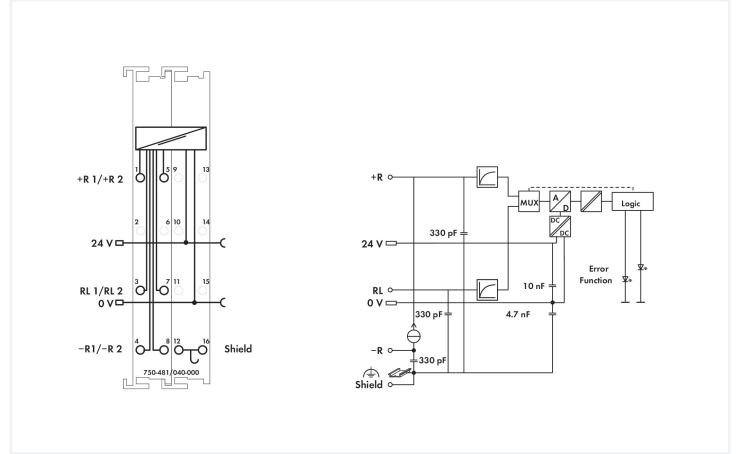


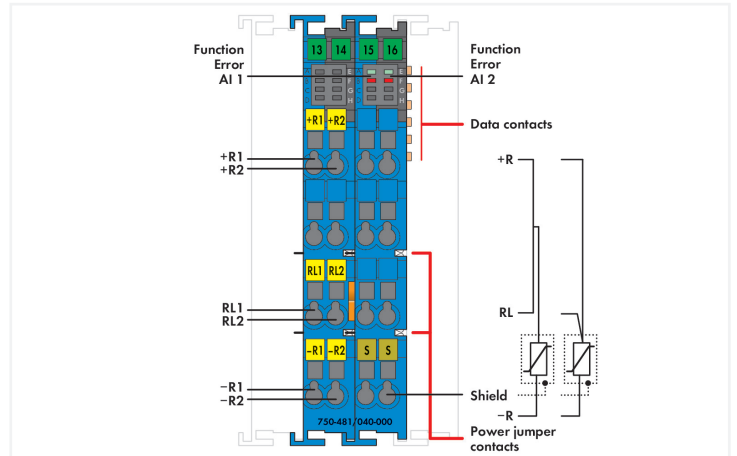
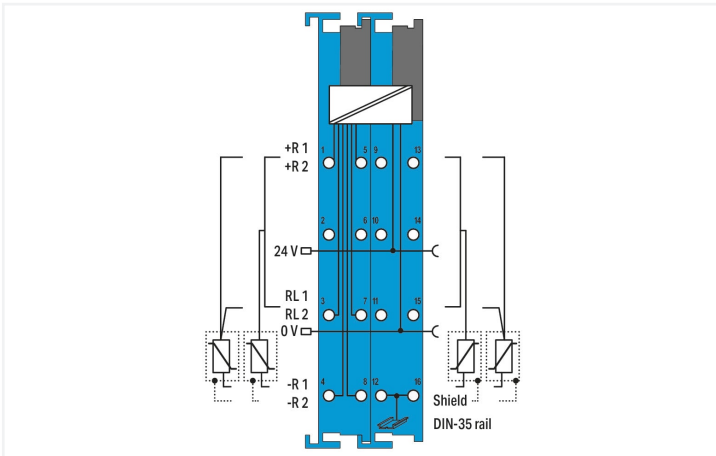
# Data Sheet | Item Number: 750-481/040-000

2-channel analog input; Resistance measurement; Intrinsically safe; Extreme

<https://www.wago.com/750-481/040-000>



Color: ■ blue



This analog input module directly connects to Pt and Ni resistance sensors or potentiometers located in hazardous areas of Zones 0 and 1. The WAGO I/O System 750 XTR 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.

Indicators:

- Green LED (availability ON/OFF)
- Red LED (short circuit, wire breakage, measurement range overflow/underflow)

- Field and system levels are electrically isolated.
- **The device is ideal for operation in extreme environments thanks to:**
- An extended temperature range
- Greater immunity to impulse voltages and electromagnetic interference
- Higher vibration and shock resistance

## Notes

Note

The analog input module must only be operated via 24 VDC Ex i XTR power supply (750-606/040-000)!  
General information (e.g., installation regulations) on explosion protection is available in the WAGO I/O System 750 XTR manuals!

### Technical data

Number of analog inputs	2
Total number of channels (module)	2
Signal type	Resistance measurement Potentiometer positions
Signal type (configurable)	Yes
Sensor connection	2 x (2-wire, 3-wire)
Sensor types	Pt100; Configurable: Pt200, Pt500, Pt1000, Ni100, Ni120, Ni1000; Resistors: 1.2 k $\Omega$ , 5 k $\Omega$ ; Potentiometer setting 0 ... 100 %: 1k2, 5k0
Temperature range	-200 ... +850 °C (Pt), -60 ... +250 °C (Ni), -80 ... +320 °C (Ni120)
Resolution (over entire range)	0.1 °C, 0.1 $\Omega$ , 0.0049 %
Conversion time (typ.)	325 ms
Conversion time	150 ... 500 ms (per channel)
Measurement error (reference temperature)	25 °C
Measurement error, deviation (max.) from the upper-range value	0.2 %
Temperature error (max.) of the upper-range value	0.01 %/K
Measuring current (typ.)	< 0.5 mA
Intrinsic safety Ex i	Yes
Data width	2 x 16-bit data; 2 x 8-bit control/status (optional)
Supply voltage (system)	5 VDC; via data contacts
Current consumption (5 V system supply)	25 mA
Supply voltage (field)	24 VDC; (Ex i XTR power supply: U <sub>o</sub> = max. 26.8 V); via power jumper contacts (power supply via blade contact; transmission via spring contact)
Current consumption, field supply (module with no external load)	12 mA
Power consumption P <sub>max.</sub>	0.45 W
Power loss P <sub>I</sub>	0.45 W
Isolation	300 VAC system/supply
Rated surge voltage	1 kV; Rated surge voltage between intrinsically safe and non-intrinsically safe circuits: 1.5 kV (EN 60079-11)
Number of incoming power jumper contacts	2
Number of outgoing power jumper contacts	2
Current carrying capacity (power jumper contacts)	1 A
Indicators	LED (A, E) green: Function AI 1, AI 2; LED (B, F) red: Error AI 1, AI 2
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

### Explosion protection

Ex standard	EN/IEC 60079-0, -7, -11
Safety-relevant data (circuit)	U <sub>o</sub> = 7.2 V; I <sub>o</sub> = 5.8 mA; P <sub>o</sub> = 10.5 mW; linear characteristic curve
Reactances Ex ia IIC	L <sub>o</sub> = 100 mH; C <sub>o</sub> = 13.5 $\mu$ F
Reactances Ex ia IIB	L <sub>o</sub> = 100 mH; C <sub>o</sub> = 240 $\mu$ F
Reactances Ex ia IIA	L <sub>o</sub> = 100 mH; C <sub>o</sub> = 1000 $\mu$ F
Reactances Ex ia I	L <sub>o</sub> = 100 mH; C <sub>o</sub> = 1000 $\mu$ F
Reactances (note)	Reactances without accounting for the concurrence of capacitance (C <sub>o</sub> ) and inductance (L <sub>o</sub> )

### Connection data

Connection technology: inputs/outputs	16 x CAGE CLAMP®
Connection type 1	Inputs/outputs
Solid conductor	0.25 ... 2.5 mm <sup>2</sup> / 24 ... 14 AWG
Fine-stranded conductor	0.25 ... 2.5 mm <sup>2</sup> / 24 ... 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

Color	blue
Housing material	Polycarbonate; polyamide 6.6
Fire load	2.031 MJ
Weight	90.6 g
Conformity marking	CE

### Environmental requirements

Ambient temperature (operation)	-40 ... +70 °C
Ambient temperature (storage)	-40 ... +85 °C
Protection type	IP20
Pollution degree	2 per IEC 61131-2
Operating altitude	without temperature derating: 0 ... 2000 m; with temperature derating: 2000 ... 5000 m (0.5 K/100 m); 5000 m (max.)
Mounting position	horizontal (standing/lying); vertical
Relative humidity (without condensation)	95 %
Relative humidity (with condensation)	Short-term condensation per Class 3K7/IEC EN 60721-3-3 and E-DIN 40046-721-3 (except for wind-driven precipitation, water and ice formation)
Vibration resistance	per IEC 60068-2-6 (acceleration: 5g), EN 60870-2-2, IEC 60721-3-1, -3
Shock resistance	per IEC 60068-2-27 (15g/11 ms/half-sine/1,000 shocks; 25g/6 ms/1,000 shocks), EN 61373
EMC immunity to interference	per EN 61000-6-1, -2, EN 61131-2, marine applications, EN 60255-26, EN 60870-2-1, EN 61850-3, IEC 61000-6-5, IEEE 1613, VDEW: 1994
EMC emission of interference	per EN 61000-6-3, -4, EN 61131-2, EN 60255-26, marine applications, EN 60870-2-1, EN 61850-3
Exposure to pollutants	per IEC 60068-2-42 and IEC 60068-2-43
Permissible H <sub>2</sub> S contaminant concentration at a relative humidity 75 %	10 ppm
Permissible SO <sub>2</sub> contaminant concentration at a relative humidity 75 %	25 ppm

### Commercial data


eCl@ss 10.0	27-24-26-01
eCl@ss 9.0	27-24-26-01
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.	11120-22-2 1303-86-2 1317-36-8 7439-92-1
REACH Candidate List Substance	Diboron trioxide Lead Lead monoxide Lead silicate Perfluorobutane sulfonic acid (PFBS) and its salts
RoHS Compliance Status	Compliant,With Exemption
RoHS Exemption	6(c) 7(a) 7(c)-I 7(c)-II
SCIP notification number (Austria)	69e81412-7b1f-4ad9-bf99-324ec73f5c21
SCIP notification number (Belgium)	d1201416-d700-4aab-9998-1d986401d885
SCIP notification number (Bulgaria)	1e1c4243-a2b4-4645-ad01-d3e350520b71
SCIP notification number (Czech Republic)	c87ac4cc-246c-4236-ab0a-be343e58f7d5
SCIP notification number (Denmark)	8beb13e2-fc9b-4c82-9d05-f687a5526bf8
SCIP notification number (Finland)	915940d0-4d33-4399-9cc2-7c89de393f76
SCIP notification number (France)	43470cc2-d60a-423c-9a26-19cbd26382d1
SCIP notification number (Germany)	385f94b6-2d8e-4451-8b7e-603188ae74c2
SCIP notification number (Hungary)	863c8d28-45cf-4c07-9682-16522b95ab23
SCIP notification number (Italy)	89aec051-113c-4b78-81bf-1ca21d0323c8
SCIP notification number (Netherlands)	299766a5-9ef5-45f1-a4dd-a2da43ed7821
SCIP notification number (Poland)	a56b6acb-8420-4b79-bf8d-49d704479e66
SCIP notification number (Romania)	45c935fb-bf60-4fc8-a393-c96d76f8ee6c
SCIP notification number (Sweden)	78d77221-f829-4b50-aff8-928ccfe8ee2b

**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
UL Underwriters Laboratories Inc. (ORDINARY LOCATIONS)	-	E175199


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

**Approvals for marine applications**



Approval	Standard	Certificate Name
ABS American Bureau of Shipping	-	22-2208829-PDA
DNV DNV GL SE	-	TAA00000Y7
LR Lloyds Register	-	LR22276776TA
PRS Polski Rejestr Statków	-	TE/2215/880590/18

**Approvals for hazardous areas**



Approval	Standard	Certificate Name
ATEX TUEV Nord Cert GmbH	EN 60079-0	TUEV_17_ATEX_196484X (Ex ec[iaGa] IIC T4 Gc, [Ex iaDa] IIIC, [Ex iaMa] I)
CCC CNEC	CNCA-C23-01	2020312310000212 (Ex ec[iaGa] IIC T4 Gc, [Ex iaDa] IIIC, [Ex iaMa] I)
EAC Brjansker Zertifizierungsstelle	TP TC 012/2011	EAC RU C-DE.AM02. B.00163/19 ([ExiaMa] X,2Ex e[iaGa] IIC T4Gc X,[ExiaDa] IIIC X)

**Approvals for hazardous areas**

IECEX TUEV Nord Cert GmbH	IEC 60079-0	IECEX TUN 17.0005X (Ex ec[iaGa] IIC T4 Gc, [Ex ia-Da] IIIC, [Ex iaMa] I)
UL Underwriters Laboratories Inc. (HAZARDOUS LOCATIONS)	UL 121201	E198726 Sec.1

**Downloads**

**Environmental Product Compliance**

Compliance Search	
Environmental Product Compliance 750-481/040-000	<a href="#">↓</a>

**Documentation**

Manual			
Product Manual 2-channel, resistance measurement, Ex i /XTR	V 1.1.0 08.06.2020	pdf 3707.38 KB	<a href="#">↓</a>

System Description		
Intrinsically Safe XTR Modules – General Product Information	pdf 214.93 KB	<a href="#">↓</a>
Overview on WAGO-I/O-SYSTEM 750 approvals	pdf 770.48 KB	<a href="#">↓</a>

Bid Text			
750-481/040-000	08.02.2018	doc 36.50 KB	<a href="#">↓</a>
750-481/040-000	19.02.2019	xml 8.80 KB	<a href="#">↓</a>

Instruction Leaflet			
CCC Ex (Additional information)	26.04.2023	pdf 143.50 KB	<a href="#">↓</a>

**CAD/CAE-Data**

CAD data	
2D/3D Models 750-481/040-000	<a href="#">↓</a>

CAE data	
EPLAN Data Portal 750-481/040-000	<a href="#">↓</a>
ZUKEN Portal 750-481/040-000	<a href="#">↓</a>

## 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



**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 Power supply

#### 1.1.3.1 Supply module



**Item No.: 750-606/040-000**

Power Supply; 24 VDC; Diagnostics; Intrinsically safe; Extreme

### 1.1.4 Shield termination

#### 1.1.4.1 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