

X62T-MPT Tank Thermometer Interface

Enables replacement of MTT by MPT probes by replacement of a ENRAF 862 MIT Interface*

Connects to all ENRAF gauges with HPU, OPU or MPU MIT compatible option boards

Based on Exalon Delft proven X62T-HART and X62T-MIT Tank Thermometer Interface

No maintenance required

Software upgradeable to X62T-HART protects your investment

Connect

The X62T-MPT Tank Thermometer Interface is a special version of the X62T-MIT. The main difference is that on the sensor side MTT measurement has been replaced by multiple Pt100 spot temperature measurement. Pt100 sensors can be connected in 2w, 3w or 4w mode (MPT thermometer probe). This way you can replace a defective 864 MTT or 764 VITO MTT by a generic MPT probe with minimal effort.

Protect your investment

You won't have to worry about future compatibility to your level gauge or host since the X62T-MIT can be upgraded to X62T-HART to support the open HART® protocol.

Applications

- Connect foreign Pt100 spot temperature probes to an existing gauge with Honeywell-Enraf MIT inputs (fitted with MPU or HPU option board)



Measurement and Installation

Temperature

Measuring principle	The X62T temperature inputs consists of a large multiplexer, a stable current source, A/D converter, and precision reference and test sources for voltage and resistance. The configuration of multiplexers and measurement sequences is completely handled by the X62T and depends only on firmware and the setup.
2-, 3- or 4-wire resistance	This setup allows for 2-, 3- and 4-wire measurements of multiple resistors, which may or may not share a common wire. The current is forced through the selected terminal to the RTD and the resulting input voltage is measured through the selected sense terminal. The same current is then internally directed through a high precision resistor and its voltage is measured. Following that another measurement is performed to eliminate the A/D conversion chain's offset.
Thermocouple voltage measurement	After measuring absolute temperatures the corresponding thermocouple voltage are calculated and communicated to the Enraf gauge MPU or HPU option board. This way the behavior of a 862 MIT with 862 MTT or 764 VITO MTT is simulated.

Note: the MPU and HCU option boards expect always 16 spots to be present. When a MPT probe with less elements is connected the temperature of the highest spot element is repeated into the remaining higher spot positions. With proper configuration of the level gauge these spots only contribute to AG (average gas temperature). This has no detrimental effect on the accuracy of level, volume or AP (average product temperature) measured.

Water bottom level

Capacitance measurement	Enraf MPU / HPU option boards do not support water bottom level measurement. In the X62T-MPT this functionality has been disabled in firmware (but can be re-enabled by a firmware change).
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Installation features

Galvanic separation	All transmitter inputs are galvanically separated from the host connection.
Lightning protection	The sensors connected to the X62T-MPT may be installed into Zone 0. When the wires connecting the X62T-MPT and the boundary of Zone 0 are shorter than 1 m, no additional surge protection is required. An internal 90V surge protection device connected to the local structure protects the host connection wires. When testing the isolation from ground of the host wires using voltages above 70 V, it will be necessary to temporarily disconnect the surge protection device's ground wire.
Molded module	The internal X62U module is molded in PU resin to protect the circuitry from corrosion so that it's lifetime is maximized. Naturally as for all transmitters regardless of Ingress Protection rating in high humidity environments build-up of water inside the enclosure may occur over time. If this is the case regular inspection and if necessary draining is recommended for error free operation.
Enclosure	The enclosure of the X62T-MPT is IP65 depending on proper installation.

Mechanical

Cable entry	Suitable for PG16 EMC glands and adapters (not part of delivery)
Thermometer connection	G1/2 with positioning hole compatible to Enraf and Exalon Delft G1/2-G1/2 M/F adapter (Exalon Delft G1/2-G1/2 M/F adapter sold separately)
Dimensions (X62 enclosure)	160 x 130 x 70 mm (l x w x h)

Environmental

Operating temperature	-40 °C ... +60 °C
Ingres Protection	IP65 with proper installation
Loop voltage	12V ... 24V @ 4 mA 14V ... 24V @ 16 mA
Safety	II 2(1) G Ex ia IIB T4 according to ATEX for connection to an ATEX certified power supply with Ex d [ia] or [Ex ia] only
Input parameters	Supply/Output circuit: $U_i = 30V$, $I_i = 270\text{ mA}$, $P_i = 1.2W$, $C_i = 5nF$, $L_i = 0$ Sensor/Input circuit: $U_o = 5.9V$, $I_o = 62mA$, $P_o = 92mW$, $C_o = 900\mu F$, $L_o = 30mH$
Lightning protection	According to NEN-EN-IEC 60079-25
Galvanic separation	60V according to NEN-EN-IEC §6.3.3 and Table 5 Withstands 500 V isolation test.

Configuration

Resistance measurement	4 wire - Up to 6 resistors with 1 common connected to ground 3 wire with common sense - Up to 16 resistors with 1 common connected to ground 3 wire with individual sense - Up to 9 resistors with 1 common connected to ground 2 wire - Up to 16 resistors with 1 common connected to ground (not recommended)
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Electrical

Force current	0.3 mA
Input voltage range	-10 mV ... +50 mV
Input resistance range	0 - 300 Ω
Input voltage noise	1 μV_{p-p} (0.1 - 10 Hz)
Inputs force/sense	18
Linearization	Pt100 resistance to temperature acc. to IEC60751:2008 Thermocouple voltage type T acc. to IEC60584-1:2013
Capacitive Inputs	Disabled in firmware

Temperature (excluding sensor)

Range	-200 °C / +250 °C
Accuracy	± 0.1 °C (4W, typical, reference conditions)
Resolution	± 0.05 °C