	4 micro switches ($2^A + 1 + 1$)	
■	■	■	■	4 micro switches ($1 + 1 + 2^A$)	
■	■	■	■	4 micro switches ($2^A + 2^A$)	