Description RS 232 interface for Kryoheater Selecta

1   RS 232 Interface Module

The role of RS 232 interface module is performed by an Anybus Communicator type AB7013-C with 9-pin SUB-D socket. The RS 232 module's socket is wired 1:1 to the interface module's 9-pin SUB-D socket in the switch cabinet's outer wall.

The interface's command set largely matches the command set of the LAUDA equipment series ECO, Ecoline, PRO, Proline, Integral XT and Integral T.

The RS 232 interface can be connected directly to a PC using a null-modem cable from the switch cabinet.

1.1   Connecting cable und RS 232 interface test

Computer/PC			Kryoheater Selecta		
Signal	**9-pin sub-D socket**		**9-pin sub-D socket**		**Signal**
		↑		↑	
R x D		2		3	T x D
T x D		3		2	R x D
DTR					DSR
Signal Ground		5		5	Signal Ground
DSR					DTR
RTS					CTS
CTS					RTS

↑ without hardware handshake: Set "without hardware handshake" mode on the computer/PC.

+
  – Use null-modem cable
  – Use shielded connection cables
  – Connect shield to connector housing
  – Galvanically isolate cables from the rest of the electronics
  – Do not connect unassigned pins!

The RS 232 interface can be easily checked on a connected PC with the Microsoft Windows operating system.

For Windows[®] 3.11 using the "Terminal" program.
For Windows[®] 95/98/NT/XP using the "HyperTerminal" program.
"HyperTerminal" is no longer included in the operating system on Windows Vista, Windows 7, Windows 8 and Windows 10.

  – Freeware terminal programs can be found on the Internet.
    These programs provide similar functions to those of "HyperTerminal" (for example PuTTY or RealTerm).
    Search for "serial port terminal program"

Description RS 232 interface for Kryoheater Selecta

1.2   RS 232 protocol

- The interface operates with 1 stop bit, no parity bit and 8 data bits
- Transfer rate: 9,600 baud
- The RS 232 interface operates without hardware handshake (RTS/CTS)
- The command from the computer/PC must terminate with CRLF
- The response from the Kryoheater Selecta always terminates with CRLF
- After sending a command, always await a response from the Kryoheater Selecta before issuing a new command. This will allow unambiguous allocation of requests and responses.

CR = Carriage Return (hex: 0D)
LF = Line Feed (Hex: 0A)

Example: Target value 30.5°C to Kryoheater Selecta

Computer/PC	Kryoheater Selecta
"OUT_SP_00_30.5"CRLF	⇨

1.3   Write commands (data setpoint to Kryoheater Selecta)

Command	Meaning
OUT_PV_05_XXX.XX	Product temperature via interface
OUT_SP_00_XXX.XX	Setpoint for temperature controller with max. 3 digits before decimal point and 2 digits behind it
OUT_SP_01_XXX	Pump power 30 to 100%
OUT_SP_06_X.XX	Setpoint pressure (for pressure control) <0.3 bar = pressure controller OFF
OUT_MODE_01_X	Adjustment: 0 = int. / 1 = ext. Pt100 / 2 = ext. Analog / 3 = ext. Serial
OUT_MODE_02_X	0 = device off (standby) 1= device on

- Response form Kryoheater Selecta "OK" or no response in event of error

1.4   Read commands (request data from Kryoheater Selecta)

Command	Meaning
IN_PV_00	Query outlet temperature
IN_PV_02	Query outlet pump pressure in bar
IN_PV_03	Query product temperature (for selected source Pt100, analog, RS 232)
IN_PV_05	Query level
IN_SP_00	Query target value temperature controller XXX.XX or –XXX.XX
IN_SP_01	Query pump power level XXX
IN_SP_06	Query target value pressure controller XXX.XX or –XXX.XX
IN_MODE_02	Standby: 0 = device ON / 1 = device OFF
STATUS	Query device status, 0 = OK, -1 = fault

- Kryoheater Selecta always responds with a fixed number of digits (XXX.XX, or -XXX.XX for negative values)