



OMNITERM TWC Half-Cell Two Wire Transmitter

Model C2408B Half-Cell Monitor Two-Wire Transmitter.

DATASHEET

- Monitors Cathodic Protection Half-Cells
- Powered from 4-20mA Loop
- Input Isolation to 2500Vac
- Ultra-high input impedance
- Wide Supply voltage (9 – 33Volts)
- Software configurable output range



Features

- DIN Rail or surface mountable
- Narrow 22.5mm module width
- 4-20mA Loop powered.
- 2500Vac Isolation Input to Output
- User friendly free configuration software
- Wide operating temperature range
- Ultra-High Input Impedance
- Designed to meet IEC 61508 SIL1 criteria.

OVERVIEW

The Omniterm TWC half-cell two-wire transmitter is designed for continuous monitoring of half-cells in cathodic protection systems.

The Omniterm TWC has high input isolation and ultra-high input impedance to ensure that half-cells will not be consumed with continuous monitoring.

The TWT module draws its power from the 4-20mA output loop, allowing the transmitter to be mounted close to the half-cell for most accurate measurement.

Full input isolation to 2500Vac ensures trouble-free accurate measurement in the most demanding applications.

PRINCIPLES OF CATHODIC PROTECTION

Cathodic Protection is a technique commonly used to prevent corrosion in metallic structures. The principle of cathodic protection is in connecting an external anode to the metal to be protected and the passing of an electrical dc current so that all areas of the metal surface become cathodic and therefore do not corrode.

The external anode may be a galvanic anode, where the current is a result of the potential difference between the two metals, or it may be an impressed current anode, where the current is impressed from an external dc power source.

Structures commonly protected are the exterior surfaces of pipelines, jetties, foundation piling, steel sheet-piling, offshore platforms and concrete steel reinforcing.

Using advanced sigma-Delta A/D technology combined with sophisticated digital filtering techniques, the TWC offers 16 bit measurement resolution with increased dynamic range, tailored for harsh environments.

Combined with the free **Omniset** configuration software package, this product provides extremely low life-cycle costs by reducing spares stock-holding requirements, and reducing specialist technical expertise required for field support, on site module replacement and field configuration. This new holistic approach to instrumentation asset management ensures reliable performance and minimal down-time.

Cathodic-protection systems may be monitored effectively by the measurement of structure-to-electrolyte potentials, using a high input impedance voltmeter and suitable half-cell. The standard practical half-cells are copper/copper sulphate, silver/silver chloride/seawater, silver/silver chloride/ potassium chloride and zinc.

Adjustments are made to the cathodic-protection current output to ensure that protective potentials are maintained at a sufficiently negative level.

The Omniterm TWC Module is tailored for performing these half-cell measurements in permanent installations.

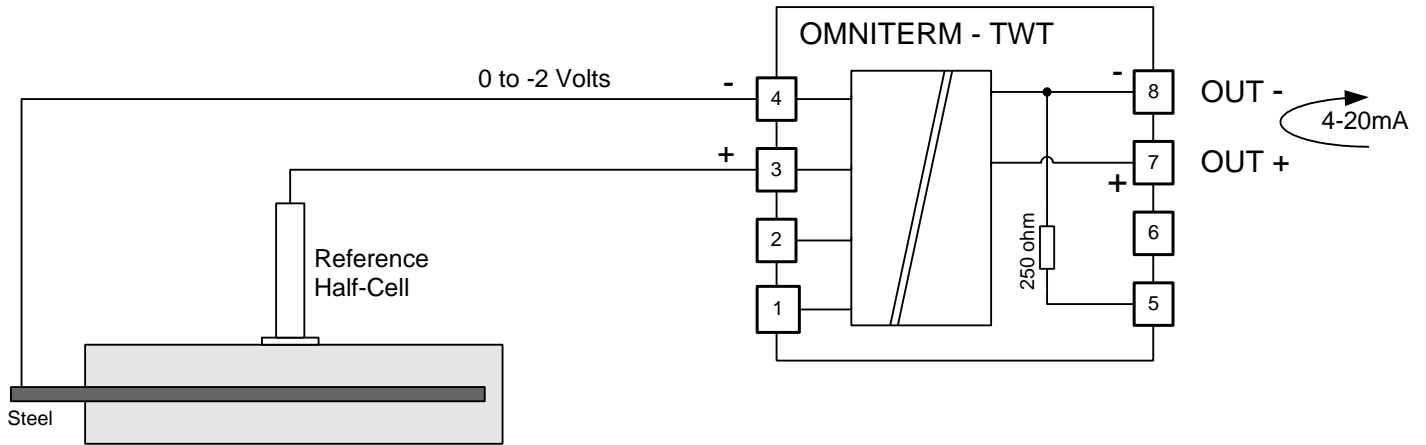




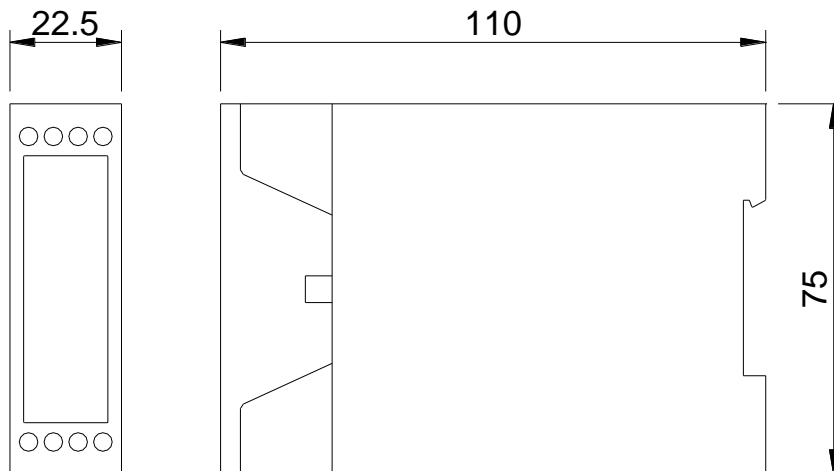
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Electrical Connection Details



Mechanical Details





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Specifications

Input

Input Range	0 to -2V maximum
Input Impedance (0 to -2V)	> 100M Ω (while powered)
Input Leakage (0 to -2V)	< 2.1nA (while powered)
Input Leakage (0 to -2V)	< 120nA (with power removed)

Output

Output Current Range	3.5-23mA maximum
Minimum Supply Voltage	9Vdc across terminals 7 and 8
Maximum Supply Voltage	33Vdc across terminals 7 and 8
Recommended Maximum Load Resistance	100 ohms with 12Vdc supply min. 250 ohms with 15Vdc supply min. 500 ohms with 20Vdc supply min. 700 ohms with 24Vdc supply min. 1000 ohms with 30Vdc supply min.
Internal Precision Resistor	250 ohms 0.1% 50ppm/ $^{\circ}$ C

Accuracy

Initial Error	<0.1% at 25 $^{\circ}$ C
Non-linearity	<0.1% at 25 $^{\circ}$ C
Temperature Drift	< 150ppm/ $^{\circ}$ C

Configuration

Input Range Selection	Field selectable via programming port on front of unit with the aid of a PC and free Omniset configuration software.
Minimum Input Range	0 to -0.2Volts in = 4-20mA out
Maximum Input Range	0 to -2.0Volts in = 4-20mA out

Environmental Conditions

Operating Temperature	-10 $^{\circ}$ C – 60 $^{\circ}$ C (+14 $^{\circ}$ F – 140 $^{\circ}$ F)
Storage Temperature	-25 $^{\circ}$ C – 85 $^{\circ}$ C (-13 $^{\circ}$ F – 185 $^{\circ}$ F)

Mechanical

Width	22.5mm
Height	75mm
Depth	110mm

Mounting	Snaps on to DIN rail EN50022-35 Or screws to vertical surface
Housing	Shock resistant ABS
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Ingress Protection Class	IP 20
Terminal/wire size	0.14 – 2.5mm ² stranded

Compliance with Standards

Safety	IEC60950
Emissions	EN 55011:1998
Immunity – ESD	IEC 61000-4-2:2001
Immunity – RF Fields	IEC 61000-4-3:2003
Immunity – Transients	IEC 61000-4-4:2004
Insulation	Basic Insulation per IEC60950
Insulation Test Voltage	Input/Output 100% tested to 2500Vac

Weight

Packed	160gm approx.
Unpacked	130gm approx.

Ordering Information

ORDER CODE	DESCRIPTION
C2408B	Omniterm TWC Half-Cell Two-Wire Transmitter
ACCESSORIES	
C1167A	Omniflex USB to Serial Adaptor
C1168B	Omniflex Serial Miniature Jack Programming Cable.





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Typical Application Circuits

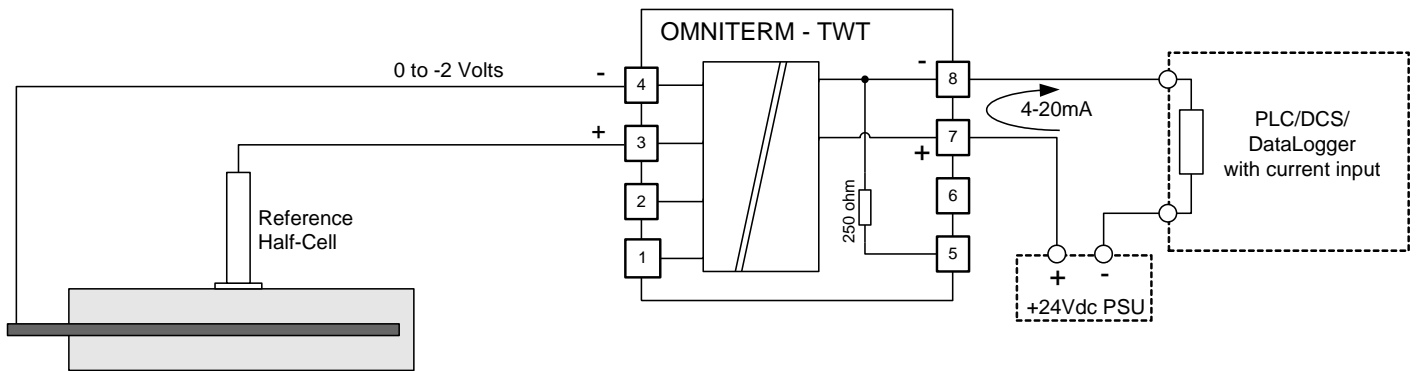


Figure 1: Omniterm TWC with 4-20mA current output

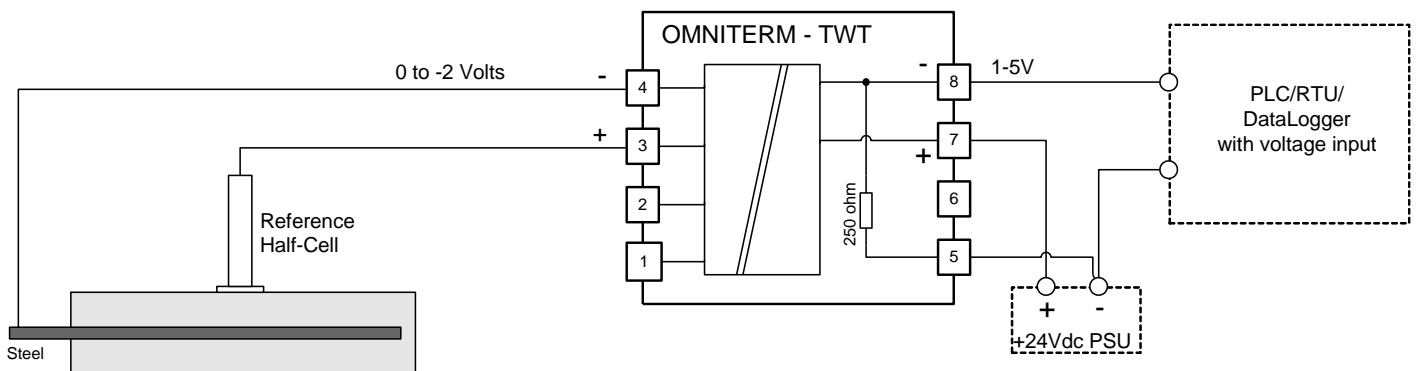


Figure 2: Omniterm TWT with 1-5Vdc output using integral precision 250ohm resistor