METZ CONNECT

We realize ideas

C | Logline

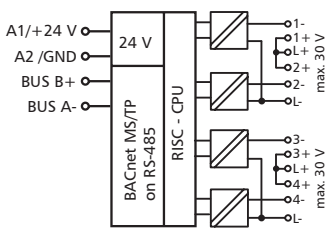
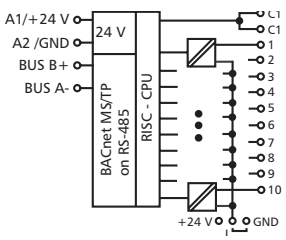
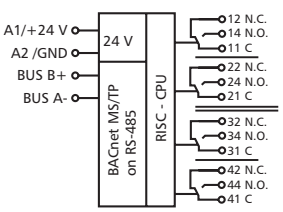
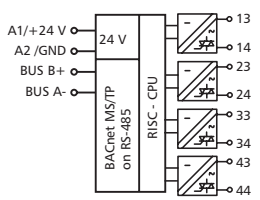
BACnet MS/TP components

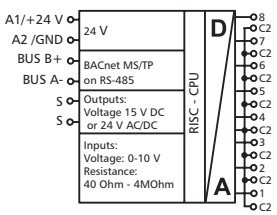
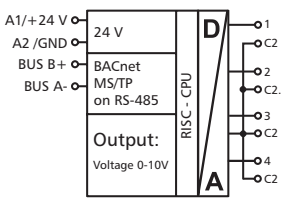
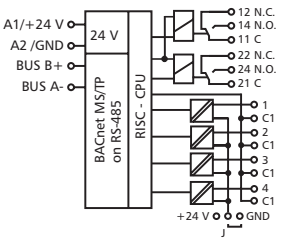
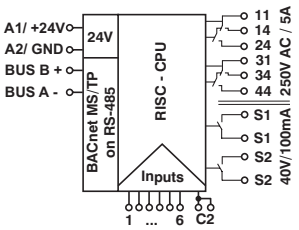
for automation in buildings, installations and systems

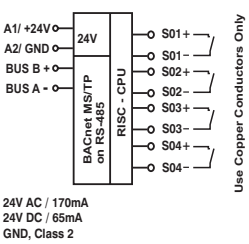
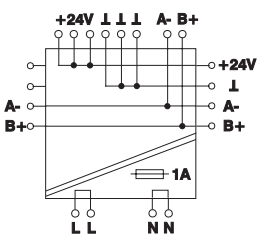
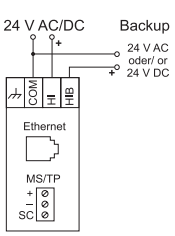
Members of METZ CONNECT

RIA CONNECT BTR NETCOM MCQ TECH

METZ CONNECT

Module	 **BMT-DI4 | 108841319** **BMT-DI4-IP | 1108841319IP** 4 inputs – digital	 **BMT-DI10 | 1108811319** 10 inputs – digital	 **BMT-DO4 | 1108861321** 4 outputs – digital (relay)	 **BMT-TO4 | 11088013** 4 outputs – digital (triac)
Description	For detecting potential-free switch states, for example electrical end position switches on vent valves or auxiliary contacts of power contactors.	For detecting potential-free switch states, for example electrical end position switches on ventilation dampers or auxiliary contacts of power contactors. Depending on how the jumper J has been set, the inputs can be operated as contact and voltage inputs (J-GND jumper) or with activation to GND (A2, J - + 24 jumper).	For switching electrical components, for example motors, contactors, lamps, blinds, etc. With strong inductive loads, we recommend to protect the relay contacts additionally with an RC element.	For switching electrical components, for example relays, contactors, HVAC valves, etc. Especially suitable for noiseless and cyclic switching (PWM).
Inputs	• 4 potential-free contact inputs • Voltage input 30 V AC/DC • Switching threshold > 7 V AC/DC	• 10 contact or voltage inputs • Voltage input 30 V AC/DC • High signal detection > 7 V AC/DC		
Outputs			• 4 changeover contacts • Switching voltage max. 250 V AC • Rated current 5 A • Total current over all contacts 12 A • Service life electrical 9 x 10^4 • Service life mechanical 15 x 10^6	• 4 digital triac outputs • Switchung voltage 24 – 250 V AC • Rated current 0.5 A/Triac • Switching current < 30 s 0.8 A • Fuses (triacs) 2 A each • Total current over all outputs max. 2.4 A
Schematic diagramm				
Housing	BMT-DI4: 35 x 70 x 65 (mm) BMT-DI4-IP: 159 x 41.5 x 120 mm	BMT-DI10: 35 x 70 x 65 (mm)	BMT-DO4: 35 x 70 x 65 (mm)	BMT-TO4: 35 x 70 x 75 (mm)

			
BMT-AI8 | 11088213	**BMT-AOP4 | 1108871302** **BMT-AO4 | 1108851302**	**BMT-DIO4/2 | 1108831326** **BMT-DIO4/2-IP | 1108831326IP**	**BMT-TP | 11088813**
8 inputs – analog universally programmable	4 outputs – analog (0 – 10 V)	4 inputs – digital 2 outputs – digital (relay)	6 inputs - digital 2 two-level relay outputs - digital (relay)
To detect resistances and voltages of for example passive and active temperature sensors, electrical vent and mixing valves, valve positions etc. The following characteristic temperature curves are included in the device: PT100, PT500, PT1000, NI1000-TC5000, NI1000-TC6180, BALCO500, KTY81_110, KTY81_210, NTC1k8-T, NTC5k-T, NTC10k-T, NTC20k-T, LM235Z (-50 °C up to 130 °C).	It can be used as encoder for control variables, for example for electrical vent and mixing valves, valve positions, etc. The BMT-AOP4 allows to switch between automatic and manual mode via the front-side potientiometers. The BMT-AO4 without manual operation (potentiometer) is available to prevent unauthorized switching.	Suitable for accommodating, for example in a room, light switches and room contacts and switching two light strips or as blind control. The control of 2 motorized fire dampers is also possible as are many other applications.	Suitable for switching, for example, sun blind motors multi-level pumps, fans, burners or similar. With strong inductive loads, we recommend protecting the relay contacts additionally with an RC element. The inputs and outputs can be switched and scanned by means of standard objects via a BACnet client. The input terminals 1 to 6 are wired with the C2 terminals on two poles to potential-free switches or contacts. The module has a manual control for the outputs. The module address and the baud rate are set by means of two address switches on the front
• Selectable characteristic temperature curve • Resolution 14 Bit • Voltage input 0 – 10 V DC • Resolution 10 mV (0.0-100%)		• 4 digital voltage inputs 30 V AC/DC • High signal detection > 7 V AC/DC	
	• Output voltage 0 – 10 V DC • Output current 5 mA at 10 V DC • Resolution 10 mV/Digit	• 2 changeover contacts • Switching voltage 250 V AC • Switch-on peak: 80 A/20 ms • *Continuous current per relay* BMT-DIO4/2: 16 A BMT-DIO4/2-IP: 10 A • *Total current of all contacts* BMT-DIO4/2: 25 A BMT-DIO4/2-IP: 20 A • *Service life* mechanical: 30 x 10^6 electrical: 1 x 10^5	• Output contacts 2x NO contact (semiconductor), 2x two-stage (relays) • *Semiconductor realys* switching voltage 2x 40 V AC/DC Making/breaking current max. 500 mA Nominal current 100 mA • *Relays* Switching current 2x 250 V AC Nominal current 6 A (relays) Service life mechanical 30x10^6 cycles Service life electrical 9x10^4 cycles Admissible switching frequency 6 / min. at nominal current
			
BMT-AI8: 50 x 70 x 65 (mm)	BMT-AOP4: 35 x 70 x 65 (mm) BMT-AO4: 35 x 70 x 65 (mm)	BMT-DIO4/2: 50 x 70 x 65 (mm) BMT-DIO4/2-IP: 159 x 41.5 x 120 (mm)	BMT-TP: 50 x 70 x 75 (mm)

		
BMT-SI4 | 11088913 4 S0 inputs	**NG4 (gray) | 110561-01** Power supply unit 24V DC/700mA	**BACnet IP / BACnet MS/TP Router 11080001**
Suitable for counting S0 counter pulses. This allows very good integration of the module into an energy controlling system. In case of a power failure, the last counter readings are saved. The inputs can be scanned by means of standard objects via a BACnet client. The module is addressed and the baud rate is set by means of two address switches on the front. Suitable for decentralized mounting in serial sub-distributor.	The power supply NG4 supplies regulated direct voltages for supplying power to the respective devices of the product range C|Logline. The device supplies regulated direct voltage 24 V DC at a power of 16 watts.	The BACnet IP / BACnet MS/TP Router provides stand-alone routing between BACnet networks such as BACnet/IP, BACnet Ethernet, and BACnet MS/TP — thereby allowing the system integrator to mix BACnet network technologies within a single BACnet internetwork. One 10/100 Mbps Ethernet port and an MS/TP port are used as communication interface to the respective BACnet networks. An integrated web server allows the configuration, status monitoring, and troubleshooting.
• 4 S0 inputs according to standard DIN EN 62053-31 class A		
	• Nominal voltage 110 – 240 V AC, 50/60 Hz • Internal fuse T 1.0 A/250 V soldered fuse • Output power 16 W • Output voltage +24 V DC • Operating voltage display green LED • Output current (max.) 700 mA • As-delivered accuracy ±5 % • Mains failure backup 40 ms	
		
BMT-SI4: 35 x 70 x 65 (mm)	NG4 (gray): 50 x 70 x 65 (mm)	BACnet IP / BACnet MS/TP Router: 26 x 138 x 70 (mm)

I/O components with BACnet MS/TP

For automation in buildings, installations and systems

Safe and low-cost operation of infrastructures in large, but also in small, buildings nowadays requires that the most important operational functions such as system control, air-conditioning, ventilation and lighting are executed automatically. However, this also makes higher demands on the functions of the building installation, which can usually be met by conventional technology only with large expenditures.
This is why building automation is increasingly using serial bus systems, which execute the transmission of information between sensors and actuators, switches and higher-ranking control systems.

Bus systems, in particular BACnet MS/TP, offer different advantages:
- easier planning and installation of the building functions
- high flexibility in use of the building, as the functions are freely assignable and can thus be reset and readjusted as required at any time.

▶ Compact and intelligent I/O components for decentralized applications

Their compact design for the DIN rail (standard front dimension of 45 mm) and wide variety of types, also in the IP65 housing, make the I/O components from METZ CONNECT highly suitable for use in decentralized applications. The modules can be used where they are really needed. This considerably reduces the wiring effort for controls compared with a centralized installation in a switch cabinet. More-over, the compact mixing ratio of the METZ CONNECT I/O components adapted to the particular application optimizes the number of unused inputs and outputs.

▶ Minimum wiring required and series connection of the I/O components by means of jumper plugs

The power supply and the bus connection are established and passed on on the topside or front side of the I/O components. The use of jumper plugs allows up to 15 modules to be connected easily and quickly to one another and arranged in a row. A terminal block at the end allows transition to a continuing cable.

Why BACnet?

BACnet (Building Automation Control Network) is a neutral communication standard and has developed within a very short time to the world standard for building automation. BACnet has a key role in the equipment and control of efficient buildings and provides an integrated functional communication between building control systems, automation work stations, sensors and actors.
Thus the connection to the latest and most efficient technology in building automation is assured. Our modules support the master/slave and Token Passing (MS/TP) fieldbus communication wit B-ASC-Profile modules (Application Specific Controller) based on the RS485 data transmission interface.

RS485 interface

The RS485 interface was developed for fast data transmission over long distances in the field, that means directly to sensors (such as our input modules) and actors (such as our output modules). Thus, it allows for cable lengths up to 1.2 km and data transmission rates of up to 500,000 Bit/s by so called twisted pair installation or field bus cables. This interface is more and more used in connection with the above mentioned communication protocol BACnet-MS/TP.

Application matrix

Application examples for I/O components

Application	Function	Function is carried out by ...	Appropriate device
Heating	• Actuate heat registers	⇨ Relay, digital output	BMT-DO4
	• Measure room temperatures	⇨ Analog input	BMT-AI8
	• Actuate pumps (i.e. supply line)	⇨ Relay, digital output	BMT-DO4
	• Actuate mixer motors	⇨ Analog output	BMT-AOP4, BMT-AO4
	• Actuate motor valves (radiators)	⇨ TRIAC output, analog output	BMT-TO4, BMT-AOP4
	• Actuate fan coils	⇨ Relay, digital output, TRIAC output	BMT-DO4, BMT-TO4
Air-conditioning	• Actuate motor valves (radiators)	⇨ TRIAC output, analog output	BMT-TO4, BMT-AOP4
	• Collect temperatures	⇨ Analog input	BMT-AI8
	• Motor actuation of window flaps	⇨ Relay, digital output	BMT-DO4
	• Collect wind speed data	⇨ Analog input	BMT-AI8
	• Detect rain sensor	⇨ Analog or digital input (depending on sensor)	BMT-AI8, BMT-DI10
Aeration	• Actuate fan motors	⇨ Relay, digital output	BMT-DO4
	• Capture the position of aeration valves	⇨ Digital or analog output (depending on valve)	BMT-AI8, BMT-DI10
	• Actuate aeration valves	⇨ Relay, digital or analog output	BMT-DO4, BMT-AOP4
	• Measure and control volume flow rate	⇨ Analog input	BMT-AI8
	• Capture air pressure on either side of pressure monitor	⇨ Analog input	BMT-AI8
	• Measure CO_2 concentration in rooms (i.e. in large stores)	⇨ Analog input	BMT-AI8
	• Harmful gas monitoring	⇨ Analog input	BMT-AI8
Lighting and shading	• Switch the light on or off	⇨ Relais, digital output	BMT-DO4, BMT-DIO4/2
	• Collect switch states (i.e. light switches)	⇨ Digital input	BMT-DI10
	• Up or down movement of sun blinds (three-point drive)	⇨ 2 two-level relay outputs	BMT-TP
	• Brightness measurement	⇨ Analog input	BMT-AI8
	• Collect wind speed (i.e. sun blind protection)	⇨ Analog input	BMT-AI8
	• Actuation of motorized window curtains	⇨ 2 two-level relay outputs	BMT-TP
Fire alarm systems	• Actuation of fire damper motors	⇨ Relay, digital output	BMT-DO4, BMT-DIO4/2
	• Detect end positions of fire dampers	⇨ Digital inputs	BMT-DI10, BMT-DIO4/2
	• Turn-on sprinkler system	⇨ Relais, digital output	BMT-DO4
Smoke extraction	• Smoke extraction with flap drives	⇨ Relais, digital output	BMT-DO4
	• Detect flap position	⇨ Digital or analog output	BMT-DI10, BMT-AI8
	• Smoke extraction by fan actuation	⇨ Relais, digital output	BMT-DO4
	• Unblock light barriers of elevators	⇨ Digital input	BMT-DI10, BMT-DI4
Burglary and access control	• People counting	⇨ Digital input, counting input	BMT-SI4, BMT-DI10
	• Motion detector	⇨ Digital input	BMT-DI10, BMT-DI4
	• Monitor window contacts	⇨ Digital input	BMT-DI10, BMT-DI4
	• Collect data of vibrabtion detectors (i.e. window panes)	⇨ Digital input	BMT-DI10, BMT-DI4
	• Collect infrared sensor data	⇨ Digital input	BMT-DI10, BMT-DI4
	• Collect radar sensor data	⇨ Digital input	BMT-DI10, BMT-DI4
	• Alarm sensor	⇨ Relais, digital output	BMT-DO4
Energy management	• Meter reading (water, gas, current, heat)	⇨ Digital input, counting input	BMT-SI4
	• Load throw-off	⇨ Relais, digital output	BMT-DO4
	• Motion sensor (turn the light off)	⇨ Digital input	BMT-DI10
	• Collect temperatures	⇨ Analog input	BMT-AI8
	• Allocate energy consumption to cost centers	⇨ Counting input	BMT-SI4

METZ CONNECT worldwide

SALES OFFICES

METZ CONNECT USA Inc.

200 Tornillo Way
Tinton Falls, NJ 07712
USA

Phone +1.732.3891300
Fax +1.732.3899066

www.metz-connect.com

METZ CONNECT France SAS

28, Rue Schweighaeuser
67000 Strasbourg
France

Phone +33.3.88617073
Fax +33.3.88619473

www.metz-connect.com

METZ CONNECT GmbH

Im Tal 2
78176 Blumberg
Germany

Phone +49.7702.533-0
Fax +49.7702.533-189

www.metz-connect.com

BTR swiss AG

Postfach 162
9425 Thal
Switzerland

Phone +41.71.9201030
Fax +41.71.9201031

www.metz-connect.com

METZ CONNECT (SINGAPORE) PTE. LTD.

1 Kaki Bukit Ave 3
10-01 KB-1
Singapore 416087

Phone +65.6747.0998
Fax +65.6746.3120

www.metz-connect.com

Shanghai Branch

Room 1518, Xu Hui Business Building,
168, Yu De Road,
XuHui District,
Shanghai 200030
China

Phone +86.21.33634228
Phone +86.21.33634334
Fax +86.21.33634224

METZ CONNECT Asia Pacific Limited

Suite 701, 7/F,
Chinachem
Hollywood Centre
1–13 Hollywood Road
Central
Hong Kong

PRODUCTION SITES

MCQ TECH GmbH

Ottilienweg 9
78176 Blumberg
Germany

Phone +49.7702.533-0
Fax +49.7702.533-433

www.metz-connect.com

METZ CONNECT Hungary Kft

1201 Budapest
Helsinki út 51
Hungary

Phone +36.1.2891020
Fax +36.1.2840947

METZ CONNECT Zhongshan Ltd.

Ping Chang Road
Ping Pu Industrial Park
Sanxiang Town
Zhongshan City
Guangdong Province
China, Zip code: 528463

METZ CONNECT GmbH is member in the following organizations and associations.

METZ CONNECT USA Inc.

200 Tornillo Way
Tinton Falls, NJ 07712
USA
Phone +1-732-389-1300
Fax +1-732-389-9066
www.metz-connect.com

METZ CONNECT France SAS

28, Rue Schweighaeuser
67000 Strasbourg
France
Phone +33 3886 170 73
Fax +33 3886 194 73
www.metz-connect.com

METZ CONNECT (SINGAPORE) PTE. LTD.

1 Kaki Bukit Ave 3
10-01 KB-1
Singapore 416087
Phone +65 67 47 09 98
Fax +65 67 46 31 20
www.metz-connect.com

Shanghai Branch

Room 1518, Xu Hui Business Building,
168, Yu De Road,
XuHui District, Shanghai 200030
China
Phone +86 21 33 63 42 28
Phone +86 21 33 63 43 34
Fax +86 21 33 63 42 24

METZ CONNECT

We realize ideas

METZ CONNECT GmbH
Im Tal 2
78176 Blumberg
Germany

Phone +49 77 02 533-0
Fax +49 77 02 533-189

info@metz-connect.com
www.metz-connect.com

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