

Technical data for VTH and VTHR dc and ac voltage sensors

The VTH and VTHR voltage sensors convert dc or ac voltage to an isolated voltage or current loop output. The available VTH models cover the range from 50mV to 500Vrms, operating with a fast response capability, the Model VTHR offers true rms conversion DC-10kHz. VTH sensors are available in ac only or dc + ac configurations. The sensor power input is designed to operate over a wide range associated with process control and sub-station auxiliary dc supply systems. Some typical applications are voltage monitoring in dc drives, process control, rail transportation and circuit breaker trip coils. For all products, a NIST/NPL/UKAS traceable calibration certificate and certificate of conformance are available.



Specifications

<ul style="list-style-type: none"> ❑ Available input ranges of 50mV / 100mV / 1V / 2V / 5V / 10V / 100V / 200V / 300V / 400V / 500V ac or dc. Operational from 10% - 125% of range 	<ul style="list-style-type: none"> ❑ Internal gain calibration controls ❑ Based on isolated single ended input amplifier (measures ac & dc)
<ul style="list-style-type: none"> ❑ Outputs: Zero to 100mV, 1V, 5V, 10V (ac or dc amps input). 0-20mA or 4-20mA outputs available (dc amps input only). All bipolar / instantaneous 	<ul style="list-style-type: none"> ❑ Working temperature range 0°C - 50°C ❑ Functional temp range -10°C - 70°C (see below for details)
<ul style="list-style-type: none"> ❑ Auxiliary power input 12/24/48/110/230 Vdc or Vac. Max current draw 24Vdc 100mA max 	<ul style="list-style-type: none"> ❑ Rated working voltage insulation 1.0kVpk, flash tested 2.5kV for 1 minute
<ul style="list-style-type: none"> ❑ Fast response time <200uS (no filtering). Standard frequency range is DC-10kHz 	<ul style="list-style-type: none"> ❑ Screw terminal input/output connections IP30
<ul style="list-style-type: none"> ❑ Certified accuracy better than <1.0% at +23°C ±5°C, traceable to NIST/NPL (5 minute warm up) 	<ul style="list-style-type: none"> ❑ 3.5 mm fixing holes
<ul style="list-style-type: none"> ❑ CE Marked ❑ UL94V0, IEC1010 cat II, IEC348, DIN 57411 ❑ Case IP50, terminals IP30 complies with IEC529 	<ul style="list-style-type: none"> ❑ 1 year warranty

Safety and good working practice when using the VTH and VTHR Voltage probe

General safety summary

1. Ensure that all personnel connecting and configuring the VTH are fully trained and conversant with electric shock and fire hazards associated with electricity supplies.
2. Ensure the circuit under test is switched off and isolated before connection
3. Only use safety type cables for connections to the VTH probe. These cables are typically fitted with a 4mm safety type banana connector on either end. All connections should be insulated to prevent human contact
4. Ensure that the VTH output (Io terminal) is connected to a grounded point on the scope/data logger/measurement system. Ensure it is a true ground and not just signal low.
5. Ensure that the maximum differential input voltage of (1000Vpk) and input voltage to ground (1000Vpk) are not exceeded
6. Users should always work in pairs, both parties should be trained and familiar with medical procedures in the event of electric shock
7. Ensure the circuit test is protected with over current protection
8. During installation, avoid all mechanical stress to the VTH probe terminals
9. Do not use the probe with the case open
10. Ensure that the storage and operating conditions are clean and dry, do not use where there is risk of explosion

Note: Elect Tech shall not be liable for any consequential damages, injuries, losses, costs or expenses arising from the use or misuse of this product however caused.

Voltage transducer order codes

VTH / voltage range / calibration frequency / output / power input

VTHR / voltage range / ac+dc or ac / output / power input

Order code examples

VTH / 200V / dc / 4-20 / 24Vdc

200Vdc input, 4-20mA output with 24V aux power input

Calibrated at 0-200Vdc

VTHR / 100V / ac+dc / 10 / 24Vdc

100V input, ac+dc coupled, 0-10V output with 24V aux power input

Calibrated at 0-100Vdc

VTH / 300V / 60 / 4-20 / 24Vdc

300Vrms input, 60Hz max, 4-20mA output with 24V aux power input

Calibrated at 300Vrms 60Hz

VTHR / 50Vrms / dc-100 / 10 / 24Vdc

= 0-50Vrms input, frequency range dc-100Hz, 0-10Vdc output proportional to vrms with 24V aux power input

Unless specified, the upper cut off frequency will be 10kHz

Options - Environmental

Self extinguishing case to UL94V0 is available

Extended temperature range -25°C - 70°C (not available for all sensor types)

Options – noise rejection

User can specify upper or lower –3db point, External dc offset nulling control

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