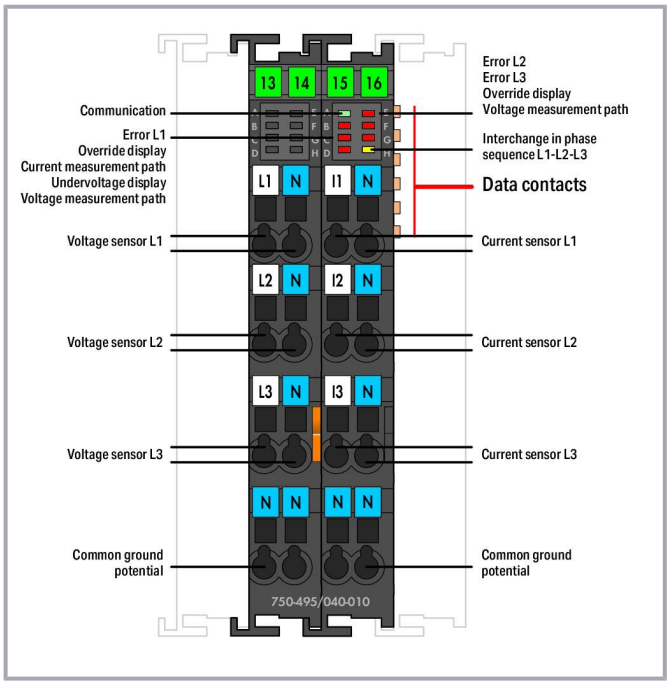
# Data sheet | Item number: 750-495/040-010

3-Phase Power Measurement; 20 kVAC 300 A; Extreme

www.wago.com/750-495/040-010

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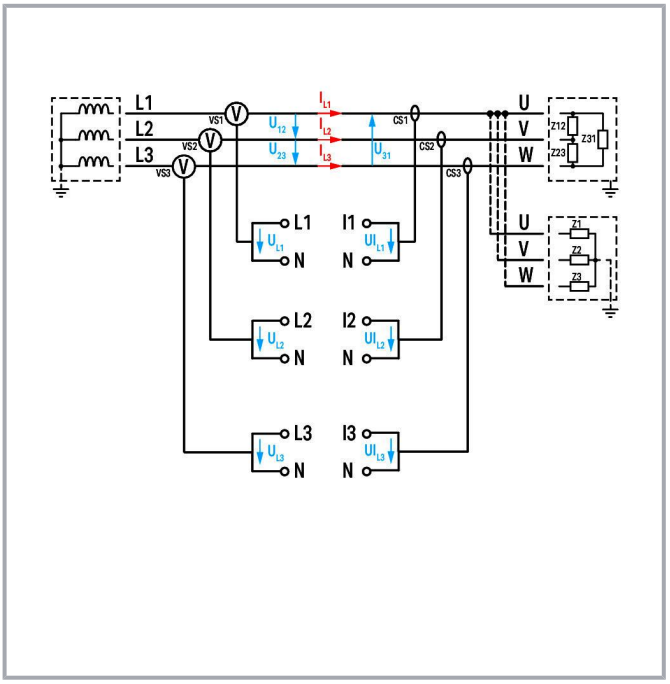


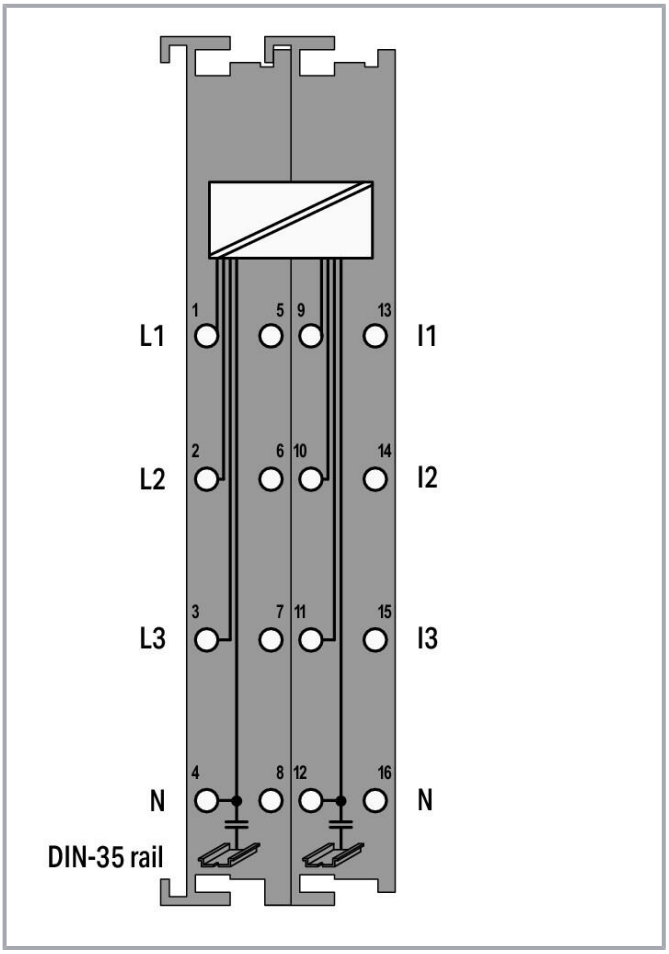


## Item description

The 3-Phase Power Measurement Module (750-495/040-010) (also referred to as I/O module) measures the electrical data of a 3-phase supply network in the medium voltage range up to 20 kVrms using voltage sensors per IEC 60044-7 (new IEC 61869-11) and current sensors per IEC 60044-8 (new IEC 61869-10).
This I/O module measures rated voltages up to ULL = 20 kVrms (ULN = 11.547 kVrms) and rated currents up to 300 ARMS. The module provides a large number of measured quantities, allowing comprehensive analysis of the 3-phase network. These metrics enable the operator to optimize supply to their systems, protecting them from damage and failure.
The voltages of the three phases are connected via voltage sensors to terminals L1, L2, L3 and N, the currents via current sensors to terminals I1, I2, I3 and N. Based on these input signals, the I/O module determines various AC measured variables, such as voltage and current, reactive, apparent and active power, energy consumption, power factor, phase angle and frequency. Harmonic analysis (current/voltage) is also possible for a selectable phase up to the 41st harmonic.
The variables are available in the process image, without requiring high processing power from the controller.

**The device is ideal for operation in extreme environments thanks to:**

- An extended temperature range
- Greater immunity to impulse voltages and electromagnetic interference

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- Higher vibration and shock resistance

## Data

### Technical data

| | |
|---|---|
| Number of measurement inputs | 6 (3 input pairs for voltage and current measurement sensors) |
| Signal type | Power measurement<br>Power measurement |
| Signal form | Any periodic signals (considering the threshold frequencies) |
| Resolution [bit] | 24 bits |
| Data width | 2 x 128-bit data; 2 x 64-bit control/status |
| Voltage path input resistance (typ.) | 200.3 kΩ |
| Current path input resistance (typ.) | 20.8 Ω |
| Reference for measurement error | AC current/voltage |
| Measurement error, deviation (max.) from the upper-range value | 0.3 % |
| Frequency range (mains frequency) | 45 … 65 Hz |
| Frequency range (harmonics analysis) | 45 … 2665 Hz |
| Limit frequency | 8.6 kHz |
| Calculated values | Line-to-line voltage, power output, energy, power factors, mains frequency, harmonic analysis (up to the 41st harmonic), THD |
| Measurement method | True RMS measurement |
| Supply voltage (system) | 5 VDC; via data contacts |
| Current consumption (5 V system supply) | 100 mA |
| Rated surge voltage | 4 kV |
| Indicators | LED (A) green: Communication; LED (B-G) red: Error L1, Display: Override in current measurement path, Display: Undervoltage in voltage measurement path, Error L2, Error L3, Display: Override in voltage measurement path; LED (H) yellow: Interchange in phase sequence L1-L2-L3 |
| Overvoltage category | III (EN 61010) |

### Connection data

| | |
|---|---|
| Connection technology: inputs/outputs | 16 x CAGE CLAMP® |
| Connection type 1 | Inputs/outputs |
| Solid conductor | 0.25 … 2.5 mm² / 24 … 14 AWG |
| Fine-stranded conductor | 0.25 … 2.5 mm² / 24 … 14 AWG |
| Strip length | 8 … 9 mm / 0.31 … 0.35 inches |



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## 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 |

## Material Data

| | |
|---|---|
| Housing material | Polycarbonate; polyamide 6.6 |
| Fire load | 1.997 MJ |
| Weight | 99.4 g |
| Conformity marking | CE |

## Environmental requirements

| | |
|---|---|
| Ambient temperature (operation) | -40 … +70 °C |
| Ambient temperature (storage) | -40 … +85 °C |
| Protection type | IP20 |
| 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, EN 50155; EN 61373 |
| Shock resistance | per IEC 60068-2-27 (15g/11 ms/half-sine/1,000 shocks; 25g/6 ms/1, 000 shocks), EN 50155, EN 61373 |
| EMC immunity to interference | per EN 61000-6-1, -2; EN 61131-2; marine applications; EN 50121-3-2; EN 50121-4, -5; EN 60255-26;<br>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, EN 50121-3-2, EN 50121-4, -5 |
| Exposure to pollutants | per IEC 60068-2-42 and IEC 60068-2-43 |

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| | |
|---|---|
| Permissible $H_2S$ contaminant concentration at a relative humidity 75 % | 10 ppm |
| Permissible $SO_2$ contaminant concentration at a relative humidity 75 % | 25 ppm |

## Commercial data

| | |
|---|---|
| ETIM 8.0 | EC001601 |
| ETIM 7.0 | EC001601 |
| PU (SPU) | 1 pcs |
| Packaging type | box |
| Country of origin | DE |
| GTIN | 4066966077704 |
| Customs tariff number | 85389099990 |

## Environmental Product Compliance

| | |
|---|---|
| CAS-No. | 1314-23-4<br>1317-36-8<br>7439-92-1 |
| REACH Candidate List Substance | Lead<br>Lead monoxide<br>Perfluorobutane sulfonic acid (PFBS) and its salts<br>Zirconium Oxide |
| RoHS Compliance Status | Compliant,With Exemption |
| RoHS Exemption | 6(c)<br>7(a)<br>7(c)-I<br>7(c)-II |
| SCIP notification number (Austria) | dc917482-3d21-4e39-be25-7940fa53a0d0 |
| SCIP notification number (Belgium) | e85f61dc-2394-4594-bbf7-07a9ffc36b58 |
| SCIP notification number (Bulgaria) | 344a9e66-bcd5-488e-a8a5-34bac4374c5e |
| SCIP notification number (Czech Republic) | 26c5e7fc-a582-493e-b9d8-c31a8c22f46d |
| SCIP notification number (Denmark) | d0e9e2e4-ce51-41d7-8b7e-8cb9c8e90d21 |
| SCIP notification number (Finland) | ceacc7a2-7be6-43f0-acd3-62c4accb485a |
| SCIP notification number (France) | c58410fb-b309-4896-9a0f-ff9d19b9a7c8 |
| SCIP notification number (Germany) | 1c3aeabc-11e2-4d28-9c3d-ca4f8185eb94 |
| SCIP notification number (Hungary) | 74f6925b-c26b-44f2-82db-c04c6d524089 |
| SCIP notification number (Italy) | b2dace86-0f35-4d4e-912c-286f9f7fc8db |
| SCIP notification number (Netherlands) | 6265c0e0-08d6-4ba7-9d97-451b818735fd |
| SCIP notification number (Poland) | bf984cfc-f628-47cf-a085-2d591adf279d |

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| | |
|---|---|
| SCIP notification number (Romania) | 2d2af331-a2d2-4f8f-a704-f89c9b1916f5 |
| SCIP notification number (Sweden) | 0bbac5bb-09bf-4738-8fe3-4d48b51a83fb |

## Approvals / Certificates

### General approvals

| Logo | Approval | Additional Approval Text | Certificate name |
|---|---|---|---|
| | **EAC**<br>Brjansker Zertifizierungsstelle | TP TC 020/2011 | EAC RU C-DE.AM02.B.00087/19 |

### Declarations of conformity and manufacturer's declarations

| Logo | Approval | Additional Approval Text | Certificate name |
|---|---|---|---|
| | **EU-Declaration of Conformity**<br>WAGO GmbH & Co. KG | - | - |

## Optional accessories

### Shield termination

Shield clamping saddles

| | | |
|---|---|---|
| | **Item no.: 790-116**<br>Shield clamping saddle; 19 mm wide; diameter of compatible conductor; 7 … 16 mm | www.wago.com/790-116 |
| | **Item no.: 790-124**<br>Shield clamping saddle; 27 mm wide; diameter of compatible conductor; 6 … 24 mm | www.wago.com/790-124 |
| | **Item no.: 790-108**<br>Shield clamping saddle; 11 mm wide; diameter of compatible conductor; 3 … 8 mm | www.wago.com/790-108 |
| | **Item no.: 790-140**<br>Shield clamping saddle; diameter of compatible conductor | www.wago.com/790-140 |
| | **Item no.: 790-216**<br>Shield clamping saddle; 21.8 mm wide; 6 … 16 mm | www.wago.com/790-216 |
| | **Item no.: 790-220**<br>Shield clamping saddle; 30 mm wide; 6 … 20 mm | www.wago.com/790-220 |
| | **Item no.: 790-208**<br>Shield clamping saddle; 12.4 mm wide; 3 … 8 mm | www.wago.com/790-208 |

### System housing

System enclosure



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| | | |
|---|---|---|
| | **Item no.: 850-814/002-000**<br>IP65 enclosure; Sheet steel (RAL 7035); WxHxD (200x120x200 mm); without flange plate | www.wago.com/850-814/002-000 |
| | **Item no.: 850-815/002-000**<br>IP65 enclosure; Sheet steel (RAL 7035); WxHxD (300x120x200 mm); without flange plate | www.wago.com/850-815/002-000 |
| | **Item no.: 850-816/002-000**<br>IP65 enclosure; Sheet steel (RAL 7035); WxHxD (400x120x200 mm); without flange plate | www.wago.com/850-816/002-000 |
| | **Item no.: 850-817/002-000**<br>IP65 enclosure; Sheet steel (RAL 7035); WxHxD (600x120x200 mm); without flange plate | www.wago.com/850-817/002-000 |
| | **Item no.: 850-825**<br>IP65 enclosure; Aluminium (RAL 7032); WxHxD (160x100x160 mm); 9 x M12, 4 x M20 | www.wago.com/850-825 |
| | **Item no.: 850-826**<br>IP65 enclosure; Aluminium (RAL 7032); WxHxD (240x100x160 mm); 4 x M20, 4 x M16, 14 x M12 cable grip | www.wago.com/850-826 |
| | **Item no.: 850-827**<br>IP65 enclosure; Aluminium (RAL 7032); WxHxD (320x100x160 mm); 4 x M20, 8 x M16, 17 x M12 cable grip | www.wago.com/850-827 |
| | **Item no.: 850-827/002-000**<br>IP65 enclosure; Aluminium (RAL 7035); WxHxD (320x100x160 mm); 4 x M20, 8 x M16, 17 x M12 cable grip | www.wago.com/850-827/002-000 |
| | **Item no.: 850-826/002-000**<br>IP65 enclosure; Aluminium (RAL 7035); WxHxD (240x100x160 mm); 4 x M20, 4 x M16, 14 x M12 cable grip | www.wago.com/850-826/002-000 |
| | **Item no.: 850-828/002-000**<br>IP65 enclosure; Aluminium (RAL 7035); WxHxD (480x100x160 mm); 4 x M20, 10 x M16, 35 x M12 cable grip | www.wago.com/850-828/002-000 |
| | **Item no.: 850-828**<br>IP65 enclosure; Aluminium (RAL 7032); WxHxD (480x100x160 mm); 4 x M20, 10 x M16, 35 x M12 cable grip | www.wago.com/850-828 |
| | **Item no.: 850-834**<br>IP65 enclosure; Polyester (RAL 7032); WxHxD (164x100x164 mm); 9 x M12, 4 x M20 | www.wago.com/850-834 |
| | **Item no.: 850-835**<br>IP65 enclosure; Polyester (RAL 7032); WxHxD (244x100x164 mm); 4 x M20, 4 x M16, 14 x M12 cable grip | www.wago.com/850-835 |
| | **Item no.: 850-836**<br>IP65 enclosure; Polyester (RAL 7032); WxHxD (324x100x164 mm); 4 x M20, 8 x M16, 17 x M12 cable grip | www.wago.com/850-836 |

**Marking accessories**

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Marker carrier

| | | |
|---|---|---|
| | Item no.: 750-103<br>Group marker carrier | www.wago.com/750-103 |

Marker

| | | |
|---|---|---|
| | Item no.: 2009-145/000-006<br>Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; blue | www.wago.com/2009-145/000-006 |
| | Item no.: 2009-145<br>Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; white | www.wago.com/2009-145 |
| | Item no.: 2009-145/000-002<br>Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; yellow | www.wago.com/2009-145/000-002 |
| | Item no.: 2009-145/000-007<br>Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; gray | www.wago.com/2009-145/000-007 |
| | Item no.: 2009-145/000-005<br>Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; red | www.wago.com/2009-145/000-005 |
| | Item no.: 2009-145/000-012<br>Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; orange | www.wago.com/2009-145/000-012 |
| | Item no.: 2009-145/000-023<br>Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; green | www.wago.com/2009-145/000-023 |
| | Item no.: 2009-145/000-024<br>Mini-WSB Inline; for Smart Printer; 1700 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; violet | www.wago.com/2009-145/000-024 |
| | Item no.: 248-501/000-006<br>Mini-WSB marking card; as card; not stretchable; plain; snap-on type; blue | www.wago.com/248-501/000-006 |
| | Item no.: 248-501/000-007<br>Mini-WSB marking card; as card; not stretchable; plain; snap-on type; gray | www.wago.com/248-501/000-007 |
| | Item no.: 248-501/000-002<br>Mini-WSB marking card; as card; not stretchable; plain; snap-on type; yellow | www.wago.com/248-501/000-002 |

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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

Item no.: 248-501
Mini-WSB marking card; as card; not stretchable; plain; snap-on type; white
www.wago.com/248-501

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

Item no.: 248-501/000-005
Mini-WSB marking card; as card; not stretchable; plain; snap-on type; red
www.wago.com/248-501/000-005

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

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

Group marker carrier

Item no.: 750-107
Group marker carrier
www.wago.com/750-107

**Carrier rail**

Mounting accessories

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
www.wago.com/210-197

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
www.wago.com/210-198

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
www.wago.com/210-504

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
www.wago.com/210-505

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
www.wago.com/210-506

Item no.: 210-508



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| | | |
|---|---|---|
| | Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; slotted; galvanized; similar to EN 60715; silver-colored | www.wago.com/210-508 |
| | Item no.: 210-113<br>Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; unslotted; according to EN 60715; silver-colored | www.wago.com/210-113 |
| | Item no.: 210-118<br>Steel carrier rail; 35 x 15 mm; 2.3 mm thick; 2 m long; unslotted; according to EN 60715; silver-colored | www.wago.com/210-118 |
| | Item no.: 210-112<br>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 | www.wago.com/210-112 |
| | Item no.: 210-114<br>Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; unslotted; similar to EN 60715; silver-colored | www.wago.com/210-114 |
| | Item no.: 210-115<br>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 | www.wago.com/210-115 |
| | Item no.: 210-196<br>Aluminum carrier rail; 35 x 8.2 mm; 1.6 mm thick; 2 m long; unslotted; similar to EN 60715; silver-colored | www.wago.com/210-196 |

## Downloads

### Documentation

#### Manual

| | | | |
|---|---|---|---|
| Product Manual 3-Phase Power Measurement; 20 kVAC 300 A; Extreme | V 1.0.1<br>2021 Mar 18 | pdf<br>6.6 MB | Download |

#### System Description

| | | | |
|---|---|---|---|
| System Manual XTR<br>Basic conditions and recommendations for higher operational safety | V 2.0.0<br>2022 Sep 14 | pdf<br>8.0 MB | Download |
| 750 XTR Series I/O-System – General Product Information | | pdf<br>743.5 kB | Download |
| Overview on WAGO-I/O-SYSTEM 750 approvals | | pdf<br>789.0 kB | Download |

#### Additional Information

| | | | |
|---|---|---|---|
| Disposal and Recycling<br>Electrical and electronic equipment, Batteries, Packaging | V 1.1.0<br>2022 Aug 18 | pdf<br>2.2 MB | Download |

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## Libraries

### Library

| | | | |
|---|---|---|---|
| PowerMeasurement_495_040_010.lib<br>Library and function block description for Power Measurement Module 750-495/040-010 | 1.1.3<br>2020 Jun 15 | zip<br>858.7 kB | Download |

## CAD/CAE-Data

### CAD data

| | | |
|---|---|---|
| 2D/3D Models 750-495/040-010 | URL | Download |

## Environmental Product Compliance

### Compliance Search

| | | |
|---|---|---|
| Environmental Product Compliance 750-495/040-010<br>3-Phase Power Measurement; 20 kVAC 300 A; Extreme | URL | Download |

## Installation Notes

## Product family

**WAGO I/O System 750 XTR**

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.

Show all products from the family



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