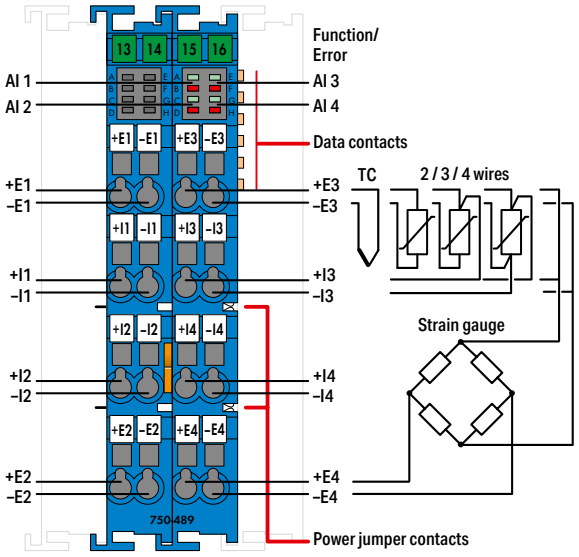
4-Channel Analog Input; RTD/TC; Intrinsically Safe



This analog input module directly connects resistance temperature devices (RTD)and thermocouples operating in hazardous environments of Zones 0 and 1. The cold junction compensation of the respective channel is incorporated into the module.
The WAGO-I/O-SYSTEM 750 must be installed either in Zone 2 or in a non-hazardous area.
The 24 V supply is derived from the module's power jumper contacts.
The shield directly connects to the DIN-rail.
The parameters are set via the GSD file, e!COCKPIT and WAGO-I/O-CHECK.

Indicators:
- Green LED (availability ON/OFF)
- Red LED (overflow, underflow, measurement range overflow/underflow)

Field and system levels are electrically isolated.
A functional galvanic isolation is provided between the channels.

Note: The analog output module must only be operated via 24 VDC Ex i!

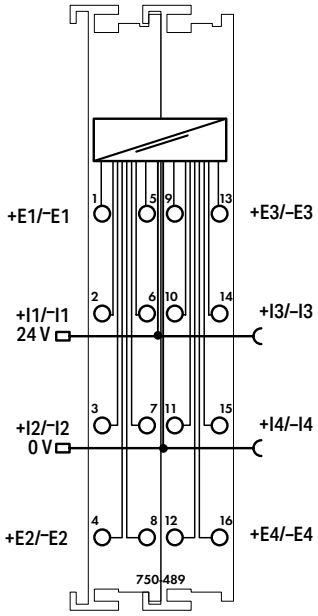
General information (e.g., installation regulations) on explosion protection is available in the WAGO-I/O-SYSTEM 750 manuals!

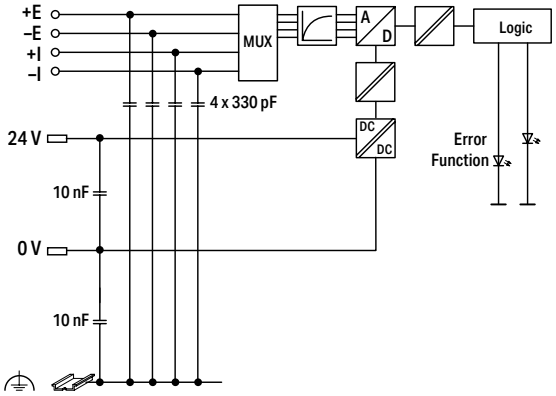
Description	Item No.	Pack. Unit
4AI RTD/TC Ex i	750-489	1

Accessories	Item No.	Pack. Unit
Mini-WSB Quick Marking System		
plain	248-501	50

Technical Data	
Number of analog inputs	4
Signal type	Resistance thermometers; Resistors;
	Potentiometer setting;
	Thermocouples; mV sensors
Sensor connection	RTD/R: 2 wires; 3 wires; 4 wires
	TC/U: 2 wires
Measurement ranges	RTDs: Pt100, Pt200, Pt500, Pt1000,
	Ni100, Ni120, Ni200, Ni500, Ni1000,
	Ni1000-TK5000;
	Resistors: 250 Ω, 500 Ω, 1 kΩ,
	2 kΩ, 4 kΩ, PTC;
	Potentiometer setting: 0 … 100 %
	Thermocouples:
	Type B (+250 …+1,820 °C);
	Type C (0 …+2,315 °C);
	Type E (-200 … +1,000 °C);
	Type J (-210 … +1,200 °C);
	Type K (-200 … +1,372 °C);
	Type N (-200 … +1,300 °C);
	Type R, S (-50 … +1,768 °C);
	Type T (-200 … +400 °C);
	mV sensor:
	±30 mV; ±60 mV; ±120 mV; ±250 mV;
	±500 mV; ±1,000 mV; ±2,000 mV
Resolution in process image	0.1 K of full scale value
	0.01 K of full scale value
	(restricted to -50 °C …+150 °C)
Data width (internal)	4 x 16-bit data;
	4 x 8-bit control/status (optional)
Conversion time	≥10 ms/2 wires (per channel)*;
	≥20 ms/3 wires, 4 wires (per channel)*

*for RTD/R; TC/U conversion time depends on module setting





Technical Data	
Measurement error typ. (at 25 °C surrounding air temperature)	In delivery state: ±0.2 % of the upper-range value (value achieved during calibration in operating environment 0 ≤ TA ≤ 55 °C); After user calibration: ±0.05 % of the upper-range value (only valid in the thermally stable operating state)
Temperature error (typ.)	±0.001 %/K of the upper-range value
Measured current (typ.)	0.1 mA (RTD)
Cold junction compensation	Integrated
Supply voltage (field)	24 VDC (Ex i power supply: U_O = max. 27.3 V); via power jumper contacts (power supply via blade contact; transmission via spring contact)
Power consumption, field supply	typ. 50 mA (in RTD/TC operation); max. 120 mA (in strain gauge load operation)
Power consumption, system supply (5 V)	typ. 50 mA (in RTD/TC operation; max. 60 mA (in strain gauge load operation)
Power consumption	typ. 1.6 W (in RTD/TC operation); max. 3.2 W (in strain gauge load operation)
Power loss	typ. 1.6 W (in RTD/TC operation); max. 3.2 W (in strain gauge load operation)
Isolation	acc. to EN/IEC 60079-11: 300 VAC system/supply; acc. to EN/UL 61010-2-201: 1200 VDC system/supply/channel
Cable length (shielded)	≤ 200 m
Connection technology	CAGE CLAMP®
Conductor cross-section	0.08 … 2.5 mm² / 28 … 14 AWG
Strip length	8 … 9 mm / 0.33 inch
Dimensions W x H x D	24 x 67.8 x 100 mm
Weight	99 g
EMC immunity to interference	Per EN 61000-6-2 (marine applications)
EMC emission of interference	Per EN 61000-6-3 (marine applications)
Configuration options	Sensor types, measurement ranges, filters, resolution, smoothing, diagnostics, etc. can be configured via WAGO-I/O-*CHECK*, ***e!COCKPIT*** or device descriptions (e.g., GSDML)

Explosion protection	
Safety-relevant data (circuit)	U_o = 4 V; I_o = 13.46 mA; P_o = 13.46 mW; Linear characteristic curve
Reactances Ex ia IIC	L_o = 0.19 H; C_o = 100 µF
Reactances Ex ia IIB	L_o = 0.78 H; C_o = 1000 µF
Reactance Ex ia IIA	L_o = 1.57 H; C_o = 1000 µF
Reactances Ex ia I	L_o = 2.57 H; C_o = 1000 µF
Reactances	Reactances without accounting for the concurrence of capacitance (C_o) and inductance (L_o); For reactances that take into account the concurrence of C_o and L_o, see manual

Standards and Approvals	
Conformity marking	CE
Ex standard	EN IEC 60079-0, -7, -11
Marine applications	DNV GL
E175199 Ordinary Locations	
TÜV 12 ATEX 106032 X	II 3 (1) G Ex ec [ia Ga] IIC T4 Gc
	II (1) D [Ex ia Da] IIIC
	I (M1) [Ex ia Ma] I
IECEx TUN 12.0039 X	Ex ec [ia Ga] IIC T4 Gc
	[Ex ia Da] IIIC
	[Ex ia Ma] I
UL E198726 Hazardous Locations (Division classified)	Cl I, Div. 2, Group A, B, C, D, T4