

## HRI – Interface description

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### Introduction

This document describe how to program and read out the HRI DataUnit by using a PC and the software MiniCom Ver. 3.0 or higher.

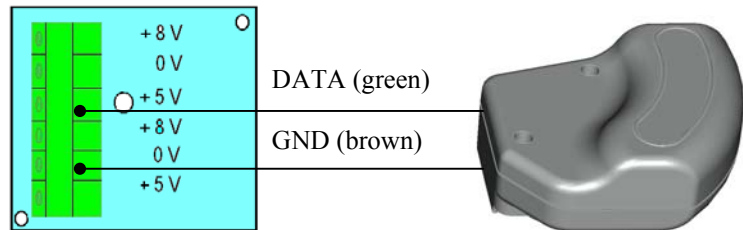
### Connection

There are two possibilities to connect the HRI DataUnit. Alternative you can use the MiniBus or the M-Bus interface.

#### MiniBus

Connect a MiniPad to the HRI DataUnit:

DATA (green) on +5V terminal  
 GND (brown) on 0V terminal)



Plug-in the reading head MDK-PC to the serial interface of the PC and put the head on the MiniPad.

#### M-Bus

Connect a level converter (e.g. PW 3) to the HRI DataUnit:

DATA (green) on +M terminal  
 GND (brown) on –M terminal)

Connect a level converter (e.g. PW 3) to your PC by using the RS-232 interface.

### Communication protocol IEC 870

- Hard- and software according DIN EN 1434-3
- Baud rate: 300 / 2400 with auto speed detection
- Protocol contents
  - Customer number
  - Meter number
  - Meter index
  - Manufacturer code
- Settings
  - Primary address
  - Secondary address

### Commands

- SND\_NKE
- SND\_UD
- Implementation for primary address
- Implementation for secondary address
- Set backward memory =>( from 2<sup>0</sup> to max 2<sup>20</sup> )
- Set meter index 0000 0000 ( 8 digits BCD )
- Set and reset user lead
- Set configuration HRI

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<b>Set up SND - NKE</b>				
<b>Initialise communication SND_NKE</b>				
Hex	Bytes	Field	Meaning	Ref.
10h	1	Start	Start character Short frame	A-Documentation
40h	1	C	initialise communication	”
00h	1	A	Address	”
40h	1	CS	Checksum	”
16h	1	Stop	End character	”

Slave's answer = E5

<b>Set up SND – UD.</b>				
<b>Application reset</b>				
Hex	Bytes	field	Meaning	Ref.
68h	1	Start	Start character long frame	A-Documentation
03h	1	L	Length	
03h	1	L	Length	
68h	1	Start	Start character Start	
53h	1	C	Send User Data	
FEh	1	A	Address	
50h	1	CI	Application reset	
A1h	1	CS	Checksum	
16 h	1	Stop	End character	

Slave's answer = E5

<b>Date Request Req_UD2</b>				
<b>Response to: data string/Respond User Data( ref. Table Resp UD. )</b>				
Hex	Bytes	field	Meaning	Ref.
10h	1	Start	Start character Short frame	
5Bh	1	C	Req_UD2 5B/7B alternating	
00h	1	A	Address	

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5Bh	1	CS	Checksum	
16h	1	Stop	End character	

Slave's answer = Respond User Data( SieheTabell Resp UD. )

Response ( Resp UD )				
Hex	Bytes	field	Meaning	Ref. A-Documentation
68h	1	Start	Start character long frame	
LLh	1	L	length	
LLh	1	L	length	
68h	1	Start	start	
08h	1	C	C field for Resp_UD	
00h	1	A	Bus Address	
72h	1	CI	Field for variable data structure	
78h	4	8 Digit BCD Can be set By Manufacturer Or utility	Meter identification NR	
56h				
34h				
12h				
18h	2	Man code SPX (Aqa) (SOC)	Manufacturer code	
4E h				
01h	1	Version	Type /SW version	
07h	1	medium 07= water	medium to be measured	
00h	1	access	access counter	
00h	1	status	error status information	
00h	2	Signature And data Encryption	Reserve for future	
00h				
0Ch	1	DIF	Data following in 8 digit BCD	
78h	1	VIF	Data following is Meter number	

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78h	4	e.g. Nr=12345678	Meter Index	
56h				
34h				
12h				
0Eh	1	DIF	Data following in 8 digit BCD	
13/14/15/16	1		1 10 100 (valence )	
1Dh	1	CS	Checksum	
16h	1	Stop	End character	

<b>Set secondary address</b>				
<b>Hex</b>	<b>Bytes</b>	<b>field</b>	<b>Meaning</b>	<b>Ref.</b>
68h	1	Start	Start character long frame	A-Documentation
09h	1	L	Length	
09h	1	L	Length	
68h	1	Start	Start character Start	
53/73h	1	C	Send User Data	
FEh	1	A	Address	
51h	1	CI	Send data	
0Ch	1	DIF	8 Bit BCD	
79 h	1	VIF	Bus address	
00H	1	Data	8Bit BCD 00 00 00 00	
00H	1	Data	”	
00H	1	Data	”	
00H	1	Data	”	
4Eh	1	CS	Check sum	
16h	1	Stop	End character	