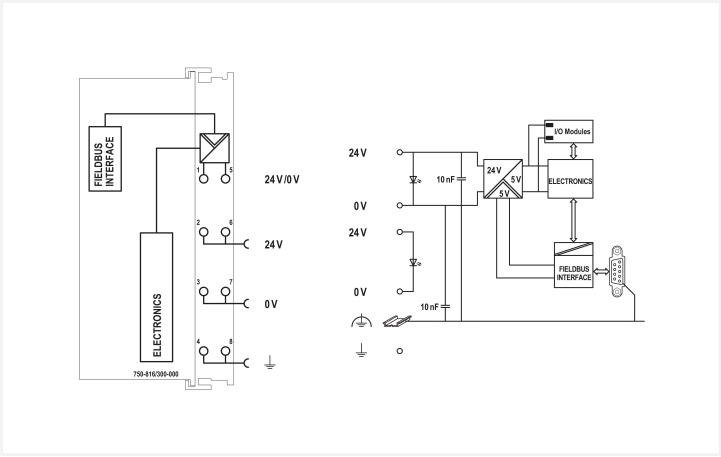
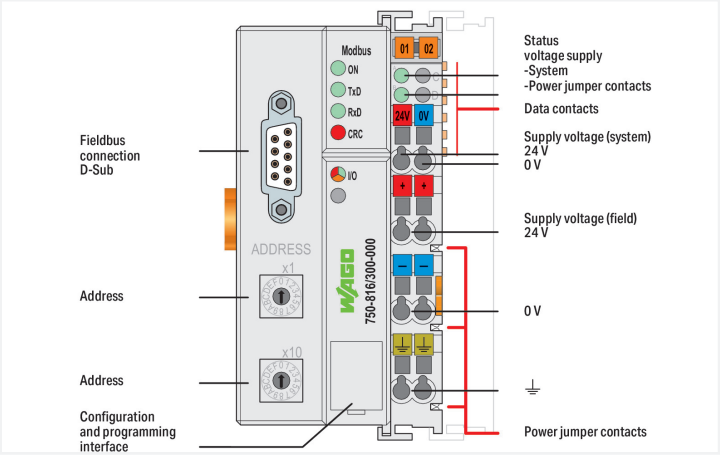
# Data Sheet | Item Number: 750-816/300-000

Controller MODBUS; RS-232; 115,2 kBd

https://www.wago.com/750-816/300-000






The MODBUS Controller is an expansion for the WAGO I/O System.
This controller combines a WAGO MODBUS Fieldbus Coupler with PLC functionality.
Application programming is IEC 61131-3 compliant.
The programmer can access all fieldbus and I/O data.
Features and applications:

- Decentralized control to optimize support for a PLC or PC
- Devide complex applications into individually testable units
- Programmable fault response in the event of fieldbus failure
- Signal pre-processing to reduce fieldbus transmissions
- Directly control peripheral equipment for faster system response times
- Stand-alone, compact controller

## Technical data

| | |
|---|---|
| Communications | Modbus RTU |
| Visualization | none |
| CPU | 16 bits |
| Programming languages per IEC 61131-3 | Instruction List (IL)<br>Ladder Diagram (LD)<br>Function Block Diagram (FBD)<br>Continuous Function Chart (CFC)<br>Structured Text (ST)<br>Sequential Function Chart (SFC) |
| Programming environment | WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3) |
| Configuration options | WAGO-I/O-*CHECK*<br>Rotary encoder switch |

## Technical data

| | |
|---|---|
| Cycle time | < 3 ms for 1000 bit instructions/ 256 digital I/O |
| Transmission rate | 150 Bd ... 115.2 kBd |
| Bus segment length (max.) | 1200 m |
| Transmission medium (communication/fieldbus) | Shielded Cu cable 2 (4) x 0.25 mm² |
| Number of fieldbus nodes on master (max.) | 247 |
| Number of I/O points | 6000 |
| Program memory | 32 KB |
| Data memory | 32 KB |
| Non-volatile software memory | 8 KB |
| Memory for fieldbus input variables (max.) | 512 bytes |
| Memory for fieldbus output variables (max.) | 512 bytes |
| Number of modules per node (max.) | 64 |
| Number of modules without a bus extension (max.) | 64 |
| Input and output process image (fieldbus) max. | 1024 bytes/1024 bytes |
| Indicators | LED (ON, LINK, TxD/RxD) green: Fieldbus initialization, send, receive; LED (CRC) red: Checksum error; LED (I/O) red/green/orange: Local data bus status; LED (A, B) green: System power supply status, field supply |
| Supply voltage (system) | 24 VDC, SELV/PELV (-25 ... +30 %); via wiring interface (CAGE CLAMP® connection); External fuse required: 2 A slow-blow |
| Input current (typ.) at nominal load (24 V) | 500 mA |
| Power supply efficiency (typ.) at nominal load (24 V) | 87 % |
| Current consumption (system supply) | 350 mA |
| Total current (system supply) | 1650 mA |
| Supply voltage (field) | 24 VDC, SELV/PELV (-25 ... +30 %); via power jumper contacts (supply via CAGE CLAMP® connection; distribution via spring contact); External fuse required: 10 A slow-blow |
| Current carrying capacity (power jumper contacts) | 10 A |
| Number of outgoing power jumper contacts | 3 |
| Isolation | 500 V system/field |

## Connection Data

| | |
|---|---|
| Connection technology: communication/fieldbus | Modbus RTU: 1 x D-sub 9 socket |
| Connection technology: system supply | 2 x CAGE CLAMP® |
| Connection technology: field supply | 6 x CAGE CLAMP® |
| Connectable conductor materials | Copper |
| Connection type | System/field supply |
| Solid conductor | 0.08 ... 2.5 mm² / 28 ... 14 AWG |
| Fine-stranded conductor | 0.08 ... 2.5 mm² / 28 ... 14 AWG |
| Strip length | 8 ... 9 mm / 0.31 ... 0.35 inches |
| Connection technology: device configuration | 1 x Male connector; 4-pole |

## Physical data

| | |
|---|---|
| Width | 50.5 mm / 1.988 inches |
| Height | 100 mm / 3.937 inches |
| Depth | 71.1 mm / 2.799 inches |
| Depth from upper-edge of DIN-rail | 63.9 mm / 2.516 inches |


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## Mechanical data

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

## Material data

| | |
|---|---|
| Housing material | Polycarbonate; polyamide 6.6 |
| Fire load | 2.466 MJ |
| Weight | 184.9 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 | without temperature derating: 0 … 2000 m; with temperature derating: 2000 … 5000 m (0.5 K/100 m); 5000 m (max.) |
| Mounting position | Horizontal left, horizontal right, horizontal top, horizontal bottom, vertical top and vertical bottom |
| 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 |
| 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

| | |
|---|---|
| Product Group | 15 (I/O System) |
| PU (SPU) | 1 pcs |
| Packaging type | Box |
| Country of origin | DE |
| GTIN | 4055143070980 |
| Customs tariff number | 85371091990 |

## Product Classification

| | |
|---|---|
| UNSPSC | 32151705 |
| eCl@ss 10.0 | 27-24-26-07 |
| eCl@ss 9.0 | 27-24-26-07 |
| ETIM 9.0 | EC000236 |
| ETIM 10.0 | EC000236 |
| ECCN | NO US CLASSIFICATION |


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## Environmental Product Compliance

| | |
|---|---|
| CAS-No. | 12060-00-3<br>1303-86-2<br>1317-36-8<br>25550-51-0<br>7439-92-1<br>79-94-7 |
| REACH Candidate List Substance | 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol<br>4-Methyl-1,2-cyclohexanedicarboxylic anhydride<br>Diboron trioxide<br>Lead<br>Lead monoxide<br>Lead titanium oxide (PbTiO3) |
| RoHS Compliance Status | Compliant,With Exemption |
| RoHS Exemption | 6(c)<br>7(a)<br>7(c)-I<br>7(c)-II<br>7c |
| SCIP notification number (Bulgaria) | 3b922ebc-4247-48f1-97f2-d4b710086220 |
| SCIP notification number (Czech Republic) | 013dcfb6-56aa-4fef-ae3b-ef077aeba2ce |

## Approvals / Certificates

### General approvals

| Approval | Standard | Certificate Name |
|---|---|---|
| EAC<br>GZO Almaty Standart | TP TC 020/2011 | EAC CoC 03083 |
| KC<br>National Radio Research Agency | Article 58-2, Clause 3 | MSIP-REM-W43-PFC750 |
| UL<br>Underwriters Laboratories Inc. (ORDINARY LOCATIONS) | UL 508 | E175199 |

### Declarations of conformity and manufacturer's declarations

| Approval | Standard | Certificate Name |
|---|---|---|
| EU-Declaration of Conformity<br>WAGO GmbH & Co. KG | - | - |

### Approvals for marine applications

| Approval | Standard | Certificate Name |
|---|---|---|
| BSH<br>Bundesamt fuer Seeschiffahrt und Hydrographie | - | 1104 |
| BV<br>Bureau Veritas S.A. | - | 13453/E0 BV |
| RINA<br>RINA Germany GmbH | - | ELE343521XG001 |

### Approvals for hazardous areas

| Approval | Standard | Certificate Name |
|---|---|---|
| ATEX<br>TUEV Nord Cert GmbH | EN 60079-0 | TUEV14ATEX148929X (II 3 G Ex ec IIC T4 Gc) |
| CCCEx<br>CQST/CNEx | CNCA-C23-01 | 2020312310000213 (Ex ec IIC T4 Gc) |
| IECEx<br>TUEV Nord Cert GmbH | IEC 60079-0 | IECEx TUN 14.0035 X (Ex ec IIC T4 Gc) |
| INMETRO<br>TÜV Rheinland do Brasil Ltda. | IEC 60079-0 | TÜV 12.1297 X |
| UKEx<br>WAGO GmbH & Co. KG | EN 60079-0 | UKCA_WAGO22UKEX003X_ec |
| UL<br>Underwriters Laboratories Inc. (HAZARDOUS LOCATIONS) | UL 121201 | E198726 |


Continued on next page

## Downloads

### Environmental Product Compliance

**Compliance Search**

| | | |
|---|---|---|
| Environmental Product Compliance 750-816/300-000 | | |

### Documentation

**Manual**

| | | |
|---|---|---|
| System Manual Series 750/753 | | |
| Product Manual MODBUS RTU Programmable Fieldbus Controller | V 1.1.0 | pdf 5825.77 KB |

**System Description**

| | | |
|---|---|---|
| Overview on WAGO-I/O-SYSTEM 750 approvals | | pdf 770.48 KB |
| 750 Controller, General Product Information | | pdf 507.50 KB |

**Bid Text**

| | | |
|---|---|---|
| 750-816/300-000 | 19.02.2019 | xml 5.99 KB |
| 750-816/300-000 | 13.07.2015 | doc 29.00 KB |

**Instruction Leaflet**

| | | |
|---|---|---|
| CCC Ex (Additional information) | 26.04.2023 | pdf 159.76 KB |

### CAD/CAE-Data

**CAD data**

| |
|---|
| 2D/3D Models 750-816/300-000 |

**CAE data**

| |
|---|
| EPLAN Data Portal 750-816/300-000 |
| WSCAD Universe 750-816/300-000 |
| ZUKEN Portal 750-816/300-000 |

### Engineering-Software

**Configuration and Commissioning Software**

| | | |
|---|---|---|
| WAGO Ethernet Settings | | |
| (759-316) WAGO Ethernet Settings / Serie 750 | 06.18.01.01 02.09.2021 | zip 26678.54 KB |


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# 1 Compatible Products

## 1.1 Optional Accessories

### 1.1.1 Communication

#### 1.1.1.1 Communication cable



Item No.: 750-923
Configuration cable; USB connector; Length: 2.5 m



Item No.: 750-923/000-001
Configuration cable; USB connector; Length: 5 m

### 1.1.2 DIN-rail

#### 1.1.2.1 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.: 210-197
Steel carrier rail; 35 x 15 mm; 1.5 mm thick; 2 m long; slotted; similar to EN 60715; silver-colored



Item No.: 210-114
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.: 210-113
Steel carrier rail; 35 x 7.5 mm; 1 mm thick; 2 m long; unslotted; according to EN 60715; silver-colored

### 1.1.3 Marking

#### 1.1.3.1 Group marker carrier



Item No.: 750-106
Group marker carrier

#### 1.1.3.2 Marker



Item No.: 750-100
Marker card; as a DIN A4 sheet; plain



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


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### 1.1.3.2 Marker



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

### 1.1.3.3 Marker carrier



Item No.: 750-103
Group marker carrier

## 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

## 1.1.6 System enclosure

### 1.1.6.1 System enclosure



Item No.: 850-825
IP65 enclosure; Aluminium (RAL 7032); WxHxD (160x100x160 mm); 9 x M12, 4 x M20



Item No.: 850-826
IP65 enclosure; Aluminium (RAL 7032); WxHxD (240x100x160 mm); 4 x M20, 4 x M16, 14 x M12 cable grip



Item No.: 850-827
IP65 enclosure; Aluminium (RAL 7032); WxHxD (320x100x160 mm); 4 x M20, 8 x M16, 17 x M12 cable grip



Item No.: 850-828
IP65 enclosure; Aluminium (RAL 7032); WxHxD (480x100x160 mm); 4 x M20, 10 x M16, 35 x M12 cable grip



Item No.: 850-826/002-000
IP65 enclosure; Aluminium (RAL 7035); WxHxD (240x100x160 mm); 4 x M20, 4 x M16, 14 x M12 cable grip



Item No.: 850-827/002-000
IP65 enclosure; Aluminium (RAL 7035); WxHxD (320x100x160 mm); 4 x M20, 8 x M16, 17 x M12 cable grip



Item No.: 850-828/002-000
IP65 enclosure; Aluminium (RAL 7035); WxHxD (480x100x160 mm); 4 x M20, 10 x M16, 35 x M12 cable grip



Item No.: 850-834
IP65 enclosure; Polyester (RAL 7032); WxHxD (164x100x164 mm); 9 x M12, 4 x M20



Item No.: 850-835
IP65 enclosure; Polyester (RAL 7032); WxHxD (244x100x164 mm); 4 x M20, 4 x M16, 14 x M12 cable grip



Item No.: 850-836
IP65 enclosure; Polyester (RAL 7032); WxHxD (324x100x164 mm); 4 x M20, 8 x M16, 17 x M12 cable grip



Item No.: 850-814/002-000
IP65 enclosure; Sheet steel (RAL 7035); WxHxD (200x120x200 mm); without flange plate



Item No.: 850-815/002-000
IP65 enclosure; Sheet steel (RAL 7035); WxHxD (300x120x200 mm); without flange plate



Item No.: 850-816/002-000
IP65 enclosure; Sheet steel (RAL 7035); WxHxD (400x120x200 mm); without flange plate



Item No.: 850-817/002-000
IP65 enclosure; Sheet steel (RAL 7035); WxHxD (600x120x200 mm); without flange plate