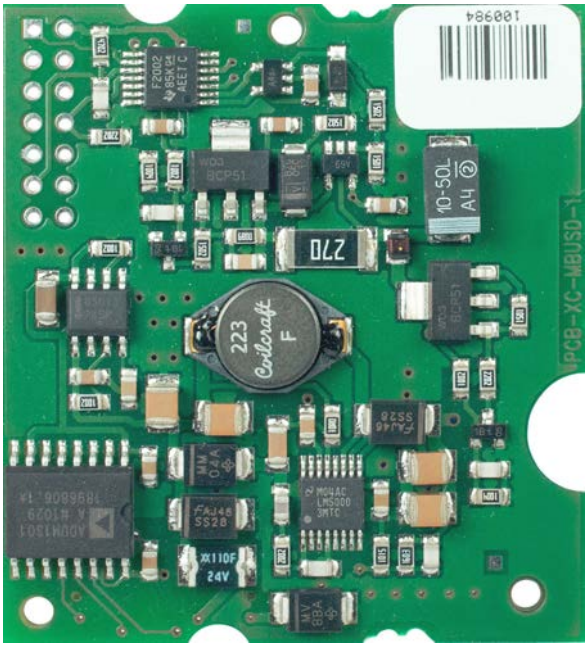
Expansion Port

MBUSD

USER MANUAL



B+B SmartWorx

Powered by ADVANTECH

09-02-21

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Used Symbols

Danger – Information regarding user safety or potential damage to the router.

Attention – Problems that can arise in specific situations.

Information, notice – Useful tips or information of special interest.

GPL Licence

Source codes under GPL licence are available free of charge by sending an email to:

cellularsales@advantech-bb.com.

Advantech B+B SmartWorx s.r.o., Sokolska 71, 562 04 Usti nad Orlici, Czech Republic.
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1. Safety Instruction

Please, observe the following instructions:

- The expansion port must be used in compliance with all applicable international and national laws and in compliance with any special restrictions regulating the utilization of the communication module in prescribed applications and environments.
- Use only the original Advantech B+B SmartWorx company accessories. Thus you will prevent possible health risks and damage to the devices and ensure compliance with all relevant provisions. Unauthorised adjustments or use of unapproved accessories may result in damage to the expansion port and breach of applicable laws. Use of unapproved adjustments or accessories may lead to cancellation of guarantee, which has no effects on your legal rights.
- Do not expose the expansion port to extreme conditions. Protect it from dust, moisture and heat.

2. Product Disposal Instructions

The WEEE (Waste Electrical and Electronic Equipment: 2012/19/EU) directive has been introduced to ensure that electrical/electronic products are recycled using the best available recovery techniques to minimize the impact on the environment. This product contains high quality materials and components which can be recycled. At the end of it's life this product MUST NOT be mixed with other commercial waste for disposal. Check the terms and conditions of your supplier for disposal information.

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3. Description of the Expansion Port

3.1 General Description

The expansion port MBUSD is created as expansion port which enables to use of the next hardware interface of Advantech B+B SmartWorx routers for next signal processing. The expansion port MBUS is equipment of a MASTER type. This interface is physically connected on RJ45 connector on appropriate router. The expansion port MBUSD is internal supplies from appropriate router. The expansion port MBUSD is protected against inputs overload.

Expansion port MBUS is possible fitted into PORT1 and PORT2.

3.2 Connection of MBUS connector

Panel socket RJ45.

Pin number	Signal mark	Description	Data flow direction
1	GND	Signal and supply ground	
2	GND	Signal and supply ground	
3	TxRx-	M-BUS B (-)	Input/Output
4	TxRx+	M-BUS A (+)	Input/Output
5	TxRx-	M-BUS B (-)	Input/Output
6	TxRx+	M-BUS A (+)	Input/Output
7	+12 V EXT	External power supply	
8	+12 V EXT	External power supply	

Table 1: Connection of MBUS connector

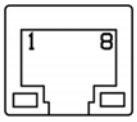

Figure 1: MBUS connector

ATTENTION! External supply is for converter M-BUS!
Because of galvanic separation, the converter have to has external power supply.
The signals 3-5 a 4-6 are linked inside of the modem.

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Circuit example of the equipment with a router with data cable length less than 10 m:

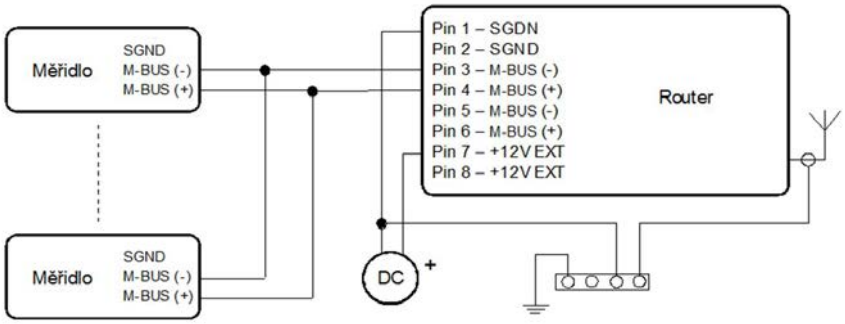

Figure 2: Circuit equipment with a router with data cable length less than 10 m

Circuit example of the equipment with a router with data cable length more than 10 m:

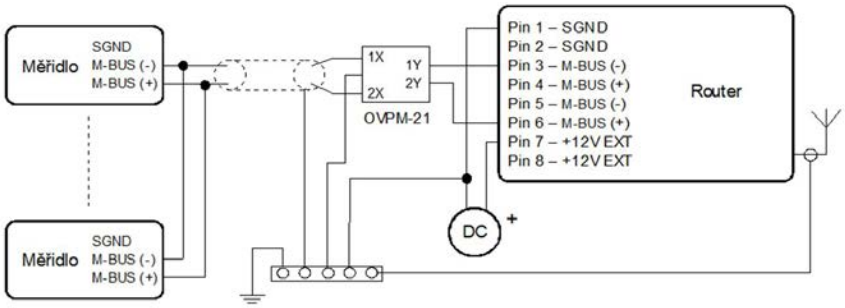

Figure 3: Circuit equipment with a router with data cable length more than 10 m

With a M-BUS data cable more than 10m it is necessary to use overvoltage protection on the router side!

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3.3 Overload detection

When the short-circuit is detected on M-BUS, power of the bus is disconnected. Then the bus is probed every 4 seconds by connection of power supply and measuring of current consumption. If the bus is still shorted, then power is disconnected again. Bus is operable again, approximately 8 seconds after short-circuit subsides. Short-circuit protection can be invoked also by connection more meters to the bus. They can trigger overcurrent detection, by their own power consumption. Overcurrent protection can be triggered also by connecting a critical number of meters, when power consumption can rise above limit during communication.

3.4 State indication of MBUS port

LED port indicator	
Green LED	Indicates Receive data
Yellow LED	Indicates Transmit data
Both LED lights	Indicates short circuit on the MBUS

Table 2: State indication

Status indication is supported from 3rd revision of boards.

3.5 Delivery Identification

Trade name	Type name	Power supply
XC-MBUS	XC-MBUS	Interní/External supply

Table 3: Delivery identification

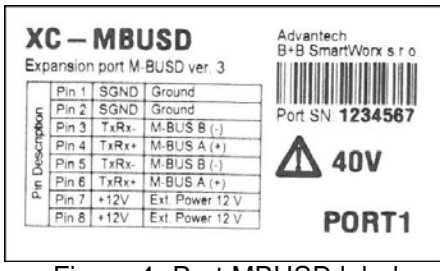

Figure 4: Port MBUSD label

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3.6 Technical specification

Expansion port M-BUS		
External power supply	Voltage Supply power	+10.. +30 V Max. 4 W
Environment	Operating temperature Storage temperature	-30 až +60 °C -30 až +85 °C
Standards	Emission Immunity Safety	EN 55022/B ETS 300 342 EN 60950
M-BUS specifications (EN 1434)	Max. devices (each 1,5 mA) Max. operating bus current Overload detection Short circuit strength Bus voltage mark Bus voltage space Max. total cable length (300Bd, 200nF/km)	30 60 mA 100 mA Permanent 36 .. 43 V 24 .. 31 V 1000 m

Table 4: Technical specification

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4. Recommended Literature

[1] Advantech B+B SmartWorx: **Application Note – Expansion Port Mounting for v2 Routers (APP-0001-EN)**

[2] Advantech B+B SmartWorx: **Configuration Manual – Cellular Industrial v2 Routers (MAN-0021-EN)**

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5. Customers Support

5.1 Customer Support for NAM

Phone: +1-800-346-3119 (Monday – Friday, 7 a.m. to 5:30 p.m. CST)
Fax: +1-815-433-5109
E-mail: support@advantech-bb.com
Web: www.advantech-bb.com

5.2 Customer Support for Europe

Phone: +353 91 792444
Fax: +353 91 792445
E-mail: techSupport@advantech-bb.com
Web: www.advantech-bb.com

5.3 Customer Support for Asia

Phone: +886-2-2792-7818 #1299 (Monday – Friday, 9 a.m. to 5:30 p.m. UTC+8)
Fax: +886-2-2794-7327
E-mail: icg.support@advantech.com.tw
Web: www.advantech.com

Upkeep-advices:

- During cleaning of the router do not use aggressive chemicals, solvents and abrasive cleaners!

CE Hereby, Advantech B+B SmartWorx s.r.o. company declares that the router (radio equipment) with this expansion port installed is in compliance with EU Directive **2014/53/EU**. The router with this expansion port installed and no radio interface present is in compliance with EU Directives **2014/30/EU** and **2014/35/EU**.

The full text of the EU Declaration of Conformity of the corresponding router is available at the following internet address: www.advantech-bb.cz/eudoc

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