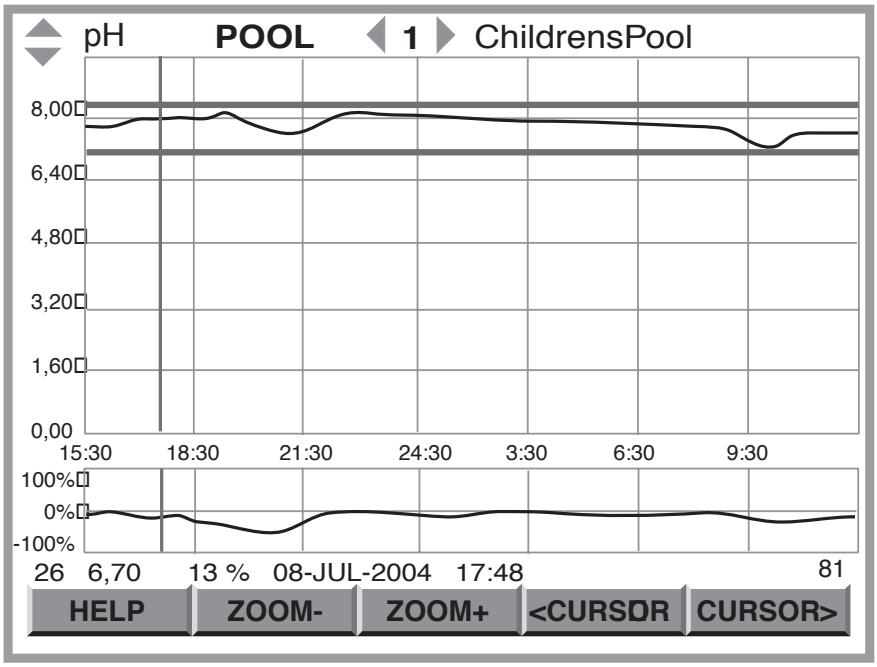
Preliminary

Supplementary instructions

DULCOMARIN® II, videographic recorder Operation



These supplementary instructions are only valid in conjunction with the "DULCOMARIN® II operating instructions, Part 2: Operation"!

Please read through the whole of these instructions to begin with! Do not discard them!
The warranty is invalidated in the event of damage due to incorrect operation!

Imprint:
Supplementary instructions
DULCOMARIN® II, videographic recorder

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1 About this product

The videographic recorder for the swimming pool controller DULCOMARIN® II is a software solution that makes an expensive peripheral device superfluous. Designed as a 16-way, 2 x 5-channel recorder, it displays the measured values for pH value, redox value, concentration for free Cl and combined Cl and temperature, together with the corresponding control variables (not for temperature) for each of up to 16 pools. Without an SD card the measurement results for a 24 h period can be stored; with an SD card the measurement results for periods of 35 days to 12 years can be stored, depending on specific requirements.

The simple TXT-files on the SD card can be copied to a PC and edited as graphics using EXCEL, for example.

2 Storage and transport

The standard delivery includes the DXCa update kit consisting of:

- SD card, 64 MB
- card reader

IMPORTANT

- ***Store and transport the card reader and SD card in the original packaging!***
- ***Also protect the entire DXCa update kit from damp and the effects of chemicals!***

Environmental conditions for storage and transport

Temperature: 0 °C ... 45 °C

Humidity: 10 % ... 90 % relative humidity, non-condensing

3 Setting up the videographic recorder

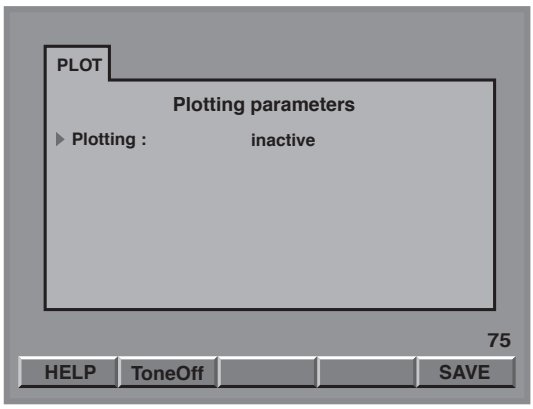


Fig. 1: The PLOT tab on an inactive videographic recorder

If the icon for the videographic recorder is not present on the far left in the central menu item, proceed as follows:

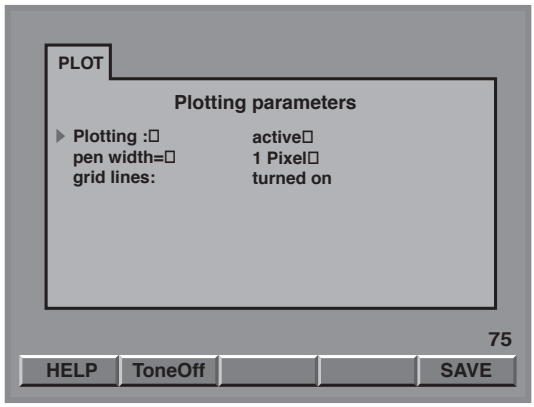
- ▶ Press the F4 CONFIG function key in the central menu item
- ▶ Press the F2 OPTION function key in the Configure menu item
- ▶ Press the ENTER key on the PLOT tab
- ▶ Use the UP and DOWN arrow keys to choose the “active” selection and press the ENTER key
- ▶ Press the F5 SAVE function key
- ▶ Move back to the central menu item with the ESC key.

NOTE

The videographic recorder does not start working until the start-up routine of the DULCOMARIN® II is complete (this takes approx 4 min.).

Setting up the videographic recorder interface

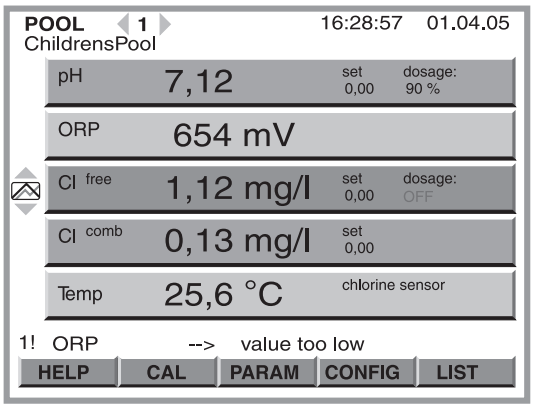
Fig. 2: The PLOT tab on an active videographic recorder



- ▶ Press the F4 CONFIG function key in the central menu item
- ▶ Press the F2 OPTION function key in the Configure menu
- ▶ On the PLOT tab, choose either the “pen width” selection or the “Grid lines” selection (arrow keys)
- ▶ Press the ENTER key
- ▶ Use the UP and DOWN arrow keys to make the required selection and press the ENTER key
- ▶ Press the F5 SAVE function key
- ▶ Move back to the central menu item with the ESC key.

Looking at the charts

Fig. 3: The central menu item on an active videographic recorder



- ▶ Press the UP or DOWN arrow keys in the central menu item – the charts for the pH value appear first.

4 Structure and function of the videographic recorder

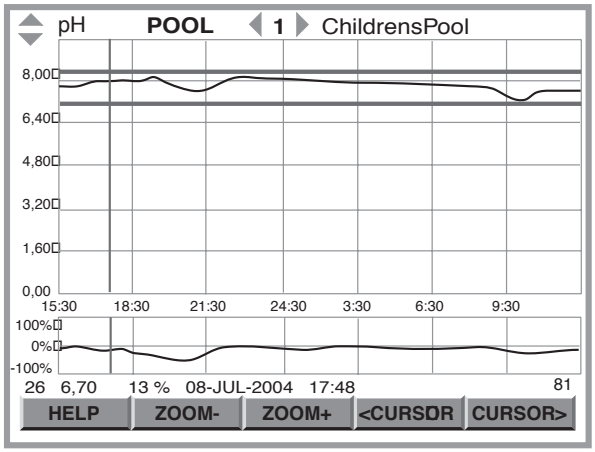


Fig. 4: Structure of the recorder window

The recorder window is made up of:

- Designation of the parameter
- Pool number and pool name
- Chart for the parameter
- Chart for the control variable of the parameter
- Information line for the selected measured value
- Bar with function keys

Designation of the parameter

Select the parameter using the UP and DOWN arrow keys.

Pool number and pool name

Select the pool using the LEFT and RIGHT arrow keys.

Chart for the parameter

The chart for the parameter shows the y-axis with the units on the far left. Between the chart for the parameter and the chart for the control variable is the time axis (x-axis). It always displays 24 hours. Times are only displayed where there are also measured values. Otherwise it shows “00:00”.

The red lines indicate the set limits (in the Set Parameter menu: Parameter Alarm)
If the measured values infringe the limit, the trace appears red there.

The blue line is a cursor that you can use to move onto individual measured values to read their exact value (see below “Information line for the selected measured value” and “Bar with function keys”). The cursor is positioned exactly on the y-axis to begin with.

Chart for the control variable of the parameter

The diagram for the control variable of the parameter shows the y-axis with the units (%) on the far left. Between the chart for the parameter and the chart for the control variable is the time axis (x-axis). It always displays 24 hours.

Information line for the selected measured value

The information line for the selected measured value displays its exact value. You select a measured value with the cursor (see below “Bar with function keys”).

The sequence of the displayed values is:

- No. of the measured value
- Measured value
- Value of the control variable
- Date of the measurement
- Time of the measurement
- (Display number)

Bar with function keys

In the bar with function keys there are two pairs of function keys, F2 ZOOM- / F3 ZOOM+ and F4 <CURSOR /F5 CURSOR>:

You can use the F2 ZOOM- / F3 ZOOM+ pair of function keys to zoom in and out of the y-axis for the parameter.

NOTE

When the recorder receives the next measured value, the view jumps back to the normal view again (after 5 min. at the latest). The view also reverts back to the normal view each time you change to a different display.

You can use the F4 <CURSOR /F5 CURSOR> pair of function keys to move the blue cursor in the chart for the parameter (it might be positioned on the y-axis to begin with).

More information

The time interval at which the DULCOMARIN® II records the measured values is 5 min.
When the trace has reached the full chart width, an old value disappears on the left for each new value that appears on the right.

The DULCOMARIN® II stores the current day’s measured values.
The DULCOMARIN® II stores the previous day’s measured values from 0 h to 24 h as files for each parameter and for each pool.
When an SD card is fitted, the DULCOMARIN® II stores these files on the SD card until it is full.

5 Using the SD card

Requirement:
A PC with Windows 98 or later and a USB adaptor is required.

Use the SD card when the measured values must be stored for longer than 24 hours (or if you don’t want the “!Please insert SD card!!” error message to be displayed)

The SD card storage capacity required depends on the number of days to be stored and the number of pools (see Table 1 in the “Technical data” section). The SD card supplied has a capacity of 64 MB.

IMPORTANT

When the recorder is in service, an empty card must be fitted in good time before the number of days that can be stored - from Table 1 - runs out (except for the current day’s files)!

Otherwise the files for subsequent days will be lost as the DULCOMARIN® II cannot erase data on the SD card!

The SD card must be formatted as FAT 16 or FAT 32.

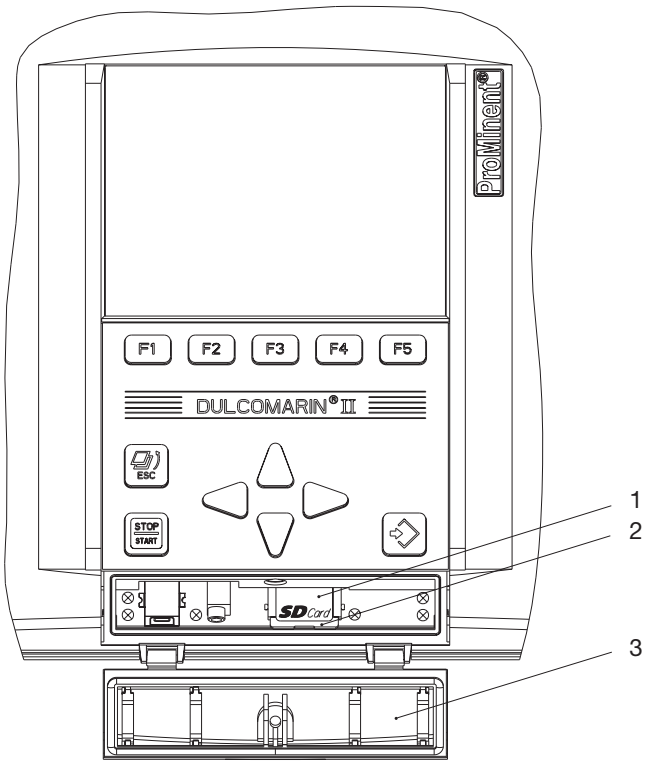
The DULCOMARIN® II cannot use the FAT 12 format that is standard with digital cameras. However, FAT 12 formatted cards can be reformatted using the card reader. Formatting erases all data on the SD card!

NOTE

The videographic recorder displays the measured values for the last 24 h. Older measured values can be displayed using a PC (see following sections).

Fitting the SD card

Fig. 5: The interfaces with the interface cover of the DXCa open



1 Card slot
2 SD card
3 Interface cover

IMPORTANT

The SD card must be emptied (except for the current day's files)!

Otherwise the number of days that can be stored - from Table 1 – cannot be achieved, as the DULCOMARIN® II cannot erase data on the SD card!

- ▶ To fit the SD card, open the transparent interface cover (3) at the bottom of the DULCOMARIN® II case (shown open in Fig. 5).
- ▶ If the SD card is being replaced by another SD card, always perform a reset before fitting the new card. Press: F4 CONFIG, F2 OPTION and F3 RESET in sequence.
  If you forget to reset before fitting the card, totally erase the SD card and then perform the reset.
- ▶ Slide the SD card (2) into the card slot (1), until it clicks into place. An "SD" identifier on a green background then appears at the top right of the LCD screen. The "!Please insert SD card!!" error message clears as well.
  If the DULCOMARIN® II has already stored data, it then copies the previous day's files and the current day's measured values to the SD card with the next measured value (delay time up to 5 min.) – the "SD" identifier appears on a red background. Do not take the SD card out at this time!

IMPORTANT

After the transparent interface cover (3) in Fig. 5 has been opened, it must be screwed firmly back in place to ensure a moisture-proof seal. Otherwise IP 65 protection is not achieved!

Analysing the SD card files

- ▶ To take the SD card out, open the transparent interface cover (3) at the bottom of the DULCOMARIN® II case (shown open in Fig. 5).
  Only pull the SD card (2) out of the card slot (1) if the “SD” identifier at the top right of the LCD screen has a green background – not if it has a red background. The recorder is storing data at this time. Wait for a short time in this case.
  When the SD card has been taken out, the “SD” identifier at the top right of the LCD screen disappears. The “!Please insert SD card!!” error message also appears in both the permanent display and the central menu item.
- ▶ Copy the SD card files to the PC using the card reader and erase the data on the SD card.
- ▶ Refit the SD card (see above “insert SD card”).

The file names have the following format:

YYMMDDPP.txt

where YY = year, MM = month, DD = day, P or PP = pool number

To save the measured data, the DULCOMARIN® II stores the files “read-only”. So only work with copies and remove the write-protect under “Properties” on the PC.

Opening the file in EXCEL:

- ▶ Open the file with “File” - “Open” - “Files of type: All Files” - select file - “Open”.
- ▶ Click “Next” In the Text Import Wizard that appears.
- ▶ In the next window, under “Separators”, check the Tab box and click “Finish”.
- ▶ If the number columns are left-justified, select them and set the cell format to “Number”.
- ▶ To create charts, only use the “XY (scatter)” chart type.

IMPORTANT

If you have the changed the DULCOMARIN® II clock over to or back from summertime, take this into account in the analysis!

6 Troubleshooting

Error message	Cause	Remedy
“!Please insert SD card!!”	Recorder is activated but no SD card fitted.	Fit SD card
“! Unformatted SD card!!”	SD card not formatted as FAT 16 or FAT 32	Format SD card as FAT 16 or FAT 32. All data on the SD card will be erased!
“!SD card write-protected!!”	Small switch on the side of the SD card is set at LOCK	Move the switch on the side of the SD card away from LOCK
“!SD card full. Please replace!!”	SD card is full	Copy all data from the SD card to PC and erase the data on the SD card
After changing the SD card, the traces do not show the values immediately after 24:00 h	No reset was performed before changing the SD card	Perform a reset! Press: F4 CONFIG, F2 OPTION and F3 RESET in sequence.

7 Technical data

Recorder type: 16-way 2 x 5-channel recorder (16 pools, measured variable and control variable, 5 measured variable

Environmental conditions for storage and transport:

DXCa update kit

Temperature: 0 °C … 45 °C

Humidity: 10 % … 90 % relative humidity (non-condensing)

in service: Card reader

Temperature: 0 °C … 45 °C

Humidity: 20 % … 85 % relative humidity (non-condensing)

SD card

Temperature: -25 °C … +85 °C

Storage capacity: without SD card: 24 h

with SD card:

Table 1: Relationship between number of days that can be stored, SD card storage capacity and number of pools

Storage capacity in MB	**32**	**64**	**128**	**256**
Number of pools				
1	564	**1128**	2256	4512
2	282	**564**	1128	2256
3	188	**376**	752	1504
4	141	**282**	564	1128
5	112	**224**	448	896
6	94	**188**	376	752
7	80	**160**	320	640
8	70	**140**	280	560
9	62	**124**	248	496
10	56	**112**	224	448
11	51	**102**	204	408
12	47	**94**	188	376
13	43	**86**	172	344
14	40	**80**	160	320
15	37	**74**	148	296
16	35	**70**	140	280

SD card format: FAT 16 or FAT 32

File name format: YYMMDDPP.txt

8 Accessories

	Order No.
DXCa update kit (included in standard delivery)	1025885
consisting of SD card, 64 MB, for temperatures between -25 °C … +85 °C and card reader	
SD memory card, 64 MB, -25 °C … +85 °C	732483

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