

Function

The SYCON 2602, based on the SYCON series, is an online analyser for the automatic determination of water parameters using the colorimetric limit value method. A colour reaction is produced by adding an indicator to the water sample. The device evaluates the intensity of the colour depending on the indicator used. The SYCON 2602 monitors the limit value of the water constituent by means of the colour change in the sample after the indicator has been added. The device can only determine one parameter at a time. The parameter and limit value are determined by the indicator used and the programmed unit of measurement.

General specifications

Parameters	Value / range	
Power	(230 VAC version)	100-240 VAC (50/60 Hz)
	(24 V AC/DC version)	21.6 – 26.4 V AC/DC (50 Hz)
Power consumption	25 VA (maximum) 8 VA (measurement mode) 3.5 VA (standby)	
Load capacity	Load capacity of relays with internal power supply: 1 A from terminals 5 to 8 Load capacity of relays with external power supply: 2.5 A	
Protection	Open wall mounting	IP43
	Mounting in housing	IP54
Storage temperature	0 °C – 45 °C	
Ambient temperature	10 °C – 45 °C	
Measured water temperature	5 °C – 40 °C	
Air humidity	20 – 90 % RH (without ice or condensation)	
Inlet water pressure	min: 0.5 bar - max: 5 bar / recommended 1 - 2 bar	
Inlet water in general	Clear, colourless, free of solids, without gas bubbles	
Water quality requirements for measuring water hardness	pH:	4 - 10
	Iron:	< 3 ppm
	Copper:	< 0.2 ppm
	Aluminium:	< 0.1 ppm
	Manganese:	< 0.2 ppm
	Acid capacity:	KS 4.3 < 5 mmol/l



Note on oxidising agents:

Oxidising agents such as calcium hypochlorite, chlorine, chlorine dioxide, sodium hypochlorite or ozone above the limits permitted in "TrinkwV 2012" attack the dye contained in the indicator and interfere with the measurement. An accurate determination of the water hardness is therefore no longer guaranteed. An activated carbon filter upstream of the analysis device can remove these oxidising agents from the sample water, enabling the water hardness to be determined correctly.

The capacity of an activated carbon filter is depleted during operation. The activated carbon filter must therefore be replaced at regular intervals. The effectiveness of the activated carbon filter can be checked using Caldur® test kits.



SYCON 2602 in detail

Technical data

Parameter	Value / Range	
Installation	Wall mounting in closed rooms	
Dimensions	Without housing:	274 x 275 x 129 mm (W x H x D)
	With housing:	332 x 345 x 190 mm (W x H x D)
Weight	Without housing:	approx. 1.9 kg
	With housing:	approx. 3.8 kg

Analytical properties

Parameters	Value / Range		
Measurement method	Titration with colour change		
Measuring range	Total hardness	Carbonate hardness	
	°dH	0.02 ... 10	1
	°f	0.04 ... 20	2
	ppm CaCO ₃	0.4 ... 200	20
	mmol/l	0.004 ... 1.78	0.4 ... 1.2
	°e	0.028 ... 14	
	°Ж	0.008 ... 4	
	The measuring range is defined by the indicator used. Due to an adapted measuring sequence, the limit values differ depending on the programmed hardness unit. <i>(The following units are available for the analysis value: °dH, °f, ppm CaCO₃, mmol/l, °e, °Ж; these are shown on the display).</i>		
Accuracy	Measurement accuracy: ± 10% of the limit value of the indicator used		
Indicator consumption	Approx. 0.1 ml/analysis, depending on the measured water hardness		
Measurement duration	Approx. 5 min, depending on the set rinsing time		
Number of analyses	Approx. 5,000 analyses / 500 ml indicator		
Shelf life of indicators	At least 2 years when stored properly (below 25 °C, in a dark place)		
Water consumption	Approx. 1 l/analysis at 2 bar Water consumption varies depending on the inlet pressure and the set rinsing time.		

Inputs/outputs

Parameters	Value / Range
3 relay outputs	max. 250 VAC / VDC; max. 1 A as potential-free outputs NC/NO The relays provide the following functions: • Limit value alarm • Device error • Analysis active with switchable delay time • Indicator message (alternative)



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Signal input	Galvanically isolated contact input • Start analysis • Water meter • Flow monitor • Interval reset (PLC)
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Maintenance intervals

Interval	Maintenance
Every 6 months	Cleaning the measuring chamber
Every 30,000 analyses or after 2 years of operation	 At high ambient and water temperatures or with water containing high levels of organic matter, the cleaning intervals may need to be shortened.
	Cleaning the measuring chamber (as above), Installation of maintenance kit: Replacement of the peristaltic pump cartridge and seals

Indicators for monitoring total hardness

Designation Indicator	°dH	Measuring range		Item 500 ml bottle	Item 4 x 500 ml bottles
		ppm CaCO ₃	°f		
H25-0.02	0.02	0	0.04	32-084 115	32-484 115
H25-0.05	0.05	1	0	32-084	32-484 125
H25-0.1	0.1	2	0	32-084 135	32-484 135
H25-0.2	0.2	4	0.4	32-084 145	32-484 145
H25-0.3	0.3	6	0	32-084 155	32-484 155
H25-0.5	0.5	10	1	32-084 165	32-484 165
H25-1	1.0	20	2	32-084	32-484 175
H25-2	2.0	40	4	32-084 185	32-484 185
H25-3	3.0	60	6	32-084	32-484 195
H25-5	5	100	10	32-084 205	32-484 205
H25-10	10	200	20	32-084 215	32-484 215

(The following units are available for the analysis value: °dH, °f, ppm CaCO₃, mmol/l, °e, °Ж; these are shown on the display).

Indicators for monitoring carbonate hardness

Designation Indicator	°dH	Measuring range		Item 500 ml bottle	Item 4 x 500 ml bottles
		mmol/l	°f		
C25-1	1	0.4	2	32-086 125	32-486 125
C25-1.5	1.5	0.6	3	32-086 135	32-486 135
C25-2	2	0.8	4	32-086	32-486 145
C25-3	3	1.2	6	32-086 155	32-486 155

(The following units are available for the analysis value: °dH, °f, ppm CaCO₃, mmol/l, °e, °Ж; these are shown on the display).



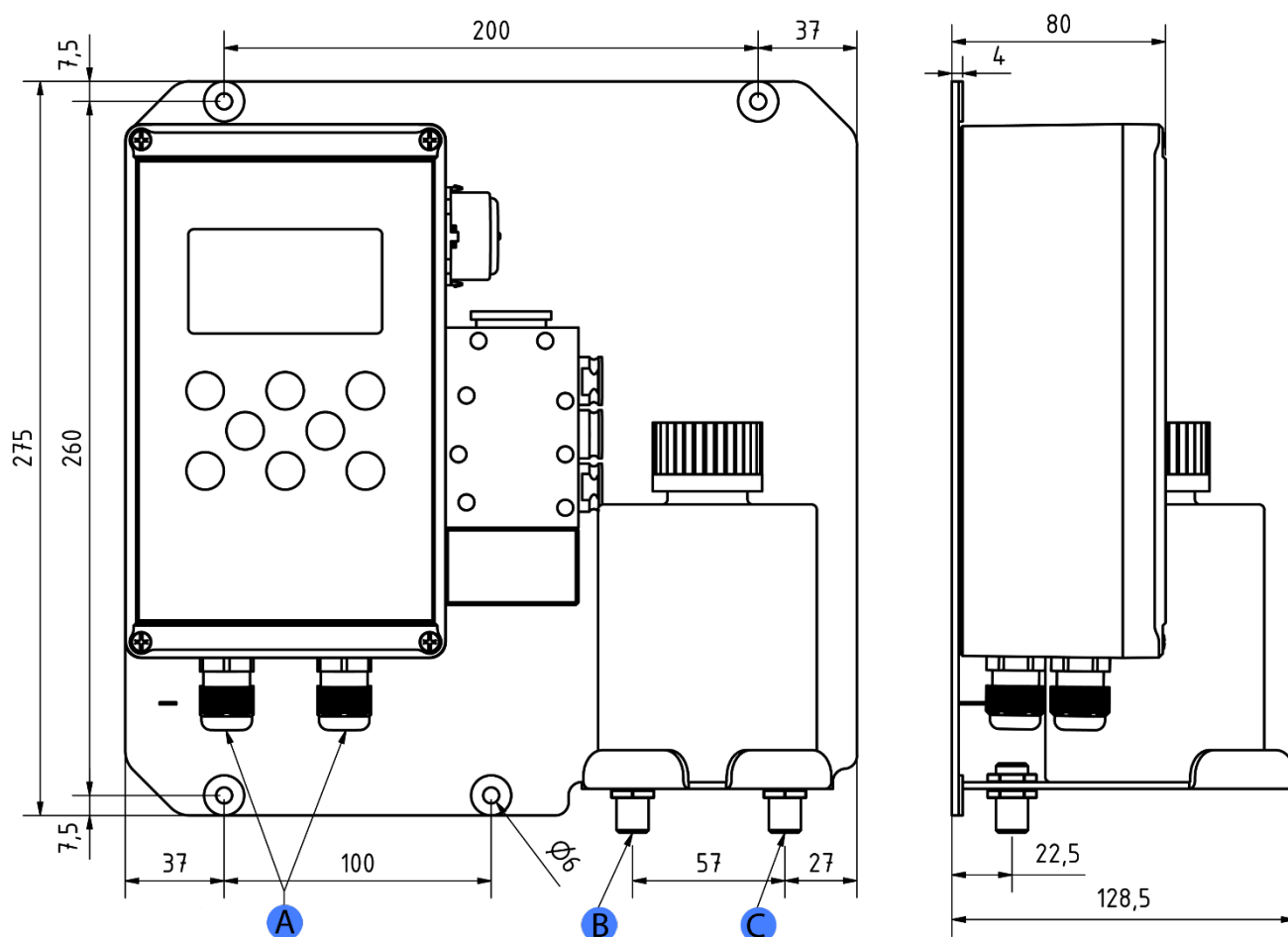
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The dosing quantities of the indicator are matched to the unit set on the device. They differ depending on the selected unit of water hardness. One bottle of indicator is sufficient for at least 5,000 limit value analyses.

Drawing of wall bracket

The SYCON 2602 must be installed upright. The wall bracket has four 6 mm holes for attaching the analysis device.



1 : Drilling plan for mounting the analyser without housing

Position	Description
A	Cable glands for electrical connection
B	Water inlet connection for hose with 6 mm outer diameter
C	Water drain connection for hose with 6 mm outer diameter

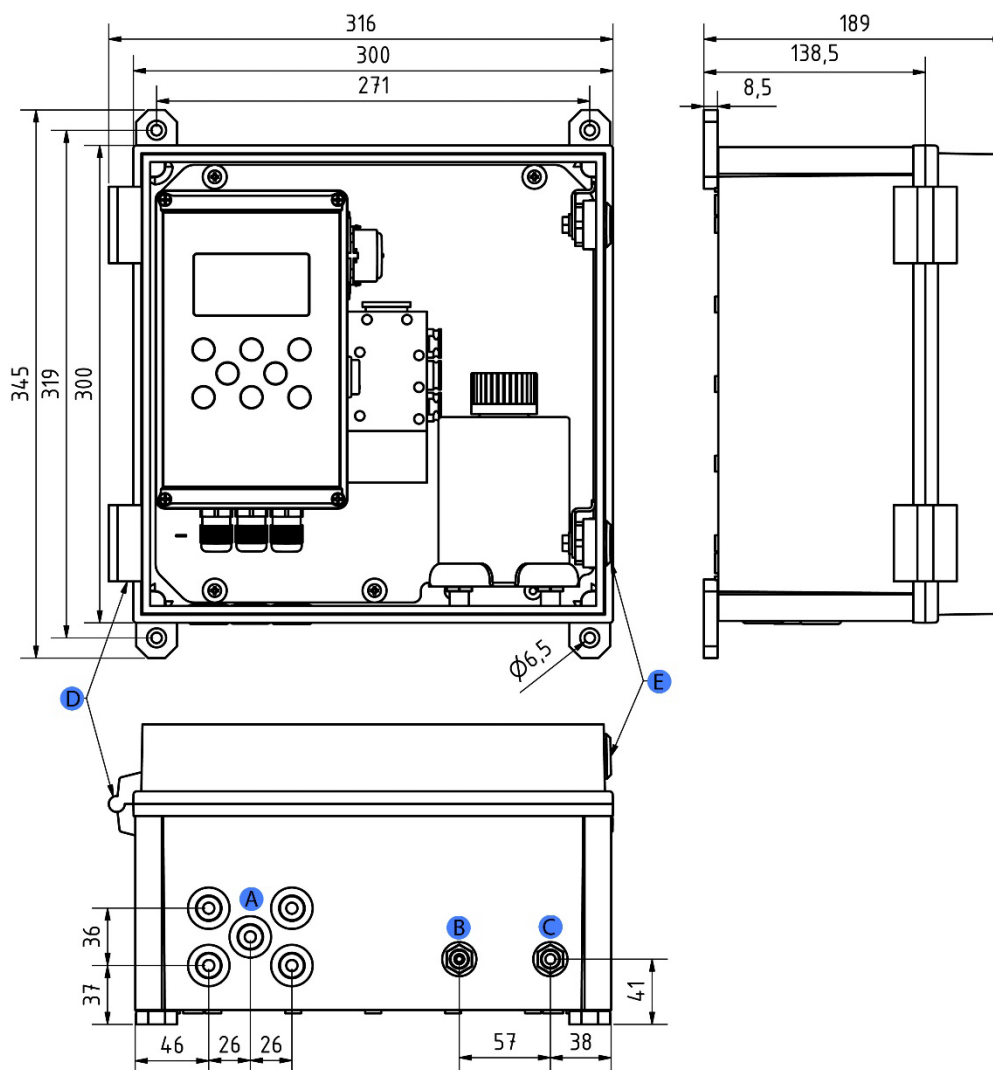


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Drawing of housing

The analyser is optionally supplied with a matching housing. The package includes 4 mounting brackets with 6.5 mm holes, which are attached to the rear of the housing.

To open the device, the available space should be at least 450 x 350 mm (W x H).



2 : Drilling plan for mounting the analyser in the housing

Position	Description
A	Cable glands for electrical connection
B	Water inlet connection for hose with 6 mm outer diameter
C	Water drain connection for hose with 6 mm outer diameter
D	Door hinge
E	Door locks

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