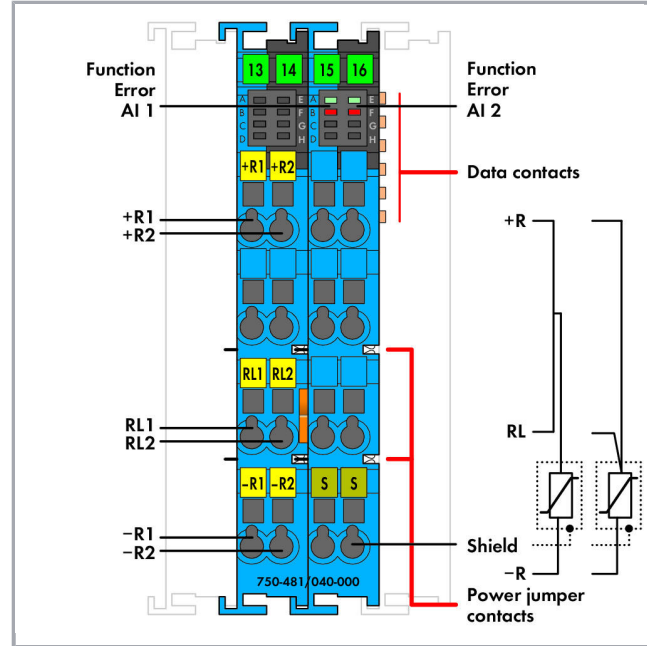
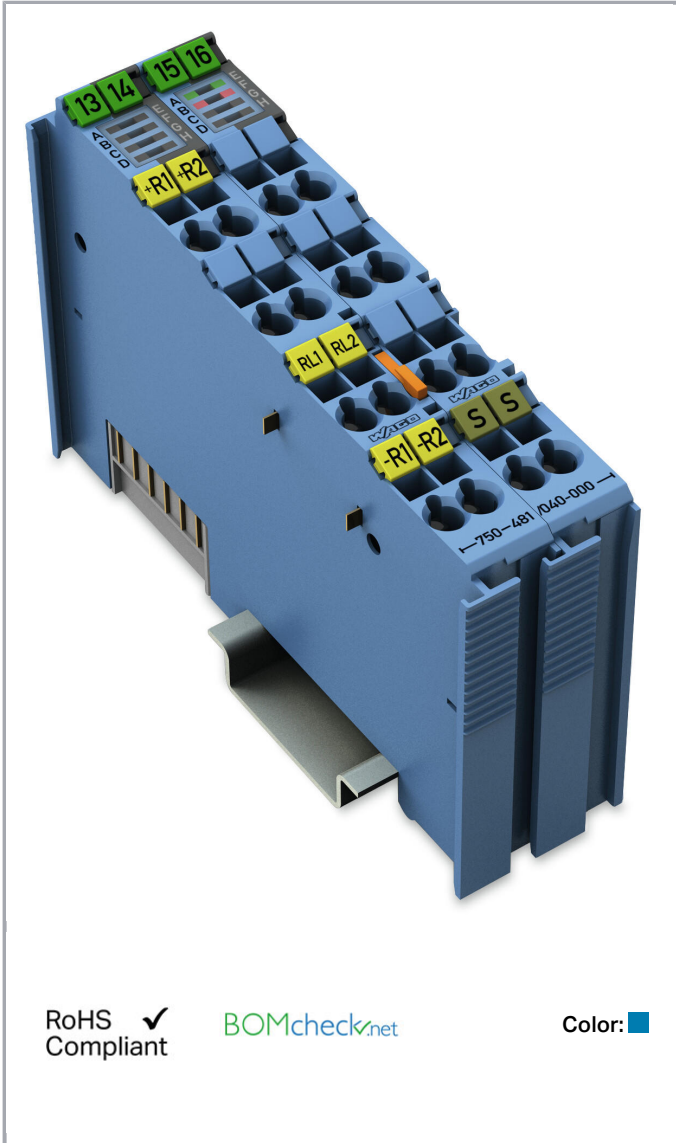


Data sheet | Item number: 750-481/040-000

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



[www.wago.com/750-481/040-000](http://www.wago.com/750-481/040-000)



RoHS  Compliant

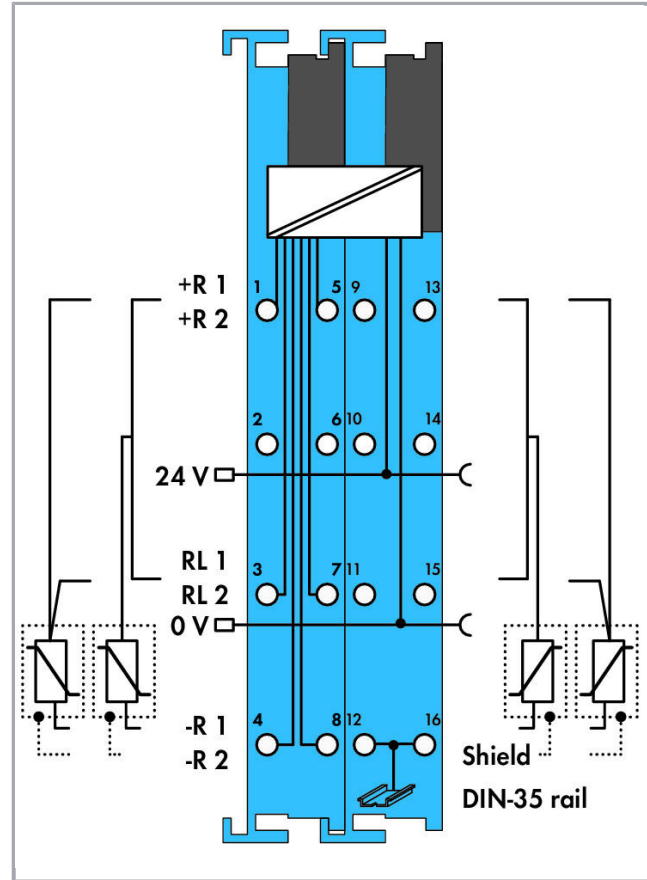
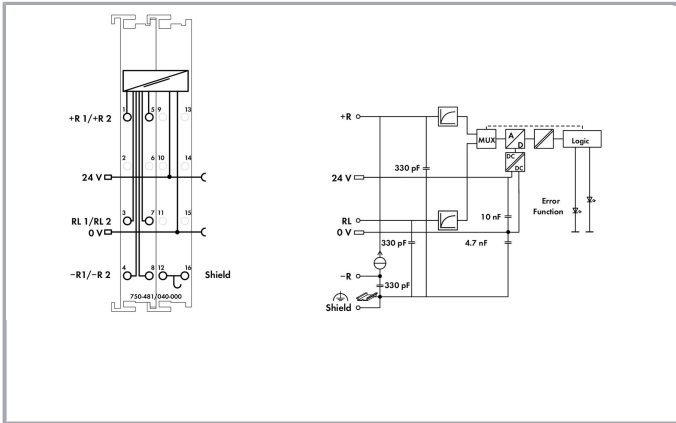


Color: ■

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

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### Item description

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:

- Extended temperature range
- Greater immunity to impulse voltages and electromagnetic interference

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

- Higher vibration and shock resistance

**Note:**

The analog output 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!

**Data****Technical Data**

|  |  |
|--|--|
| Number of analog inputs  | 2  |
| Total number of channels (module)                                | 2  |
| Type of signal   | Resistance measurement<br>Potentiometer positions  |
| Configurable type of signal                                      | yes  |
| Sensor connection  | 2 x (2-wire, 3-wire)   |
| Power consumption $P_{max}$                                      | 0.45 W   |
| Bit width  | 2 x 16-bit data; 2 x 8-bit control/status (optional)   |
| Resolution (over entire range)                                   | 0.1 °C, 0.1 Ω, 0.0049 %  |
| Conversion time (typ. ≤)   | 325 ms   |
| Conversion time  | 150 ... 500 ms (per channel)   |
| Messfehler, Bezugstemperatur                                     | 25 °C  |
| Messfehler, Abweichung max. vom Messbereichsendwert              | 0.2 %  |
| Temperaturfehler max. vom Messbereichsendwert                    | 0.01 %/K   |
| Measuring current (typ.)   | < 0.5 mA   |
| Intrinsic safety Ex i  | yes  |
| Sensor types   | Pt100; configurable: Pt200, Pt500, Pt1000, Ni100, Ni120, Ni1000;<br>Resistors: 1.2 kΩ, 5 kΩ; Potentiometer setting 0 ... 100 %: 1k2, 5k0                     |
| Temperature range  | -200 ... +850 °C (Pt), -60 ... +250 °C (Ni), -80 ... +320 °C (Ni120)   |
| System supply voltage  | DC 5 V; via data contacts  |
| Current consumption, system supply (5 V)                         | 25 mA  |
| Field supply voltage   | DC 24 V; (Ex i XTR power supply: $U_O = \max. 26.8 \text{ V}$ ); 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 loss $P_V$   | 0.45 W   |
| Isolation  | 300 VAC system/field   |
| Dielectric strength  | 510 VAC/775 VDC; per EN 60870-2-1  |

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



|  |  |
|--|--|
| 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 of the power jumper contacts | 1 A  |
| Ex guideline   | EN/IEC 60079-0, -7, -11  |
| Electric circuit, safety-relevant data                 | $U_o = 7.2 \text{ V}$ ; $I_o = 5.8 \text{ mA}$ ; $P_o = 10.5 \text{ mW}$ ; Linear characteristic curve         |
| Reactances Ex ia IIC                                   | $L_o = 100 \text{ mH}$ ; $C_o = 13.5 \mu\text{F}$  |
| Reactances Ex ia IIB                                   | $L_o = 100 \text{ mH}$ ; $C_o = 240 \mu\text{F}$   |
| Ex ia IIA reactances                                   | $L_o = 100 \text{ mH}$ ; $C_o = 1000 \mu\text{F}$  |
| Reactances Ex ia I                                     | $L_o = 100 \text{ mH}$ ; $C_o = 1000 \mu\text{F}$  |
| Reactances   | Reactances without accounting for the concurrence of L and C   |

### Connection data

|                                    |  |
|------------------------------------|--|
| Connection technology: In-/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 inch              |

### Geometrical Data

|                                       |                      |
|---------------------------------------|----------------------|
| Width                                 | 24 mm / 0.945 inch   |
| Height                                | 67,8 mm / 2.669 inch |
| Height from upper-edge of DIN-35 rail | 60,6 mm / 2.386 inch |
| Depth                                 | 100 mm / 3.937 inch  |

### Mechanical data

|                  |             |
|------------------|-------------|
| Type of mounting | DIN-35 rail |
|------------------|-------------|

### Material Data

|                    |                              |
|--------------------|------------------------------|
| Color              | blue                         |
| Housing material   | Polycarbonate, polyamide 6.6 |
| Weight             | 90.6 g                       |
| Conformity marking | CE                           |

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



## Environmental Requirements

|  |  |
|--|--|
| Surrounding air (operating) temperature  | -40 ... 70 °C  |
| Surrounding air (storage) temperature  | -40 ... 85 °C  |
| Protection class   | IP20   |
| Degree of pollution (5)  | 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 air humidity (no condensation)  | 95 %   |
| Relative humidity  | 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

|                    |               |
|--------------------|---------------|
| Packaging type     | BOX           |
| Country of origin  | DE            |
| GTIN               | 4055143649445 |
| Customs Tariff No. | 85389099990   |

## Approvals / Certificates

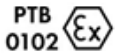
### Ex-Approvals



| Logo | Approval                    | Additional Approval Text | Certificate name     |
|------|-----------------------------|--------------------------|----------------------|
|      | ATEX<br>TUEV Nord Cert GmbH | EN 60079-0               | TUEV_17_ATEX_196484X |

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





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|  |   |             |                    |
|--|---|-------------|--------------------|
|  | IECEX<br>TUEV Nord Cert GmbH                                  | IEC 60079-0 | IECEX TUN 17.0005X |
|  | UL<br>Underwriters Laboratories Inc. (HAZARDOUS<br>LOCATIONS) | UL 121201   | E198726 Sec.1      |

## Ship Approvals

| Logo  | Approval   | Additional Approval Text | Certificate name         |
|---|--|--------------------------|--------------------------|
|     | ABS<br>American Bureau of Shipping               | -                        | 18-<br>HG1778162-<br>PDA |
|    | DNV GL<br>Det Norske Veritas, Germanischer Lloyd | -                        | TAA00000Y7               |
|  | LR<br>Lloyds Register                            | -                        | 17/20073 LR              |
|  | PRS<br>Polski Rejestr Statków                    | -                        | TE/2215<br>/880590/18    |

## UL-Approvals

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

## Counterpart








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

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## Compatible products

### Marking accessories

|  |   |  |
|--|---|--|
|    | <b>Item no.: 2009-145</b><br>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><br>Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; white /000-002 | <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><br>Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; red /000-005   | <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><br>Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; blue /000-006  | <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><br>Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; white /000-007 | <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><br>Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; orange         | <a href="http://www.wago.com/2009-145/000-012">www.wago.com/2009-145/000-012</a> |
|  | <b>Item no.: 2009-145/000-023</b><br>Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; green          | <a href="http://www.wago.com/2009-145/000-023">www.wago.com/2009-145/000-023</a> |
|  | <b>Item no.: 2009-145/000-024</b><br>Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; violet         | <a href="http://www.wago.com/2009-145/000-024">www.wago.com/2009-145/000-024</a> |
|  | <b>Item no.: 248-501</b><br>Miniature WSB Quick marking system; plain; Marker width 5 mm; 10 strips with 10 markers per card                              | <a href="http://www.wago.com/248-501">www.wago.com/248-501</a>                   |
|  | <b>Item no.: 248-501/000-002</b><br>Mini-WSB marking card; as card; not stretchable; plain; snap-on type; yellow  | <a href="http://www.wago.com/248-501/000-002">www.wago.com/248-501/000-002</a>   |
|  | <b>Item no.: 248-501/000-005</b><br>Mini-WSB marking card; as card; not stretchable; plain; snap-on type; red   | <a href="http://www.wago.com/248-501/000-005">www.wago.com/248-501/000-005</a>   |
|  | <b>Item no.: 248-501/000-006</b><br>Mini-WSB marking card; as card; not stretchable; plain; snap-on type; blue  | <a href="http://www.wago.com/248-501/000-006">www.wago.com/248-501/000-006</a>   |

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



**Item no.: 248-501/000-007**  
Mini-WSB marking card; as card; not stretchable; plain; snap-on type; gray

[www.wago.com/248-501/000-007](http://www.wago.com/248-501/000-007)



**Item no.: 248-501/000-012**  
Mini-WSB marking card; as card; not stretchable; plain; snap-on type; orange

[www.wago.com/248-501/000-012](http://www.wago.com/248-501/000-012)



**Item no.: 248-501/000-017**  
Mini-WSB marking card; as card; not stretchable; plain; snap-on type; light green

[www.wago.com/248-501/000-017](http://www.wago.com/248-501/000-017)



**Item no.: 248-501/000-023**  
Mini-WSB marking card; as card; not stretchable; plain; snap-on type; green

[www.wago.com/248-501/000-023](http://www.wago.com/248-501/000-023)



**Item no.: 248-501/000-024**  
Mini-WSB marking card; as card; not stretchable; plain; snap-on type; violet

[www.wago.com/248-501/000-024](http://www.wago.com/248-501/000-024)



**Item no.: 750-103**  
Group marker carrier; transparent

[www.wago.com/750-103](http://www.wago.com/750-103)



**Item no.: 750-107**  
Group marker carrier; transparent

[www.wago.com/750-107](http://www.wago.com/750-107)

#### power supply



**Item no.: 750-606/040-000**  
Power Supply; 24 VDC; Diagnostics; Intrinsically safe; Extreme; dark gray

[www.wago.com/750-606/040-000](http://www.wago.com/750-606/040-000)

#### shield connection

**Item no.: 790-108**  
Shield clamping saddle; 11 mm wide; diameter of compatible conductor; 3 ... 8 mm

[www.wago.com/790-108](http://www.wago.com/790-108)



**Item no.: 790-116**  
Shield clamping saddle; 19 mm wide; diameter of compatible conductor; 7 ... 16 mm

[www.wago.com/790-116](http://www.wago.com/790-116)



**Item no.: 790-124**  
Shield clamping saddle; 27 mm wide; diameter of compatible conductor; 6 ... 24 mm

[www.wago.com/790-124](http://www.wago.com/790-124)

**Item no.: 790-140**  
Shield clamping saddle; diameter of compatible conductor

[www.wago.com/790-140](http://www.wago.com/790-140)

**Item no.: 790-208**  
Shield clamping saddle; 12.4 mm wide; 3 ... 8 mm

[www.wago.com/790-208](http://www.wago.com/790-208)

**Item no.: 790-216**  
Shield clamping saddle; 21.8 mm wide; 6 ... 16 mm

[www.wago.com/790-216](http://www.wago.com/790-216)








**Item no.: 790-220**  
Shield clamping saddle; 30 mm wide; 6 ... 20 mm

[www.wago.com/790-220](http://www.wago.com/790-220)

#### Carrier rail

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



|  |  |  |
|--|--|--|
|  | <b>Item no.: 210-112</b><br>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> |
|  | <b>Item no.: 210-113</b><br>Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; unslotted; according to EN 60715                    | <a href="http://www.wago.com/210-113">www.wago.com/210-113</a> |
|  | <b>Item no.: 210-114</b><br>Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; unslotted; similar to EN 60715                     | <a href="http://www.wago.com/210-114">www.wago.com/210-114</a> |
|    | <b>Item no.: 210-115</b><br>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> |
|  | <b>Item no.: 210-118</b><br>Steel carrier rail; 35 x 15 mm; 2.3 mm thick; 2 m long; unslotted; according to EN 60715                   | <a href="http://www.wago.com/210-118">www.wago.com/210-118</a> |
|    | <b>Item no.: 210-196</b><br>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><br>Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; slotted; similar to EN 60715                       | <a href="http://www.wago.com/210-197">www.wago.com/210-197</a> |
|    | <b>Item no.: 210-198</b><br>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><br>Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; slotted; galvanized; according to EN 60715          | <a href="http://www.wago.com/210-504">www.wago.com/210-504</a> |
|  | <b>Item no.: 210-505</b><br>Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; unslotted; galvanized; according to EN 60715        | <a href="http://www.wago.com/210-505">www.wago.com/210-505</a> |
|  | <b>Item no.: 210-506</b><br>Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; unslotted; galvanized; similar to EN 60715         | <a href="http://www.wago.com/210-506">www.wago.com/210-506</a> |
|  | <b>Item no.: 210-508</b><br>Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; slotted; galvanized; similar to EN 60715           | <a href="http://www.wago.com/210-508">www.wago.com/210-508</a> |

## Downloads

### Documentation

#### Data sheet

|                                   |                 |          |
|-----------------------------------|-----------------|----------|
| 750-481/040-000, 2AI RTD Ex i XTR | pdf<br>220.1 kB | Download |
|-----------------------------------|-----------------|----------|

#### Manual

|   |         |               |          |
|---|---------|---------------|----------|
| 2-channel, resistance measurement, Ex i /XTR<br>PT100 / RTD | V 1.0.0 | pdf<br>1.9 MB | Download |
|---|---------|---------------|----------|

#### Additional Information

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



Disposal; Electrical and electronic equipment, Packaging

V 1.0.0

pdf  
265.8 kB

[Download](#)

---

### System Description

System Manual /XTR

V 1.2.0

pdf  
2.9 MB

[Download](#)

Basic conditions and recommendations for higher operational safety

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Overview on WAGO-I/O-SYSTEM 750 approvals

pdf  
780.2 kB

[Download](#)

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Intrinsically Safe XTR Modules – General Product Information

pdf  
401.8 kB

[Download](#)

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### CAD/CAE-Data

#### CAD data

2D/3D Models 750-481/040-000

URL

[Download](#)

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#### CAE data

EPLAN Data Portal 750-481/040-000

URL

[Download](#)

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### Installation Notes

#### Product family

##### 750 XTR Series – I/O System

I/O-System 750 XTR: Dort automatisieren, wo jedes andere System an seine Grenzen stößt – und das zuverlässig und wirtschaftlich! XTR – dieses Kürzel im Systemnamen steht für extremen Schutz vor klimatischen Einflüssen, Schwingungen, Erschütterungen und Überspannungen.

[Learn more about the product family.](#)

[Show all products from the family](#)

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