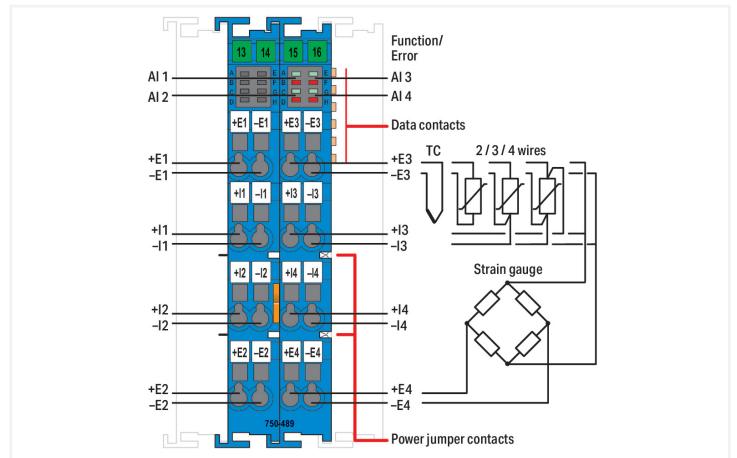
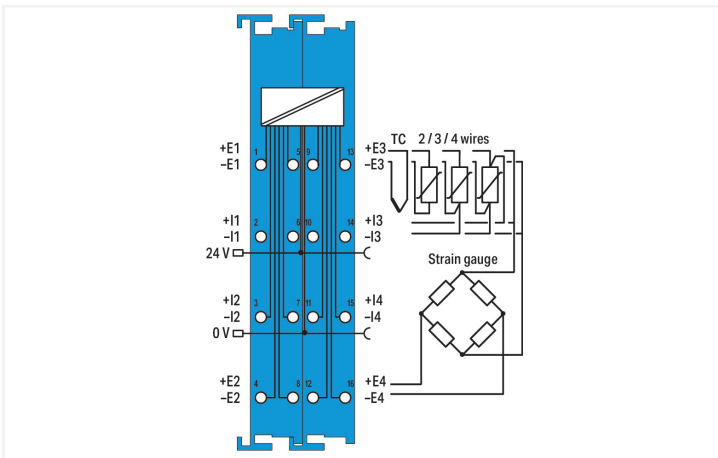
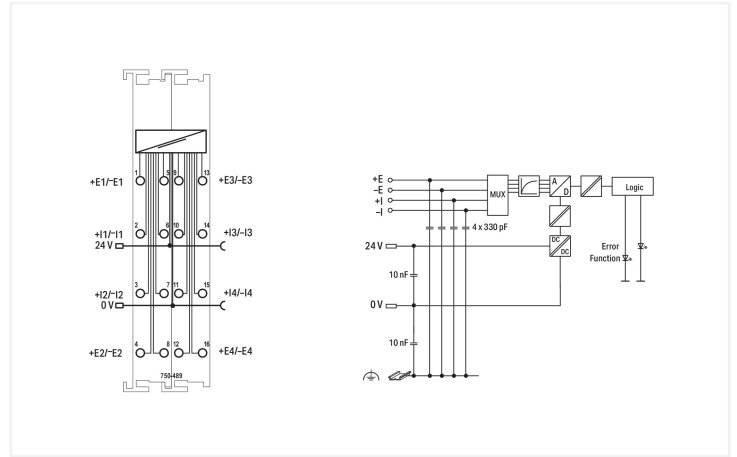


# Data Sheet | Item Number: 750-489

4-channel analog input; RTD/TC/Strain Gauge; 16 bits; Diagnostics; Intrinsically safe

<https://www.wago.com/750-489>



This analog input module directly connects resistance thermometers, thermocouples, millivolt sensors, resistors, resistor bridges (strain gauges), potentiometers and PTC thermistors operating in the hazardous environments of Zones 0 and 1. Cold junction compensation for 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** or **WAGO-I/O-CHECK**.

## Indicators:

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

Field and system levels are electrically isolated.

A functional galvanic isolation is provided between the channels.

## Notes

Note

The analog input module must only be operated via 24 VDC Ex II!  
General information (e.g., installation regulations) on explosion protection is available in the WAGO I/O System 750 manuals!

Technical data	
Number of analog inputs	4
Total number of channels (module)	4
Signal type	Potentiometer positions Thermocouple Resistive temperature device Resistors mV encoder
Signal type (configurable)	Yes
Sensor connection	4 x (2-wire); RTD/R: 3-wire; 4-wire
Measurement range	<b>Resistive temperature devices:</b> Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni200, Ni500, Ni1000, Ni1000-TK5000; <b>Resistors:</b> 250 Ω, 500 Ω, 1 kΩ, 2 kΩ, 4 kΩ, PTC; <b>Potentiometer setting:</b> 0 ... 100 %; <b>Thermocouples:</b> 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); <b>mV sensors:</b> ±30 mV; ±60 mV; ±120 mV; ±250 mV; ±500 mV; ±1,000 mV; ±2,000 mV; Thermistor: PTC; Resistor bridges (strain gauges): $U_{ref}$ : 2.4 V; $U_d$ : ±15 mV, ±30 mV, ±60 mV
Resolution (over entire range)	0.1 K of full scale value; 0.01 K of full scale value (restricted to -50 °C ... +150 °C)
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
Measurement error (25 °C)	In delivery state: ±0.2 % of the upper-range value (value achieved during calibration in operating environment $0 \leq T_A \leq 55$ °C); After user calibration: ±0.05 % of the upper-range value (only valid in the thermally stable operating state)
Temperature coefficient	±0.001 %/K of the upper-range value
Cold junction compensation	integrated
Intrinsic safety Ex i	Yes
Data width	4 x 16-bit data; 4 x 8-bit control/status (optional)
Configuration options	WAGO-I/O-CHECK CODESYS Library <b>e!</b> COCKPIT
Supply voltage (system)	5 VDC; via data contacts
Current consumption (5 V system supply)	60 mA
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)
Current consumption, field supply (module with no external load)	120 mA
Power loss $P_I$	1.6 W
Isolation	Per EN/IEC 60079-11: 300 VAC system/supply; per EN/UL 61010-2-201: 1200 VDC system/supply/channel
Number of incoming power jumper contacts	2
Number of outgoing power jumper contacts	2
Indicators	LED (A, C, E, G) green: Function AI 1 ... AI 4; LED (B, D, F, H) red: Error AI 1 ... AI 4
Marking	ATEX/IECEx: II 3 (1) G Ex ec [ia Ga] IIC T4 Gc; II (1) D [Ex ia Da] IIC; I (M1) [Ex ia Ma] I

Explosion protection	
Ex standard	EN IEC 60079-0, -7, -11
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
Reactances 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 (note)	Reactances, if the internal inductance $L_i$ or capacitance $C_i$ (without cable) of the connected device is ≤1 % of the specified values.

### Connection data

Connection technology: inputs/outputs	16 x CAGE CLAMP®
Connection type 1	Inputs/outputs
Solid conductor	0.08 ... 2.5 mm <sup>2</sup> / 28 ... 14 AWG
Fine-stranded conductor	0.08 ... 2.5 mm <sup>2</sup> / 28 ... 14 AWG
Strip length	8 ... 9 mm / 0.31 ... 0.35 inches

### Physical data

Width	24 mm / 0.945 inches
Height	100 mm / 3.937 inches
Depth	67.8 mm / 2.669 inches
Depth from upper-edge of DIN-rail	60.6 mm / 2.386 inches

### Mechanical data

Mounting type	DIN-35 rail
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### Material data

Housing material	Polycarbonate; polyamide 6.6
Fire load	2.036 MJ
Weight	99.3 g
Conformity marking	CE

### Environmental requirements

Ambient temperature (operation)	0 ... +55 °C
Ambient temperature (storage)	-25 ... +85 °C
Protection type	IP20
Pollution degree	2 per IEC 61131-2
Operating altitude	0 ... 2000 m / 0 ... 6562 ft
Mounting position	horizontal (standing/lying); vertical
Relative humidity (without condensation)	95 %
Vibration resistance	4g per IEC 60068-2-6
Shock resistance	15g per IEC 60068-2-27
EMC immunity to interference	per EN 61000-6-2, marine applications
EMC emission of interference	per EN 61000-6-3, marine applications
Exposure to pollutants	per IEC 60068-2-42 and IEC 60068-2-43

### Commercial data

ETIM 8.0	EC001596
ETIM 7.0	EC001596
PU (SPU)	1 pcs
Packaging type	Box
Country of origin	DE
Customs tariff number	85389099990

**Environmental Product Compliance**

CAS-No.	1303-86-2 1317-36-8 7439-92-1
REACH Candidate List Substance	Diboron trioxide Lead Lead monoxide
RoHS Compliance Status	Compliant,With Exemption
RoHS Exemption	6(c) 7(a) 7(c)-I 7(c)-II
SCIP notification number (Austria)	2e967755-29fa-4c20-883b-b9085830cedb
SCIP notification number (Belgium)	2b743fd2-d462-4b6d-b4a1-7992ed6bca5f
SCIP notification number (Bulgaria)	cd3136c4-5842-493a-a6c7-aaccbae35441
SCIP notification number (Czech Republic)	06e947da-9a5e-4f16-86d6-d6c3a2a72497
SCIP notification number (Denmark)	7f96b952-ca60-43e7-b2df-fb463a8cb615
SCIP notification number (Finland)	2d55b01b-e34c-4619-a37c-47e3d79f3158
SCIP notification number (France)	a325a1e0-ba65-4396-a8ab-1b4499385f8f
SCIP notification number (Germany)	85e3688e-39a6-447b-aa87-ad08b282a833
SCIP notification number (Hungary)	5df6d0ea-10d7-4caf-85f2-5569529bf243
SCIP notification number (Italy)	2616f35b-5661-4756-8961-a4f345a9e642
SCIP notification number (Netherlands)	f4f4df14-9da6-4e9c-b012-e425bf3a5b61
SCIP notification number (Poland)	97af6679-bfe0-4362-bcc4-b2ff7c57ccfb
SCIP notification number (Romania)	5d2755b8-7838-4e0c-9775-0a99aa0c54a9
SCIP notification number (Sweden)	f00e1d03-d337-4ba2-94ea-69972672f649

**Approvals / Certificates**

**General approvals** **Declarations of conformity and manufacturer's declarations**

Approval	Standard	Certificate Name
EAC Brjansker Zertifizierungsstelle	TP TC 020/2011	EAC RU C-DE.AM02. B.00087/19
EAC Brjansker Zertifizierungsstelle	TP TC 012/2011	EAC RU C-DE.AD07. B.03957-21 (2Exe[iaGa] IICT4 GCX, [Ex iaDa]IIIC X, [ExiaMa]IX)
KC National Radio Research Agency	Article 58-2, Clause 3	MSIP-REM-W43-AIM750
UL Underwriters Laboratories Inc. (ORDINARY LOCATIONS)	-	E175199

Approval	Standard	Certificate Name
EU-Ex-Declaration of Conformity WAGO GmbH & Co. KG	-	-

**Approvals for marine applications**

Approval	Standard	Certificate Name
DNV DNV GL SE	DNV-CG-0339,Aug.2021	TAA0000194
KR Korean Register of Shipping	-	KR HMB05880-AC001

**Approvals for hazardous areas**

Approval	Standard	Certificate Name
ATEX TUEV Nord Cert GmbH	EN 60079-0	TUEV_12_ATEX_106032X (Ex ec[iaGa] IIC T4 Gc, [Ex iaDa] IIIC, [Ex iaMa] I)
CCC CNEC	CNCA-C23-01	2020312310000211 (Ex ec[iaGa] IIC T4 Gc, [Ex iaDa] IIIC, [Ex iaMa] I)



Approvals for hazardous areas		
INMETRO TÜV Rheinland do Brasil Ltda.	-	TÜV_14.1911_X
KTL Korea Testing Laboratory	KOSHA Article 34, IEC60079-0	21-KA4BO-0605X
TUEV Nord TUEV Nord Cert GmbH	IEC 60079	IECEX TUN 12.0039X (Ex eclIaGa) IIC T4 Gc, [Ex ia- Da] IIIC, [Ex iaMa] I)
UL Underwriters Laboratories Inc. (HAZARDOUS LOCA- TIONS)	UL 121201	E198726 Sec.1

## Downloads

### Environmental Product Compliance

Compliance Search	
Environmental Product Compliance 750-489	<a href="#">↓</a>

## Documentation

Manual			
Product Manual 4AI RTD/TC/Strain Gauge Ex i	V 1.2.0 13.09.2021	pdf 6462.26 KB	<a href="#">↓</a>
System Manual WAGO I/O System 750/753	V 3.3.3 29.08.2023	pdf 8512.61 KB	<a href="#">↓</a>

System Description		
750/753 Series I/O- System – General Pro- duct Information	pdf 953.35 KB	<a href="#">↓</a>
Overview on WAGO-I/ O-SYSTEM 750 appro- vals	pdf 770.48 KB	<a href="#">↓</a>
Ex i Overview	pdf 442.07 KB	<a href="#">↓</a>

Bid Text		
750-489	xml 8.95 KB	<a href="#">↓</a>
750-489	docx 17.19 KB	<a href="#">↓</a>

Instruction Leaflet		
CCC Ex (Additional in- formation)	26.04.2023	pdf 143.96 KB <a href="#">↓</a>

## CAD/CAE-Data

CAD data	
2D/3D Models 750-489	<a href="#">↓</a>

CAE data	
EPLAN Data Portal 750-489	<a href="#">↓</a>
ZUKEN Portal 750-489	<a href="#">↓</a>

## Runtime Software

### Firmware

0750-0489, 4-Kanal-Analogeingang; Widerstandssensoren/Thermoelemente/Widerstandsbrücken	V 04 07.06.2022	zip 186.58 KB	
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## 1 Compatible Products

### 1.1 Optional Accessories

#### 1.1.1 DIN-rail

##### 1.1.1.1 Mounting accessories



**Item No.: 210-196**

Aluminum carrier rail; 35 x 8.2 mm; 1.6 mm thick; 2 m long; unslotted; similar to EN 60715; silver-colored



**Item No.: 210-198**

Copper carrier rail; 35 x 15 mm; 2.3 mm thick; 2 m long; unslotted; according to EN 60715; copper-colored



**Item No.: 210-508**

Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; slotted; galvanized; similar to EN 60715; silver-colored



**Item No.: 210-197**

Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; slotted; similar to EN 60715; silver-colored



**Item No.: 210-506**

Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; unslotted; galvanized; similar to EN 60715; silver-colored



**Item No.: 210-114**

Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; unslotted; similar to EN 60715; silver-colored



**Item No.: 210-118**

Steel carrier rail; 35 x 15 mm; 2.3 mm thick; 2 m long; unslotted; according to EN 60715; silver-colored



**Item No.: 210-115**

Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; slotted; according to EN 60715; "Hole width 18 mm; silver-colored



**Item No.: 210-112**

Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; slotted; according to EN 60715; "Hole width 25 mm; silver-colored



**Item No.: 210-504**

Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; slotted; galvanized; according to EN 60715; silver-colored



**Item No.: 210-113**

Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; unslotted; according to EN 60715; silver-colored



**Item No.: 210-505**

Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; unslotted; galvanized; according to EN 60715; silver-colored

### 1.1.2 Marking

#### 1.1.2.1 Group marker carrier



**Item No.: 750-107**

Group marker carrier

#### 1.1.2.2 Marker



**Item No.: 2009-145/000-006**

Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; blue



**Item No.: 2009-145/000-007**

Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; gray



**Item No.: 2009-145/000-023**

Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; green



**Item No.: 2009-145/000-012**

Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; orange



**Item No.: 2009-145/000-005**

Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; red



**Item No.: 2009-145/000-024**

Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; violet



**Item No.: 2009-145**

Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; white



**Item No.: 2009-145/000-002**

Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; yellow



**Item No.: 248-501/000-006**

Mini-WSB marking card; as card; not stretchable; plain; snap-on type; blue



**Item No.: 248-501/000-007**

Mini-WSB marking card; as card; not stretchable; plain; snap-on type; gray



**Item No.: 248-501/000-023**

Mini-WSB marking card; as card; not stretchable; plain; snap-on type; green



**Item No.: 248-501/000-017**

Mini-WSB marking card; as card; not stretchable; plain; snap-on type; light green

### 1.1.2.2 Marker



**Item No.: 248-501/000-012**

Mini-WSB marking card; as card; not stretchable; plain; snap-on type; orange



**Item No.: 248-501/000-005**

Mini-WSB marking card; as card; not stretchable; plain; snap-on type; red



**Item No.: 248-501/000-024**

Mini-WSB marking card; as card; not stretchable; plain; snap-on type; violet



**Item No.: 248-501**

Mini-WSB marking card; as card; not stretchable; plain; snap-on type; white



**Item No.: 248-501/000-002**

Mini-WSB marking card; as card; not stretchable; plain; snap-on type; yellow

### 1.1.2.3 Marker carrier



**Item No.: 750-103**

Group marker carrier

## 1.1.3 Shield termination

### 1.1.3.1 Shield clamping saddles



**Item No.: 790-108**

Shield clamping saddle; 11 mm wide; diameter of compatible conductor; 3 ... 8 mm



**Item No.: 790-208**

Shield clamping saddle; 12.4 mm wide; 3 ... 8 mm



**Item No.: 790-116**

Shield clamping saddle; 19 mm wide; diameter of compatible conductor; 7 ... 16 mm



**Item No.: 790-216**

Shield clamping saddle; 21.8 mm wide; 6 ... 16 mm



**Item No.: 790-124**

Shield clamping saddle; 27 mm wide; diameter of compatible conductor; 6 ... 24 mm



**Item No.: 790-220**

Shield clamping saddle; 30 mm wide; 6 ... 20 mm



**Item No.: 790-140**

Shield clamping saddle; diameter of compatible conductor

## 1.1.4 Supply module

### 1.1.4.1 Supply module



**Item No.: 750-606**

Power Supply; 24 VDC; Diagnostics; Intrinsically safe



**Item No.: 750-625/000-001**

Power Supply; 24 VDC; Intrinsically safe