

ProMiner

1 General Information

The serial data communication interface conforming to the RS 232 standard is intended solely for automatic output of the measurement readings and messages of the DULCOMARIN[®] to a printer or PC. The connected printer must be set to a line length of at least 40 characters. Only the standard ASCII characters of the non-extended 7 bit code are used (no foreign language letters).

2 Connecting a Printer, Terminal or Computer to the DULCOMARIN®

Cable pinout taking a 25-pole plug connector as example:



The jumper connections RTS/CTS and DSR/DTR are necessary only when the communication partner of the DULCOMARIN[®] is configured for processing these signals.

The cable must be shielded against electrical disturbance. Signal amplifiers (line drivers) are required when very long connecting cables (20 m or longer) are used.



IMPORTANT

Both data communication partners must be set to the same transmission protocol parameters (see section 2.1).

2.1 Transmission protocol parameter settings

The following fixed parameter values are preset in the DULCOMARIN®		
Serial data transmission		
Parity:	non	
Number of stop bits:	1	
Character length without stop and parity bits:	8	
Software handshake:	Xon/Xoff	
The transmission speed can be set to the following Baud rates:		
Baud rate:	300, 600, 1200, 2400, 4800, 9600	

The printer (or terminal or computer) must be set to the same parameter values.

As a simple test for data transmission, press the start/stop button several times. This is transmitted directly.

2.2 Connecting a DULCOMARIN® to a PC

The easiest way to do this, is via the ProMinent[®] visualization software PROMPOT running under the operating system Windows.

Data transmission, however, will only be in one direction: DULCOMARIN[®] \rightarrow PC.

2.3 Connecting several DULCOMARIN® to one printer

A selector switch must be interposed for this purpose.

For example, this is how three DULCOMARIN® devices can send their data to a common printer:



The selector switch does not require a mains power connection if it is operated manually.

Smart switches which automatically switch to the active signal source also require a mains connection. Use a suitable cable for the connection between the selector switch and the printer.

For the connection between the selector switch and each DULCOMARIN[®], use a cable in which three wires are connected through as follows.

DULCOMARIN®)	Selector Switch
21	тх	RXD
22	RX	тхр
23	GND	GND

2.4 Instructions

The clock times at the devices should be set to the same valves (there may be a difference of a few minutes when the devices are delivered).

Printout begins about 1 minute after connecting a device to the mains voltage. The devices should be switched on individually at times differing by several minutes to prevent several DULCOMARIN[®] from sending a print signal simultaneously. (Not necessary if a ProMinent selector is used).

If the data transmission speed (Baud rate) of the DULCOMARIN[®] swimming baths controller is changed, the printer must be set to the new data transmission rate too (consult the operating instructions for the printer).

If print requests come at almost the same time from several controllers, the print job which arrives first is executed first.

3 Protocol

On devices with RS interface the data and time are shown on the alternating display in the basic state. The transmitted data set consists of the following parts:

a) By pressing simultaneously the up and down key or if requested in the startup menu, a list of all set values and parameters is printed:

(Device number) Date/Time: Contents of the information menu

b) Output of all measurement readings at regular intervalls:

(Device number) Date/Time: Actual value, dosage (actuating value)

XX.XX pH XX.XX ppm XXXX mV XXX.X °C XXX % XXX %

c) Limit/set point protocol will be printed if the power supply is switched on, once a day at the beginning of the protocol period or if set points or limits are charged.

(Device number) Date/Time: (upper and lower limit, set point)

Iower limitXX.XX pHXX.XX ppmXXXX mVXXX.X °Cset pointXX.XX pHXX.XX ppmXXXX mVXXX.X °Cupper limitXX.XX pHXX.XX ppmXXXX mVXXX.X °C

d) All warnings and error messages are activated immediately the first time a problem occurs/is acknowledged/disappears:

(Device number) Date/Time: (Warning or fault text as in display, one line)

4 Required Settings

The following parameters must be set in order to activate the interface (the factory preset values are underlined, the possible values are listed):

a) Protocol: <u>on</u> / off

b) Transmission speed:

The correct speed setting for the data transmission depends on the receiver. Baud rate: $\underline{9600},\,4800,\,2400,\,1200,\,600,\,300$

c) Date / Time:

Day. Month. Year(preset in the factory)Hour: Minute: Second(preset in the factory)It is not possible to set a value for "Second"; the program always starts with 0 s.The program calculates the name of the day of the week from the date and outputs this name too.The month must be entered as a number but is always printed as a three-letter abbreviation.

d) Measuring Interval:

Measuring interval:1...10...1440 minutesStart time:0...24Terminating time:0...24Printout commences approx. 1 minute after mains voltage switch-on.

e) Device number:

A device number for identification can be output so that the printer can distinguish between the devices when several DULCOMARIN[®] are connected. The possible device numbers range from $\underline{0}$ (preset in the factory) to 99. The device number is output only if it is not zero.

5 Operation of the DULCOMARIN® with RS interface 5.1 Functions of the Buttons menu change confirm alarm = stop alarm relay store setting t flashing LED = fault steady light = fault still present next option change setting text Start / Stop of loop control / dosing function STOP steady light = functions on change number go back no steady light = functions off one level to left h possibly further up starting the programm calibration of probes 5.2 Overview device in operation NOTE The scope of the menus depends on S the version of the device Setting can be changed only if change Ô this was enabled at installation setting? menu. S Press key for at least 2 s display ()information? Set access code 2 Access code incorrect access code set \odot installation? 5000 Access code correct ک) installation € pH? S not for installation DCMB 0 X X 1 X X X X X X chlorine? S not for installation DCMB 0 X X 0 X X X X X X (\mathfrak{D}) ORP? DCMB1XX3XXXXX S not for installation $\widehat{\mathbf{S}}$ DCMB 0 X X 0 X X X X X X temperature? DCMB 0 X X 1 X X X X X X DCMB 1 X X 2 X X X X X X 5 here: installation \odot setting of the RS interface functions? S installation \odot end? 2



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5.4 Further Menus

All settings of the RS 232 interface are output in the information menu. No settings of the interface are possible in the setting menu. The info printout contains the complete information menu.

6 Fault messages / Clearing faults

RS interface missing

RS interface not functioning correctly

Installation error or fault in the electrical processing

- Inform the customer service organisation.

- The devices operates correctly again after clearing the fault.



The internal processing of time and data is disturbed, e.g. because the battery is discharged.

- All time-dependent outputs in the protocol are disabled.

All other outputs in the protocol are without time stamp.

- Time and date must be set again.

The battery is charged again after the device has been switched on for 2 days.

- A defective battery can be replaced only by the customer service organisation.

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7 Annex

7.1 Pin Configuration of RS 232 Interface at PC

