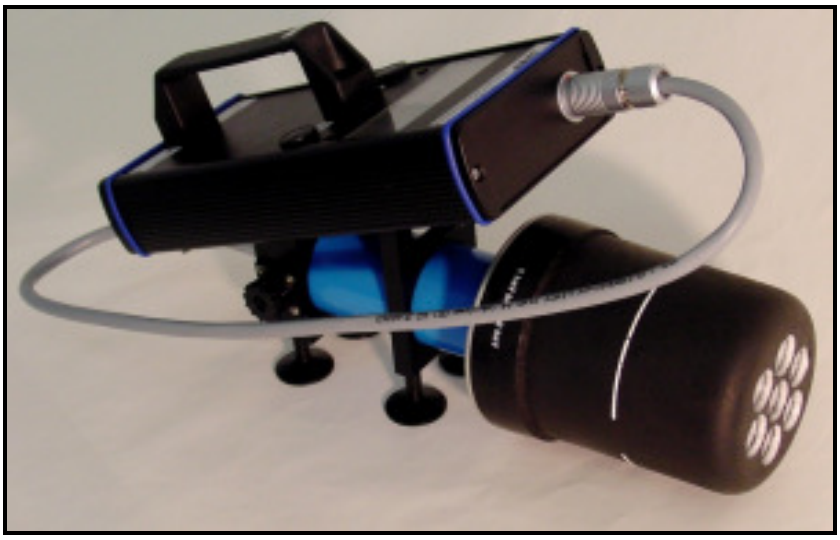
STEP - Interface protocol

for

Survey meter OD-02

(MC- Version V1.6.6 , release 10-2018)



Content:

1. Hardware

The device includes a USB interface, which is implemented by a circuit of FTDI (http://www.ftdichip.com/).
Optionally the device can be supplied with a serial interface type RS232.

Interface parameters: 115200 baud, 8 data bits, no parity

2. Serial interface: Data sent by OD-02

The OD-02 automatically sends a continuous stream of data as follows::

At intervals of 80 ms, the raw measured values of the probe are sent with the following syntax:

~OD02_V1.6.3DL_LoBat_BETA_+1.234_E-04_Sv/h_#

with:

1.	~	…	Start character
2.	OD02	…	Device type
3.	V1.6.3	…	Program version controller software
4.	DL	…	active program mode NL >> Zero adjustment Dl >> µSv/h – Dose rate mode DL >> mSv/h – Dose rate mode DO >> Dose mode
5.	LoBat	…	If the supply voltage is too low (otherwise: 5 spaces)
6.	BETA	…	without attached wall reinforcement cap (otherwise: 4 spaces)
7.	+1.234	…	Measured value with sign and dot as separator
8.	E-04	…	Exponent
9.	Sv/h	…	Unit
10.	#	…	End character

In addition, the actual display value is transmitted between them in the interval of 1 second.
The displayed value is calculated using different algorithms in the device-internal microcontroller:

- Zero point correction
- Moving average, depending on the relative change
- Burst compensation depending on the absolute measured values
- …

Syntax:

DISPLAY:=xxxxBA:=Y*

with:

xxxx	…	Display value or remaining time when switching	
Y	…	Current operating mode	
		0	… Zeroing active
		1	… Switching to Dl (µSv/h)
		2	… Mode Dl (µSv/h)
		3	… Switching to DL (mSv/h)
		4	… Mode DL (mSv/h)
		5	… not available
		6	… Zero adjustment is done
		7	… not available
		8	… Mode Dosis

The following operating modes are possible:

OD-02 actively performs the zero adjustment: DISPLAY:=rzBA:=0*
with rz .. Remaining time in [sec] until switching end

OD-02 has calculated correct zero point: DISPLAY:=xxxxBA:=6*

OD-02 is in switching to DL: DISPLAY:=rzBA:=3*
with rz .. Remaining time in [sec] until switching end

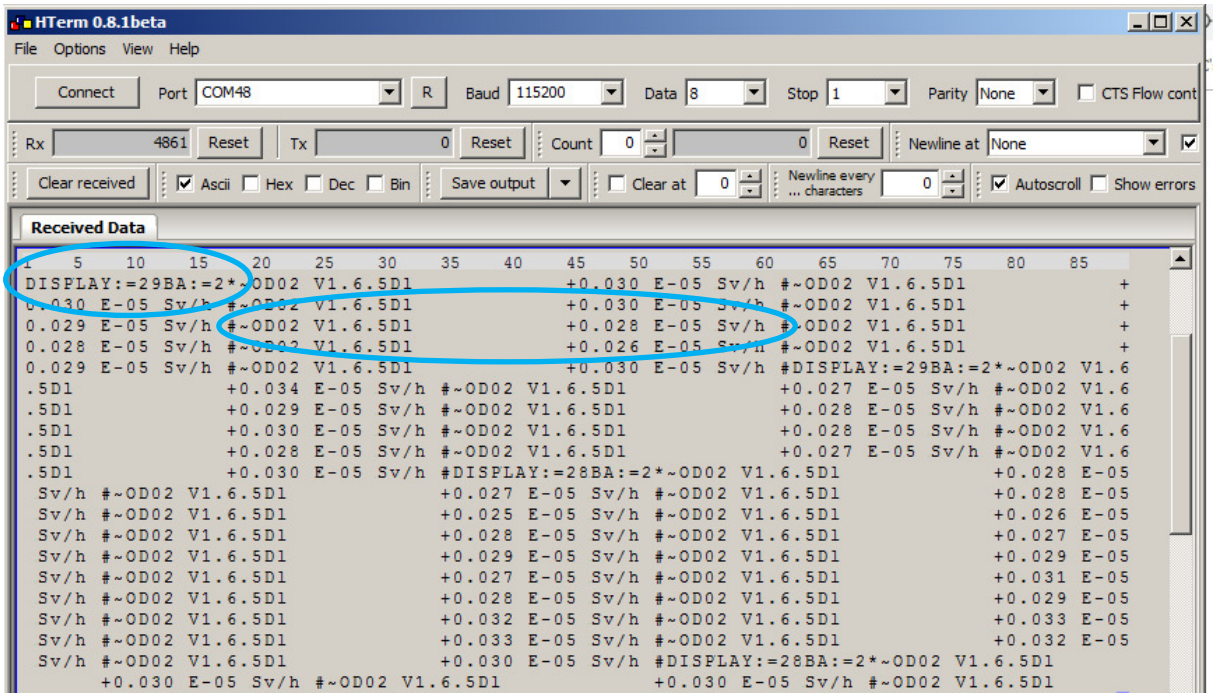
OD-02 is in switching to Dl: DISPLAY:=rzBA:=1*
with rz .. Remaining time in [sec] until switching end

OD-02 is in operating mode DL DISPLAY:=xxxxBA:=4*
with xxxx … Measured value in µSv/h

OD-02 is in operating mode Dl DISPLAY:=xxxxBA:=2*
with xxxx … Measured value in mSv/h

OD-02 is in operating mode DO DISPLAY:=xxxxBA:=8*
with xxxx … Measured value in µSv

To control the data sent, we recommend a standard terminal program, such as HTerm. Here is an excerpt from a recording:



3. Serial interface: Commands for OD-02 for adjustment

The following commands can be used to make settings on the device:

Command	Description	Controller response	Comment
~AHx#	Activate measuring size **Hx**	~BAHx#	
~DHx#	Deactivate measuring size **Hx**	~BDHx#	
~SUR#	Activate unit ‚Röntgen‘	~BUR#	
~SUS#	Activate unit ‚Sievert‘	~BUS#	
~SA1xxxxx#	Set alarm threshold 1 in 10 nSv/h	~BA1xxxxx#	0030 >> 300 nSv/h
~SA2xxxxx#	Set alarm threshold 2 in 10 nSv/h	~BA2xxxxx#	0500 >> 5,0 µSv/h
~SA3xxxxx#	Set alarm threshold 3 in 10 nSv/h	~BA3xxxxx#	1000 >> 10 µSv/h
	Info: If all 3 alarm thresholds = 0, then alarm inactive + buzzer inactive		
~SOF+xxxx#	Set positive offset in 10 nSv/h	~BOF+xxxx#	+0020 >> +0,20 µSv/h
~SOF-xxxx#	Set negative offset in 10 nSv/h	~BOF-xxxx#	-0005 >> +0,05 µSv/h
~GOF#	Get current offset	~COF-xxxx#	