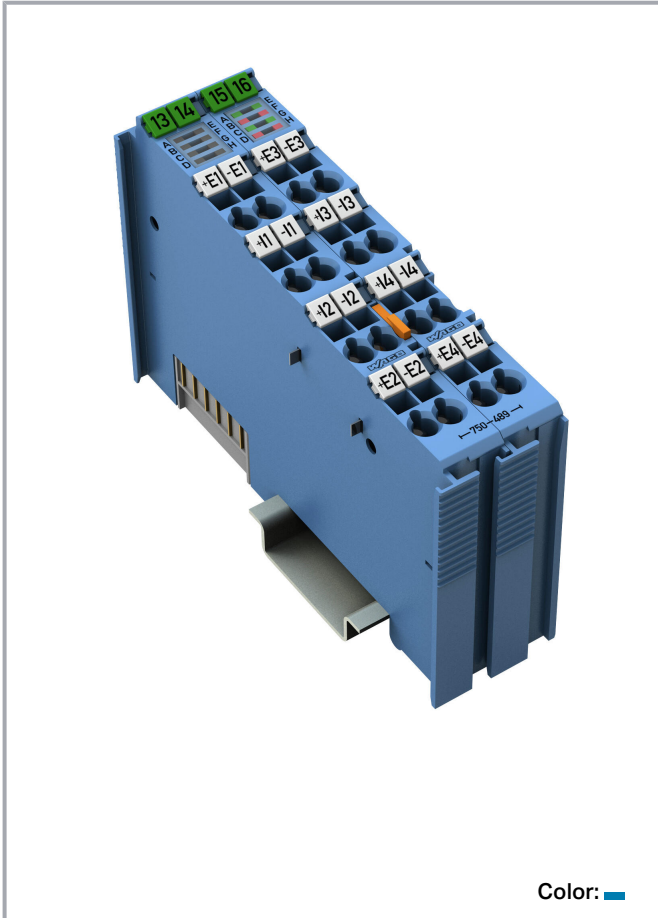


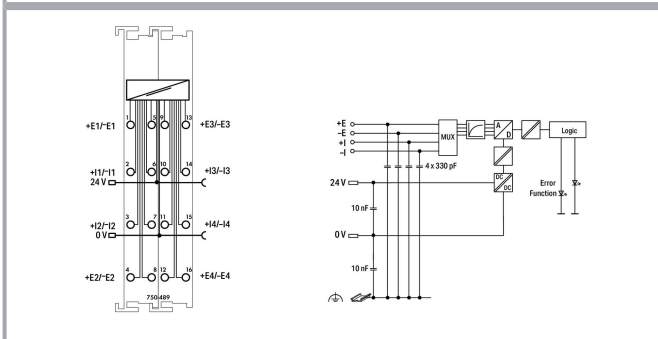
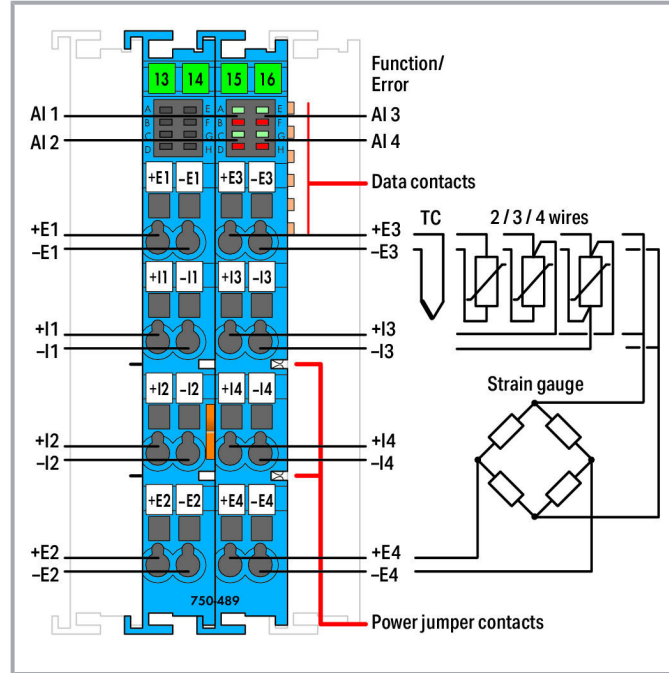
**Data sheet | Item number: 750-489**

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

[www.wago.com/750-489](http://www.wago.com/750-489)



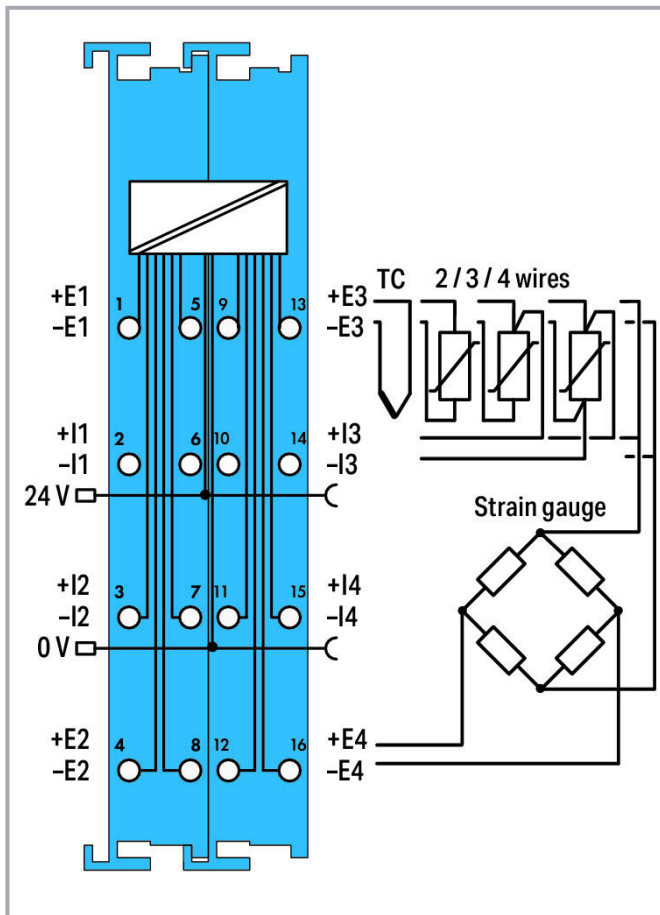
Color: ■



Subject to changes. Please also observe the further product documentation!

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Germantown, WI 53022  
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### Item description

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* 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 ii!

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

## Data

### Technical data

Number of analog inputs	4
Number of Channels	4
Signal type	Resistance thermometer Resistors Potentiometer positions Thermocouple mV transmitter
Signal type (configurable)	yes
Sensor connection	4 x (2-wire); RTD/R: 3-wire; 4-wire
Data width	4 x 16-bit data; 4 x 8-bit control/status (optional)
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 $0 \leq TA \leq 55 \text{ °C}$ ); 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
Intrinsic safety Ex i	yes
Measurement range	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; Thermistor: PTC; Resistor bridges (strain gauges): $U_{ref}$ : 2.4 V; $U_d$ : ±15 mV, ±30 mV, ±60 mV
Cold junction compensation	integrated
Supply voltage (system)	5 VDC; via data contacts
Power consumption (5 V system supply)	60 mA
Supply voltage (field)	24 VDC; (Ex i power supply: $U_O = \text{max. } 27.3 \text{ V}$ ); via power jumper contacts (power supply via blade contact; transmission via spring contact)
Power consumption, field supply (module with no external load)	120 mA 1,6 W

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Power loss  $P_i$ 

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
Ex guideline	EN IEC 60079-0, -7, -11
Safety-relevant data (circuit)	$U_o = 4 \text{ V}$ ; $I_o = 13,46 \text{ mA}$ ; $P_o = 13,46 \text{ mW}$ ; Kennlinie: Linear
Reactances Ex ia IIC	$L_o = 0.19 \text{ H}$ ; $C_o = 100 \text{ }\mu\text{F}$
Reactances Ex ia IIB	$L_o = 0.78 \text{ H}$ ; $C_o = 1000 \text{ }\mu\text{F}$
Reactances Ex ia IIA	$L_o = 1.57 \text{ H}$ ; $C_o = 1000 \text{ }\mu\text{F}$
Reactances Ex ia I	$L_o = 2.57 \text{ H}$ ; $C_o = 1000 \text{ }\mu\text{F}$
Reactances (note)	Reactance, if the internal inductance $L_i$ or capacitance $C_i$ (without cable) of the connected device $\leq 1 \%$ of the specified values
Marking	ATEX/IECEx: II 3 (1) G Ex ec [ia Ga] IIC T4 Gc; II (1) D [Ex ia Da] IIIC; I (M1) [Ex ia Ma] I

## 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 inch

## Physical data

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

## Mechanical data

Mounting type	DIN-35 rail
---------------	-------------

## Material data

Color	blue
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Housing material	Polycarbonate; polyamide 6.6
Weight	99.3 g
Conformity marking	CE

### Environmental requirements

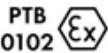


Surrounding air temperature (operation)	0 ... 55 °C
Surrounding air temperature (storage)	-25 ... 85 °C
Protection type	IP20
Pollution degree (5)	2 per IEC 61131-2
Operating altitude	0 ... 2000 m
Mounting position	horizontal (standing/lying); vertical
Relative humidity (without condensation)	95 %
Vibration 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

Packaging type	BOX
Country of origin	DE
GTIN	4055143948029
Customs tariff number	8538901000

### Approvals / Certificates

#### Ex-Approvals

Logo	Approval	Additional Approval Text	Certificate name
	<b>ATEX</b> TUEV Nord Cert GmbH	EN 60079-0	TUEV_12_ATEX_106032X
 <small>Ex nA [Ic Ga] II C T4 Gc [Ex ia Da] II C [Ex ia Ma] I</small>	<b>CCCEX</b> CQST/CNEX	CNCA-C23-01	2020312310000211
	<b>TUEV Nord</b> TUEV Nord Cert GmbH	IEC 60079	IECEX TUN 12.0039X

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**UL**  
Underwriters Laboratories Inc. (HAZARDOUS  
LOCATIONS)


UL 121201

E198726 Sec.1


**Country specific Approvals**

Logo	Approval	Additional Approval Text	Certificate name
	<b>KC</b> National Radio Research Agency	Article 58-2, Clause 3	MSIP- REM-W43- AIM750

**Ship Approvals**






Logo	Approval	Additional Approval Text	Certificate name
	<b>DNV GL</b> Det Norske Veritas, Germanischer Lloyd	-	TAA0000194

**UL-Approvals**

Logo	Approval	Additional Approval Text	Certificate name
	<b>UL</b> Underwriters Laboratories Inc. (ORDINARY LOCATIONS)	UL 61010-2-201	E175199 Sec10

**Optional accessories**








**Carrier rail**

	<b>Item no.: 210-112</b> Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; slotted; according to EN 60715; "Hole width 25 mm; <a href="http://www.wago.com/210-112">www.wago.com/210-112</a> silver-colored	
	<b>Item no.: 210-113</b> Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; unslotted; according to EN 60715; silver-colored	<a href="http://www.wago.com/210-113">www.wago.com/210-113</a>
	<b>Item no.: 210-114</b> Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; unslotted; similar to EN 60715; silver-colored	<a href="http://www.wago.com/210-114">www.wago.com/210-114</a>
	<b>Item no.: 210-115</b> Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; slotted; according to EN 60715; "Hole width 18 mm; <a href="http://www.wago.com/210-115">www.wago.com/210-115</a> silver-colored	
	<b>Item no.: 210-118</b> Steel carrier rail; 35 x 15 mm; 2.3 mm thick; 2 m long; unslotted; according to EN 60715; silver-colored	<a href="http://www.wago.com/210-118">www.wago.com/210-118</a>



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	<b>Item no.: 210-196</b> Aluminum carrier rail; 35 x 8.2 mm; 1.6 mm thick; 2 m long; unslotted; similar to EN 60715; silver-colored	<a href="http://www.wago.com/210-196">www.wago.com/210-196</a>
	<b>Item no.: 210-197</b> Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; slotted; similar to EN 60715; silver-colored	<a href="http://www.wago.com/210-197">www.wago.com/210-197</a>
	<b>Item no.: 210-198</b> Copper carrier rail; 35 x 15 mm; 2.3 mm thick; 2 m long; unslotted; according to EN 60715; copper-colored	<a href="http://www.wago.com/210-198">www.wago.com/210-198</a>
	<b>Item no.: 210-504</b> Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; slotted; galvanized; according to EN 60715; silver-colored	<a href="http://www.wago.com/210-504">www.wago.com/210-504</a>
	<b>Item no.: 210-505</b> Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; unslotted; galvanized; according to EN 60715; silver-colored	<a href="http://www.wago.com/210-505">www.wago.com/210-505</a>
	<b>Item no.: 210-506</b> Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; unslotted; galvanized; similar to EN 60715; silver-colored	<a href="http://www.wago.com/210-506">www.wago.com/210-506</a>
	<b>Item no.: 210-508</b> Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; slotted; galvanized; similar to EN 60715; silver-colored	<a href="http://www.wago.com/210-508">www.wago.com/210-508</a>

#### Supply module

	<b>Item no.: 750-606</b> Power Supply; 24 VDC; Diagnostics; Intrinsically safe	<a href="http://www.wago.com/750-606">www.wago.com/750-606</a>
	<b>Item no.: 750-625/000-001</b> Power Supply; 24 VDC; Intrinsically safe	<a href="http://www.wago.com/750-625/000-001">www.wago.com/750-625/000-001</a>

#### Marking accessories











	<b>Item no.: 2009-145</b> Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; white	<a href="http://www.wago.com/2009-145">www.wago.com/2009-145</a>
	<b>Item no.: 2009-145/000-002</b> Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; yellow	<a href="http://www.wago.com/2009-145/000-002">www.wago.com/2009-145/000-002</a>
	<b>Item no.: 2009-145/000-005</b> Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; red	<a href="http://www.wago.com/2009-145/000-005">www.wago.com/2009-145/000-005</a>
	<b>Item no.: 2009-145/000-006</b> Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; blue	<a href="http://www.wago.com/2009-145/000-006">www.wago.com/2009-145/000-006</a>
	<b>Item no.: 2009-145/000-007</b> Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; gray	<a href="http://www.wago.com/2009-145/000-007">www.wago.com/2009-145/000-007</a>
	<b>Item no.: 2009-145/000-012</b> Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type;	

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orange







[www.wago.com/2009-145/000-012](http://www.wago.com/2009-145/000-012)

/	<p><b>Item no.: 2009-145/000-023</b> Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; green</p>	<p><a href="http://www.wago.com/2009-145/000-023">www.wago.com/2009-145/000-023</a></p>
/	<p><b>Item no.: 2009-145/000-024</b> Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; violet</p>	<p><a href="http://www.wago.com/2009-145/000-024">www.wago.com/2009-145/000-024</a></p>
/	<p><b>Item no.: 248-501</b> Mini-WSB marking card; as card; not stretchable; plain; snap-on type; white</p>	<p><a href="http://www.wago.com/248-501">www.wago.com/248-501</a></p>
	<p><b>Item no.: 248-501/000-002</b> Mini-WSB marking card; as card; not stretchable; plain; snap-on type; yellow</p>	<p><a href="http://www.wago.com/248-501/000-002">www.wago.com/248-501/000-002</a></p>
	<p><b>Item no.: 248-501/000-005</b> Mini-WSB marking card; as card; not stretchable; plain; snap-on type; red</p>	<p><a href="http://www.wago.com/248-501/000-005">www.wago.com/248-501/000-005</a></p>
	<p><b>Item no.: 248-501/000-006</b> Mini-WSB marking card; as card; not stretchable; plain; snap-on type; blue</p>	<p><a href="http://www.wago.com/248-501/000-006">www.wago.com/248-501/000-006</a></p>
	<p><b>Item no.: 248-501/000-007</b> Mini-WSB marking card; as card; not stretchable; plain; snap-on type; gray</p>	<p><a href="http://www.wago.com/248-501/000-007">www.wago.com/248-501/000-007</a></p>
	<p><b>Item no.: 248-501/000-012</b> Mini-WSB marking card; as card; not stretchable; plain; snap-on type; orange</p>	<p><a href="http://www.wago.com/248-501/000-012">www.wago.com/248-501/000-012</a></p>
	<p><b>Item no.: 248-501/000-017</b> Mini-WSB marking card; as card; not stretchable; plain; snap-on type; light green</p>	<p><a href="http://www.wago.com/248-501/000-017">www.wago.com/248-501/000-017</a></p>
	<p><b>Item no.: 248-501/000-023</b> Mini-WSB marking card; as card; not stretchable; plain; snap-on type; green</p>	<p><a href="http://www.wago.com/248-501/000-023">www.wago.com/248-501/000-023</a></p>
	<p><b>Item no.: 248-501/000-024</b> Mini-WSB marking card; as card; not stretchable; plain; snap-on type; violet</p>	<p><a href="http://www.wago.com/248-501/000-024">www.wago.com/248-501/000-024</a></p>
	<p><b>Item no.: 750-103</b> Group marker carrier</p>	<p><a href="http://www.wago.com/750-103">www.wago.com/750-103</a></p>
	<p><b>Item no.: 750-107</b> Group marker carrier</p>	<p><a href="http://www.wago.com/750-107">www.wago.com/750-107</a></p>

**Shield termination**

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	<b>Item no.: 790-108</b> Shield clamping saddle; 11 mm wide; 0-8 mm diameter conductors	<a href="http://www.wago.com/790-108">www.wago.com/790-108</a>
	<b>Item no.: 790-116</b> Shield clamping saddle; 19 mm wide; 7-16 mm diameter conductors	<a href="http://www.wago.com/790-116">www.wago.com/790-116</a>
	<b>Item no.: 790-124</b> Shield clamping saddle; 27 mm wide; 6-24 mm diameter conductors	<a href="http://www.wago.com/790-124">www.wago.com/790-124</a>
	<b>Item no.: 790-140</b> Shield clamping saddle; 43 mm wide; 22-40 mm diameter conductors	<a href="http://www.wago.com/790-140">www.wago.com/790-140</a>
	<b>Item no.: 790-208</b> Shield clamping saddle; 12.4 mm wide; 3-8 mm diameter conductors	<a href="http://www.wago.com/790-208">www.wago.com/790-208</a>
	<b>Item no.: 790-216</b> Shield clamping saddle; 21.8 mm wide; 6-16 mm diameter conductors	<a href="http://www.wago.com/790-216">www.wago.com/790-216</a>
	<b>Item no.: 790-220</b> Shield clamping saddle; 30 mm wide; 6-20 mm diameter	<a href="http://www.wago.com/790-220">www.wago.com/790-220</a>

## Downloads

### Documentation

#### Data sheet

750-489, 4AI RTD/TC/Strain Gauge Ex i	May 10, 2021	pdf 210.9 kB	Download
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#### Manual

4AI RTD/TC/Strain Gauge Ex i 4-Channel Analog Input; RTD/TC/Strain Gauge; Intrinsically safe	V 1.1.0 Jun 9, 2020	pdf 6.6 MB	Download
System Manual WAGO I/O System 750 / 753 Decentralized Automation Technology	V 3.0.2 Apr 27, 2021	pdf 6.6 MB	Download

#### Bid Text

750-489 doc - Datei		docx 17.6 kB	Download
750-489 X81 - Datei		xml 9.2 kB	Download

#### System Description

Overview on WAGO-I/O-SYSTEM 750 approvals		pdf	Download
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780.2 kB

Ex i Overview

pdf  
616.0 kB

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750/753 Series I/O-System – General Product Information

pdf  
1.7 MB

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#### Additional Information

Disposal; Electrical and electronic equipment, Packaging

V 1.0.0

pdf  
265.8 kB

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#### CAD files

##### CAD data

2D/3D Models 750-489

URL

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##### CAE data

ZUKEN Portal 750-489

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EPLAN Data Portal 750-489

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#### Installation Notes

#### Product family

**Couplers & I/O modules:**

[Show all products from the family](#)

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