**750-829**

**BACnet MS/TP Programmable Fieldbus Controller**

32-bit CPU, multitasking

The BACnet MS/TP Controller (750-829) connects the WAGO I/O SYSTEM with the BACnet protocol. The 750-829 Controller supports the 3-BACnet device profile according to DIN EN ISO 16484-5. It communicates with other BACnet devices via BACnet MS/TP.

The controller provides the three following functionalities:

1. Native server: For each channel, appropriate BACnet objects are generated automatically for the digital and analog I/O modules that are connected to the controller.
2. Application server: Other supported BACnet objects can be created via the IEC 61131-3 programming environment and made available to a BACnet network.
3. Application client: Using the client functionality, objects and their properties can be accessed by other BACnet devices.

The IEC 61131-3 programmable controller is multtasking-capable and features a battery-backed RTC.

**Fieldbus connection 231 series (MCS)**

- Slide switch for BIAS/terminating resistor activation
- Addressing button for setting IP address
- Female connector 231-2304 (included)
- Miniature WSB Quick marking system
- WAGO-I/O-PRO V2.3, RS-232 kit 759-333
- WAGO BACnet configurator

The BACnet MS/TP Controller (750-829) connects the WAGO-I/O-SYSTEM with the BACnet network. The controller provides the three following functionalities:

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### Description

<table>
<thead>
<tr>
<th>Description</th>
<th>Item No.</th>
<th>Pack. Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>BACnet MS/TP Controller</td>
<td>750-829</td>
<td>1</td>
</tr>
</tbody>
</table>

### Accessories

<table>
<thead>
<tr>
<th>Accessories</th>
<th>Item No.</th>
<th>Pack. Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>WAGO BACnet configurator</td>
<td>see Section 1</td>
<td></td>
</tr>
<tr>
<td>WAGO-I/O-PRO V2.3, RS-232 kit</td>
<td>759-333</td>
<td>1</td>
</tr>
<tr>
<td>Miniature WSB Quick marking system</td>
<td>248-501</td>
<td>5</td>
</tr>
<tr>
<td>female connector; 4-pole</td>
<td>231-2304</td>
<td></td>
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</table>

### Approvals

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>BACnet approvals</td>
<td></td>
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<tr>
<td>WSPCert certification</td>
<td>pending</td>
</tr>
<tr>
<td>Conformity marking</td>
<td></td>
</tr>
<tr>
<td>BTL listing</td>
<td>pending</td>
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</tbody>
</table>

### System Data

<table>
<thead>
<tr>
<th>System data BACnet MS/TP</th>
</tr>
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<tbody>
<tr>
<td>Baud rate</td>
</tr>
<tr>
<td>Max. length of fieldbus segment</td>
</tr>
<tr>
<td>ETHERNET service interfaces</td>
</tr>
</tbody>
</table>

The ETHERNET service interfaces can be used for IEC downloads, for example. Furthermore, two ETHERNET interfaces and an integrated switch allow the ETHERNET fieldbus to be wired in a line topology. This eliminates the need for additional network devices, such as switches or hubs. Both interfaces support Auto-Negotiation and Auto-MDIX. An integrated Web server provides configuration options to the user, while displaying controller’s status information. The Web server cannot be used via BACnet MS/TP. For initial start-up, access to the Web-based Management (WBM) via standard Web browser is required to set the baud rate and activate the MS/TP fieldbus. Further configuration and commissioning is performed via a Windows-compliant WAGO BACnet Configurator (V1.8 or higher) and requires an additional BACnet router within the network.

The Protocol Implementation Statement (PICS) contains all supported objects, services and properties. The controller supports a maximum of 250 BACnet objects. A slide switch enables the switching on of a terminating resistor together with the BIAS network on the RS-485 interface.

### System Data ETHERNET:

<table>
<thead>
<tr>
<th>No. of controllers</th>
<th>limited by ETHERNET specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmission medium</td>
<td>Twisted Pair S/UTP, STP 100 Ω Cat 5e</td>
</tr>
<tr>
<td>Max. length of fieldbus segment</td>
<td>100 m limited by IEEE 802.3</td>
</tr>
<tr>
<td>Max. length of network</td>
<td>acc. to IEEE 802.3 standard</td>
</tr>
<tr>
<td>Baud rate</td>
<td>10/100 Mbit/s</td>
</tr>
</tbody>
</table>

**Addressing button**

- For setting IP address
- Female connector 231-2304 (included)

**Buscoupler connection**

- 1 x 4-pole male connector; 231 Series
- Female connector 231-2304 (included)

**Protocol Implementations Statement (PICS)**

- CAN, CANopen, Profinet, DeviceNet
- ETHERNET service interfaces can be used for IEC downloads, for example

**Buscoupler connection**

- 1 x 4-pole male connector; 231 Series
- Female connector 231-2304 (included)

**Protocols**

- BACnet MS/TP
- BACnet device profile B-BC (BACnet Building Controller)
- BACnet version 1.7

**System data ETHERNET:**

- No. of controllers limited by ETHERNET specification
- Transmission medium Twisted Pair S/UTP, STP 100 Ω Cat 5e
- Max. length of fieldbus segment 100 m limited by IEEE 802.3
- Max. length of network acc. to IEEE 802.3 standard
- Baud rate 10/100 Mbit/s
- Buscoupler connection 2 x RJ-45 (2-port switch)

**Protocols**

- MODBUS/TCP (UDP), HTTP, Boott, DHCP, DNS, SNTP, FTP, SMTP

**Supplementary information**

- BACnet approvals
- WSPCert certification pending
- Conformity marking:
  - Ce
- BTL listing pending

**Contact information**

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**Subject to design changes**

26.01.2016
**Technical Data**

- **Number of I/O modules**: 64
- **with bus extension**: 99
- **Configuration**: via PC
- **Program memory**: 1024 Kbytes
- **Data memory**: 1024 Kbytes
- **Non-volatile memory (retain)**: 32 Kbytes (16 Kbytes retain, 8 Kbytes flag)
- **Powerfail RTC buffer**: Min. six days
- **Power supply**: 24 V DC (25 % ... +30 %)
- **Input current typ. at rated load (24 V)**: 500 mA
- **Efficiency of the power supply (typ.) at nominal load (24 V)**: 90 %
- **Internal current consumption (5 V)**: 450 mA
- **Total current for I/O modules (5 V)**: 1700 mA
- **Isolation**: 500 V system/supply; BACnet M5/TP; 1500 V (per BACnet standard)
- **Voltage via power jumper contacts**: 24 V DC (25 % ... +30 %)
- **Current via power jumper contacts (max.)**: 10 A DC

**Fieldbus (Modbus/TCP):**

- **Max. input process image**: 2 Kbytes
- **Max. output process image**: 2 Kbytes
- **Max. input variables**: 512 bytes
- **Max. output variables**: 512 bytes

**General Specifications**

- **Operating temperature**: 0 °C ... +55 °C
- **Wire connection**: CAGE CLAMP®
- **Cross sections**: 0.08 mm² ... 2.5 mm² / AWG 28 ... 14
- **Strip lengths**: 8 ... 9 mm / 0.33 in
- **Connection type**: M5 (MULTI CONNECTION SYSTEM)
- **Cross sections**: 0.2 ... 2.5 mm² / 24 ... 12 AWG
- **Strip lengths**: 9 ... 10 mm / 0.35 ... 0.39 in
- **Dimensions [mm] W x H x L**: 62 x 65 x 100
- **Height from upper-edge of DIN 35 rail**:
- **Weight**: 138.3 g
- **Storage temperature**: -25 °C ... +85 °C
- **Relative air humidity (no condensation)**: 95 %
- **Vibration resistance**: acc. to IEC 60068-2-6
- **Shock resistance**: acc. to IEC 60068-2-27
- **Degree of protection**: IP20
- **EMC immunity of interference**: acc. to EN 61000-6-2
- **EMC emission of interference**: acc. to EN 61000-6-3