

# TEMPERATURE / LEVEL INDICATOR CUM CONTROLLER WITH ANALOG OUTPUT

..... for Hydraulic Oils



Tank top mounting type Digital temperature / level indicator cum controller is used to indicate and control both temperature and level of liquid mainly for hydraulic oils \* in machine tool industry.

Digital temperature / level indicator cum controller incorporates PTFE / PVDF insulated sense electrode, stainless steel guard electrode, passivated MS mounting flange/ adapter and ABS plastic enclosure which houses the electronics and 8 core cable for external electrical connections.

Solid state temperature transducer is housed at bottom of sense electrode and its output is proportional to the surrounding liquid temperature and the same is converted and indicated in °C. Capacitance variation between sense electrode and guard electrode which is proportional to the liquid level between the two electrodes is converted in to electrical signal using unique mixed signal technology and indicated in % between two marked locations. Two programmable set points are provided for temperature and level for external control. Indicator can be programmed to display either temperature / level alternatively or only temperature / level. Optional analog output type are available with 4...20 mA output or 0...10V DC output.

\* Working has been verified for hydraulic oils grade ISO \* 32, ISO 46, ISO 68.

## Technical specifications:

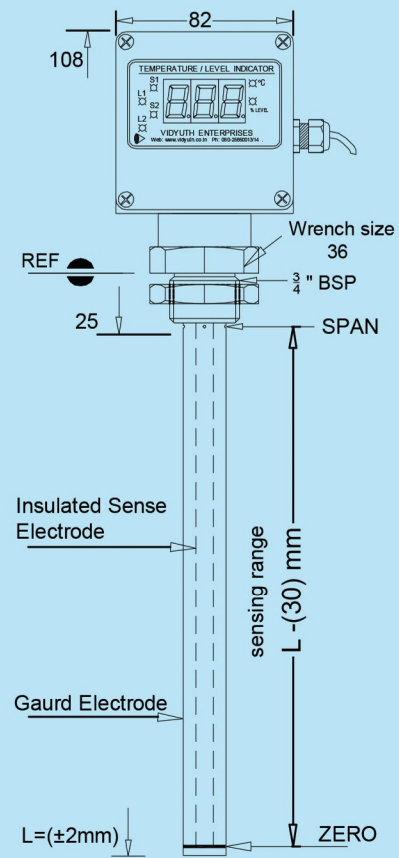
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|-------------------------------------|--|
| 01. Input voltage Range             | : 24V DC $\pm$ 5%  |
| 02. Display                         | : 12.7 mm Seven Segment LED, 3 digit   |
| 03. Status Display                  | : Provided   |
| 04. Max. Output current             | : 200mA  |
| 05. Output type                     | : PNP/NPN /ANALOG  |
| 06. Output short circuit Protection | : Provided   |
| 07. Reverse Polarity Protection     | : Provided   |
| 08. Ambient temp range              | : 0°C to +70°C   |
| 09. Max pressure                    | : Atmospheric  |
| 10. Max. liquid temp                | : 100°C  |
| 11. Max. error                      | : $\pm$ 0.25% / $\pm$ 1 least count for temp<br>$\pm$ 1% $\pm$ 1 least count for level |
| 12. Indicating range                | : + 0.1°C to 99.9°C in 0.1°C step for temp<br>0.00 % to 99.9% in 0.1% step for level   |

**NOTE :** Current Output (CO)  
: MAX. Load: 1K $\Omega$

= 4mA ..... 00.0°C  
= 20mA ..... 99.9°C  
= 4mA ..... 00.0 %  
= 20mA ..... 99.9 %

**NOTE :** Voltage Output (VO)

: Analog output is non isolated  
: Minimum load 10K  $\Omega$   
= 0V ..... 00.0°C  
= 10V ..... 99.9°C  
= 0V ..... 00.0 %  
= 10V ..... 99.9 %

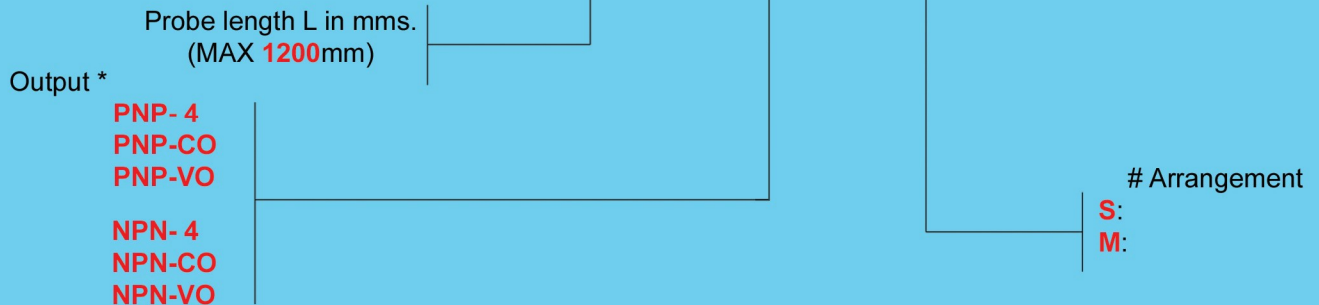


NOTE: ALL DIMENSIONS ARE IN mm

## ORDERING INFORMATION:

TLI-M / L \_\_\_\_\_ / O \_\_\_\_\_ / A \_\_\_\_\_

**Temperature / Level Indicator  
Cum Controller**



### \* Output

#### : PNP-4

2 x PNP Transistor Output Temperature  
2 x PNP Transistor Output Level

#### : PNP-CO

2 x PNP Transistor Output Temperature  
2 x PNP Transistor Output Level  
1 x Analog Output Temperature (4...20mA)  
1 x Analog Output Level (4...20mA)

#### : PNP-VO

2 x PNP Transistor Output Temperature  
2 x PNP Transistor Output Level  
1 x Analog Output Temperature (0...10V DC)  
1 x Analog Output Level (0...10V DC)

#### : NPN-4

2 x NPN Transistor Output Temperature  
2 x NPN Transistor Output Level

#### : NPN-CO

2 x NPN Transistor Output Temperature  
2 x NPN Transistor Output Level  
1 x Analog Output Temperature (4...20mA)  
1 x Analog Output Level (4...20mA)

#### : NPN-VO

2 x NPN Transistor Output Temperature  
2 x NPN Transistor Output Level  
1 x Analog Output Temperature (0...10V DC)  
1 x Analog Output Level (0...10V DC)

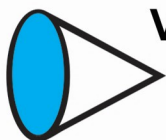
### # Arrangement

S : M12 Gland with 8 Core 2.5 m cable

M : M12x1, 8 pin., Connector (male) and straight connector (female), 3 mtr cable

since continuous development is our policy, the above specification and details may change without prior notice

CT-009/TLI/04-18/R 00



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