

## X62T-NMT Tank Thermometer Interface

Enables replacement of an 854 by an Endress+Hauser level gauge like the Micropilot NMR81.

Connects to ENRAF probes like MTT/VITO (864, 764 and 767) and MPT/MRT (361 and 863).

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-NMT Tank Thermometer Interface is a special version of the X62T-HART. The main difference is that it emulates an Endress+Hauser Prothermo NMT539 so it can operate with an Endress+Hauser level gauge like the Micropilot NMR81 gauge. This way you can replace your Enraf level gauge and reuse the existing probe with minimal effort.

The X62T-NMT has it's combined force/sense inputs re-configured to measure:

- Enraf® MTT/VITO probes with 9 or 16 spots
- Enraf® MRT with or without Spot
- Enraf® 361 MPT
- Other probes having RTD elements in 3-wire Individual Sense or 4-Wire configurations

Commision using the level gauges local display or E+H device parametrization tools like DeviceCare and FieldCare

### Protect your investment

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

### Applications

- Connect Enraf temperature probes to an Endress+Hauser level gauge.



# Measurement and Installation

## Temperature

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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.
MTT probe type	Enraf 864 MTT and VITO MTT (LT) probes are constructed of multiple type T (CuNi - Cu) thermocouples with an additional high accuracy Pt100 built in for cold junction compensation.
MRT probe type and 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.
Endress+Hauser compatibility	The X62T-NMT closely emulates the Prothermo NMT539. The probe parameters are stored inside the X62T-NMT. Configuration of the X62T-NMT is done in exactly the same way as for the NMT539. For instance the configuration can be done through FieldCare, DeviceCare or from the user interface of the NMR81 or NMS5/NMS7.  <small>Note: By default the X62T-NMT's type of probe has been set to MTT (LT). For RTD types of probes contact Exalon Delft to preconfigure probe type, measurement type and curve.</small>

## Water bottom level

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Capacitance measurement	Some Enraf probes support water bottom level measurement. In the X62T-NMT this functionality has been disabled in firmware (but can be re-enabled by a firmware change).
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## Installation features

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Galvanic separation	All transmitter inputs are galvanically separated from the host connection.
Lightning protection	The sensors connected to the X62T-NMT may be installed into Zone 0. When the wires connecting the X62T-NMT 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-NMT is IP65 depending on proper installation.

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## 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 @ 10.5 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

Thermocouple measurement	One 4-wire measured RTD and 9 or 16 thermocouple elements
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

## Electrical

Force current	0.3 mA
Input voltage range	-10 mV ... +50 mV
Input resistance range	0 - 300 $\Omega$
Input voltage noise	1 $\mu V_{p-p}$ (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	$\pm 0.1$ °C (4W, typical, reference conditions)
Resolution	$\pm 0.05$ °C