



# Expansion port **MBUS**

## **USER'S GUIDE**



**ISO 9001:2001**



## Contents

<b>1. SAFETY INSTRUCTIONS</b> .....	<b>3</b>
<b>2. MBUS DESCRIPTION</b> .....	<b>4</b>
2.1. General description.....	4
2.2. Examples of the expansion port usages.....	4
2.3. Compatibility with Conel modems.....	4
2.4. Technical specifications.....	4
2.5. Port connection on the modem.....	5
2.6. Power supply.....	6
2.7. Standard accessories.....	6
2.8. Product marking.....	6
2.9. Expansion ports label.....	7
<b>3. LINKS TO RELATED PRODUCTS OF THE MANUFACTURER</b> .....	<b>8</b>
3.1. Products.....	8
<b>4. COMPLAINTS PROCEDURE</b> .....	<b>9</b>
<b>5. WARRANTY</b> .....	<b>11</b>

## Symbols used



Danger – important notice, which may have an influence on the user's safety or the function of the device.



Attention – notice on possible problems, which can arise to in specific cases.



Information, notice – information, which contains useful advices or special interest.

## 1. Safety instructions

*Please observe the following safety 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 Conel 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. MBUS description

### 2.1. General description

The expansion port MBUS is created as independent signal converter which enables to use of the next hardware interface of Conel modems for next signal processing. The expansion port MBUS is equipment of a MASTER type. This interface is physical connected on RJ45 connector on appropriate modem. The expansion port MBUS is internal supplies from appropriate modem. The expansion port MBUS is protected against inputs overload.

### 2.2. Examples of the expansion port usages

- modem (UR 5, ER 75i, CGU 04, CDL 400, CDL 800) expansion about next port
- next signal processing possibility
- easy expansion port exchange

### 2.3. Compatibility with Conel modems

The expansion port MBUS is possible use somewhere where it can extend modem about next port. Typically are it modems CGU 04, CGU 04i, UR 5, ER 75i, CDL 400 and CDL 800.

### 2.4. Technical specifications

Name of product	Expansion port MBUS	
Power supply	Voltage	10,8 .. 15,6 V
	Supply current	max. 2 A
	Supply power	max. 30 W
Environment	Operating temperature	-20 .. +55 C
	Storage temperature	-20 .. +85 C
Standards	Emission	EN 55022/B
	Immunity	ETS 300 342
	Safety	EN 60950
	Isolation	EN 60747
M-Bus specifications (EN 1434)	Max. devices (each 1,5 mA)	30
	Max. operating bus current	60 mA
	Overcurrent detection	100 mA
	Short circuit endurance	permanent
	Bus voltage mark	36 .. 43 V
	Bus voltage space	24 .. 31 V
	Max. total cable length (300Bd, 200nF/km)	1000 m

## 2.5. Port connection on the modem

The connector is placed on appropriate modem, the expansion port MBUS is convertor only.

Panel socket RJ45

Pin number	Signal mark	Description	Direction
1	SGND	Signal and supply ground	
2	SGND	Signal and supply ground	
3	TxRx-	MBUS B (-)	Input/Output
4	TxRx+	MBUS A (+)	Input/Output
5	TxRx-	MBUS B (-)	Input/Output
6	TxRx+	MBUS A (+)	Input/Output
7	+12V EXT	External supply +10,8 ÷ +15,6V	
8	+12V EXT	External supply +10,8 ÷ +15,6V	



### BEWARE! External supply is for converter MBUS!

Because of galvanic separation the converter have to has external power supply.

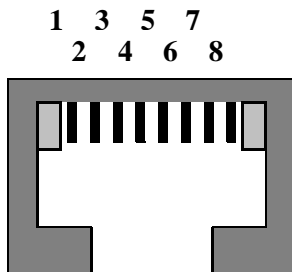


The signals 3-5 and 4-6 are linked inside of the modem. The polarity of the TxRx- and TxRx+ signals is interchangeable.

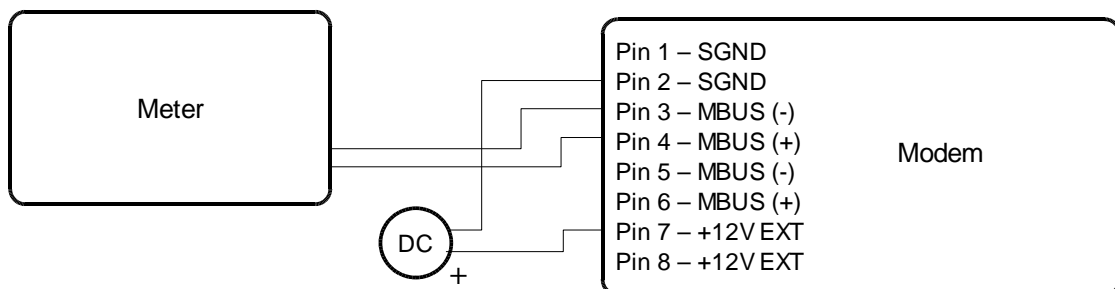


Pin numbering in RJ45 socket:

Panel socket RJ45



Example of circuitry:



## 2.6. Power supply

The expansion port MBUS demand the same DC voltage as is on PWR supply connector of appropriate modem.




## 2.7. Standard accessories

1. Compliance certificate
2. Complaint procedure
3. Warranty
4. User manual

## 2.8. Product marking

Trade name	Type name	Supply
Expansion port MBUS	XC-MBUS	External +10,8 ÷ +15,6V


## 2.9. Expansion ports label

**XC - MBUS** 

Expansion port MBUS Rev.3


Pin description	
Pin 1	SGND GROUND
Pin 2	SGND GROUND
Pin 3	TxRx- MBUS B (-)
Pin 4	TxRx+ MBUS A (+)
Pin 5	TxRx- MBUS B (-)
Pin 6	TxRx+ MBUS A (+)
Pin 7	+12V External power 12V
Pin 8	+12V External power 12V

s.n.: **22656**



22656

**40 V**

CE 

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### 3. Links to related products of the manufacturer

Related products and materials with a reference can be found on the manufacturer's website – Conel company:

[www.conel.cz](http://www.conel.cz)

#### 3.1. Products

**CGU 04i** – GPRS modem.

**ER 75i** – EDGE router.

**UR 5** – UMTS router.

**CDL 800** – Radiomodem.

**CDL 400** – Radiomodem.



## 4. Complaints procedure

**Dear customer,**

The product you have purchased had passed manufacturer's tests and its functions had been checked by our technician before sale. In case any defect shows up during the guarantee period that prevents normal use we ask you to follow the Complaints procedure when registering your claim.

To make a possible complaint procedure easier please make sure when taking over the product your vendor has duly filled in all the relevant parts of the warranty, including date, seal and signature.

This complaints procedure relates to the purchased products. This complaints procedure does not relate to the services provided.

### **Guarantee period of the products**

Guarantee period of 24 months from the date of purchase is provided for the device, source, antenna, data cable and possible accessories. The date of purchase is at the same time date of takeover.

### **Registering a claim**

It is necessary to register your claim at the vendor where the subject of the complaint has been purchased. The customer shall present duly filled warranty and the complete subject of the complaint. Subject of the complaint shall be presented in a condition adequate to that at the moment of purchase.

### **Caution!**

The vendor is not responsible for keeping default settings or data saved in the subject of the complaint.

The customer is obliged to clarify the defect or how it is displayed and what claim he intends to register.

### **Processing the complaint**

The vendor shall provide a free remedy depending on particular conditions, or replace the subject of the complaint for a new product, or settle the matter in another manner in compliance with the Civil Code and the Act on consumer's protection.

As of the moment the claim is registered by the customer and the subject of the complaint is taken over by the vendor the guarantee period stops running. The guarantee period continues on the date of takeover of the repaired subject of the complaint or replaced faultless product by the customer, or should it not be taken over on the date the customer is obliged to take over the repaired or replaced product. In case the vendor replaces the subject of the complaint for a new product (including IMEI replacement) the original subject of the complaint becomes property of the vendor and the new product becomes property of the purchaser. Since takeover of the new product a new guarantee period starts. In the cases when the vendor settles the matter after agreement with the customer by replacement of the subject of the complaint for a faultless product the new guarantee expires.

1. After 12 months since the replaced product was taken over by the customer.

2. On the date when the original guarantee period (subject of the complaint) would have expired should it not have been replaced, whichever comes first.
3. The claim is deemed unsubstantiated when the defect is not found by the vendor processing the complaint or the defect is not covered by the guarantee under Article 3 of the procedure.
4. In case the claimed defect is not found and functionality is proven to the customer, the customer is obliged to pay demonstrable cost related to expert assessment of the claimed defect.
5. In case defect is found when processing the complaint that is not covered by the guarantee (extra-warranty repair), the vendor shall inform the customer and the customer shall inform the vendor whether he/she wishes to have the defect repaired for the price set. A protocol shall be made on exact conditions of the extra-warranty repair and signed by both the customer and the vendor. Should the customer not require remedy through an extra-warranty repair under the conditions, the device shall be returned to him/her after he/she pays the demonstrable cost of expert assessment.

### **The guarantee does not cover defects incurred due to**

1. Mechanical damage (fall and the like).
2. Use of inadequate, or not recommended sources and other accessories.
3. Connection of the product with non-standard accessories.
4. Installation or use of the product conflicting with the Manual or use for other purposes than usual for this type.
5. Improper manipulation, or an intervention of unauthorised person or other service than authorised by the manufacturer.
6. Effects of natural forces (flood, fire etc.) or other local phenomena (storm, overvoltage and the like).
7. Storage under unauthorised temperatures.
8. Operation in a chemically aggressive environment.

### **Other conditions**

The fact that the subject of the complaint does not conform to parameters set for other similar product types shall not be considered a fault. To assess whether it is a case of covered fault the parameters stated in the technical documentation for the product are decisive.

The guarantee expires in any case of changes to the subject of the complaint, or damaged or otherwise unreadable serial number.

**5. Warranty**

<b>Device type</b>	
<b>Serial number</b>	
<b>Guarantee period (months)</b>	
<b>Vendor</b>	
<b>Date of purchase</b>	
<b>Seal of the vendor</b>	

	1	2	3	4	5
Date of complaint registration					
Complaint protocol number					
Date of reception of the device in repair shop					
Date of finished repair					
Number of repair sheet					
Warranty repair	YES - NO	YES - NO	YES - NO	YES - NO	YES - NO
New serial number of the device (IMEI)					
Notes					
Seal of the repair shop					