

RAINMASTER Eco-FS

Installation and user manual

WATER, WE 'RE IN OUR ELEMENT

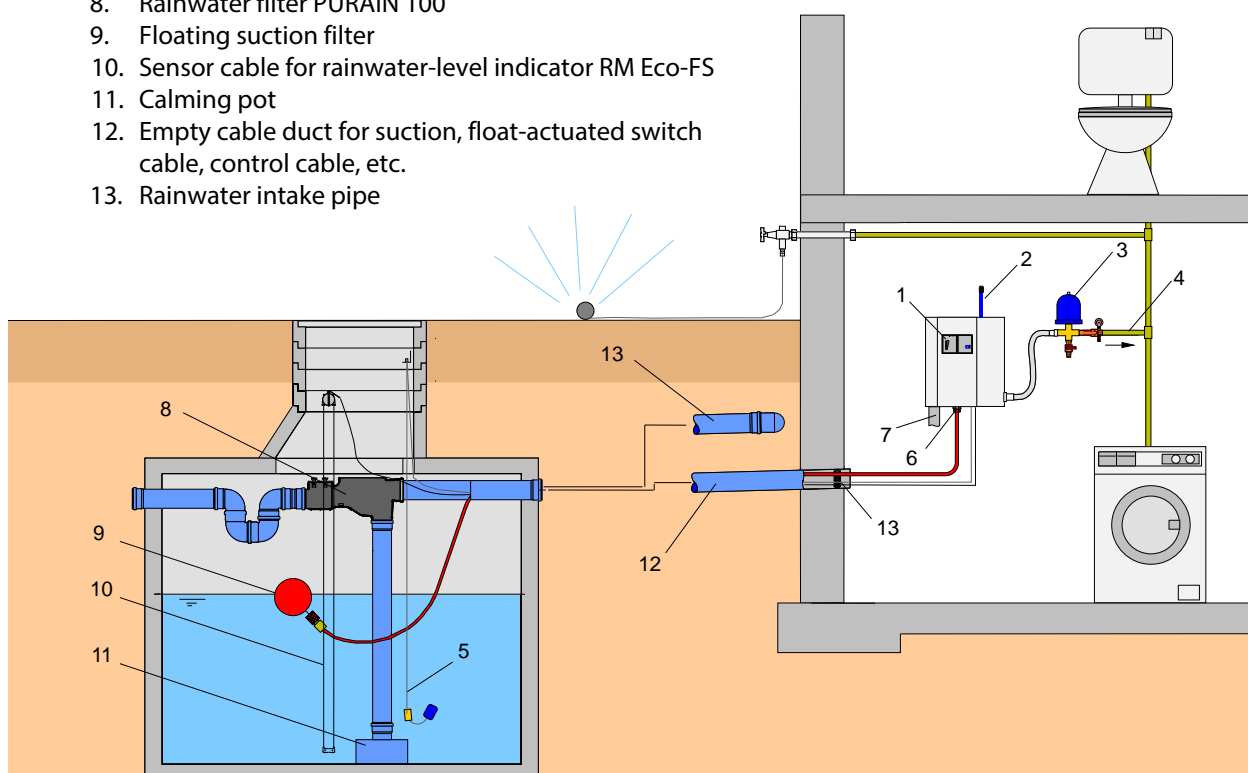
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1. Introduction and scope of application

Congratulations on your purchase of the RAINMASTER ECO FS (RM Eco-FS) rainwater-level indicator, which we developed especially for use in the (RM Eco) rainwater harvester.

1. RAINMASTER Eco with RAINMASTER Eco-FS
2. Mains water connection
3. Membrane pressure vessel
4. Water delivery outlet
5. Floating rainwater level switch
6. Rainwater suction pipe connection
7. Emergency overflow
8. Rainwater filter PURAIN 100
9. Floating suction filter
10. Sensor cable for rainwater-level indicator RM Eco-FS
11. Calming pot
12. Empty cable duct for suction, float-actuated switch cable, control cable, etc.
13. Rainwater intake pipe



System overview: RAINMASTER Eco with RAINMASTER Eco-FS rainwater-level indicator

1.1 Functionality

The rainwater-level indicator shows the water level in the tank by means of light-emitting diodes (LEDs) as a percentage of the maximum water level. Contactless measurement of the water level is achieved by a two-wire sensor cable. The capacitive measuring procedure permits the contactless recording of the current water level between the two sensor cables.

2. Safety tips

Before installing the device, please read the assembly and user instructions enclosed carefully. The information in these instructions must be followed precisely; otherwise, all warranty claims will be invalidated. The operator is responsible for observing the safety and installation requirements.

Installations on the drinking water supply network must only be performed by an approved installation company.

3. Scope of delivery

- [1] Display unit incl. front display
- [2] Sensor socket with encapsulated sensor electronics
- [3] Sensor cable (two-wire, length 3 m)
- [4] Control cable (three-wire, length 20 m)
- [5] Instructions for use (not illustrated)



4. Technical Data

Display:

Dimensions of front plate with board (H×B×D): 110 x 62 x 30 mm
 Operating voltage: 24 V DC (Connection via flat cable to RM Eco)
 Control cable: 20 m, Ø 6 mm, 3 x 0.5 mm², up to 80 m extendable

Sensor unit:

Dimensions of sensorsocket (Ø x H): 90 x 57 mm
 Operating voltage: 15 V DC
 Sensor cable: 2 x Ø 4mm
 Length of sensor cable: 3 m (shorten up to 1.2m is permissible)

5. Electrical connections and installation

5.1 Installation of display in RAINMASTER Eco

The left front panel of the RAINMASTER Eco and the associated yellow holders of front panel are removed.

The display panel is fitted with screw at this point. The aluminium display is installed after connecting the display panel with the basic panel of the RAINMASTER Eco by means of ribbon cable (refer Chap. 5.1).



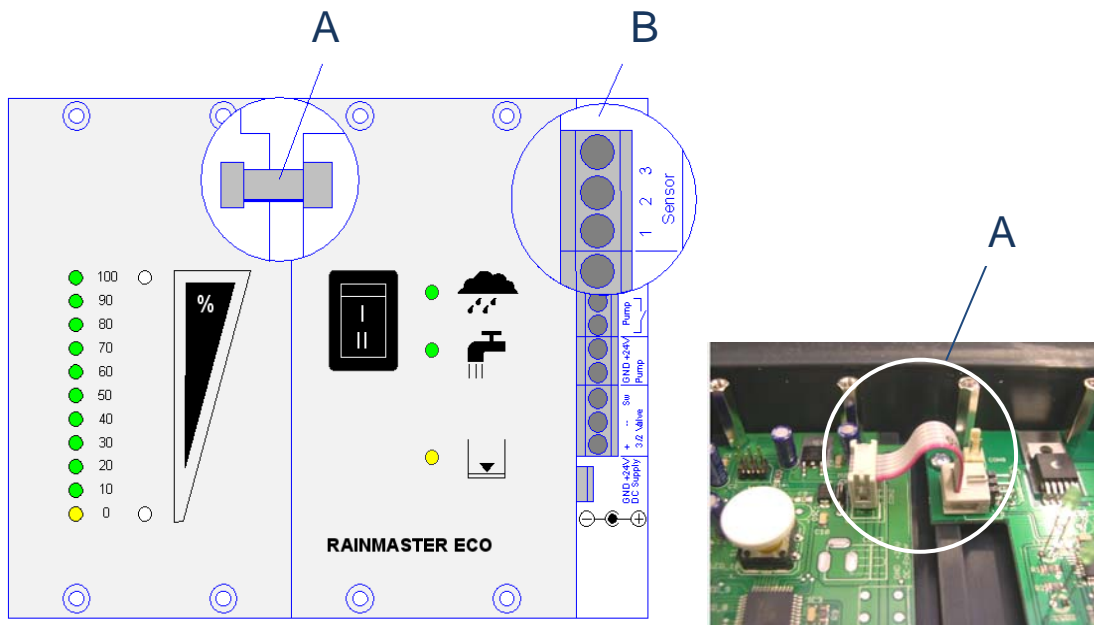
Two piece front panel at RM Eco



Remove left yellow front panel holder



5.2 Electrical connections in the RAINMASTER Eco



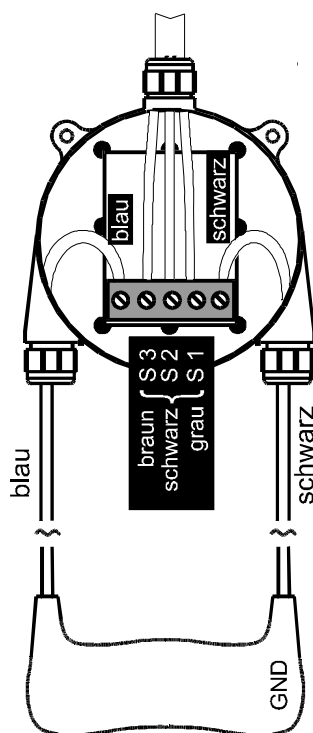
Ⓐ Flat cable plug connection

Connection for control board RM ECO with fill level indicator RM Eco-FS via a flat cable plug

Ⓑ Connection to the control board RM Eco

Sensor 3:	Control cable:	brown	(+ 15 V DC)
Sensor 2:	Control cable:	black	(+ signal)
Sensor 1:	Control cable:	grey	(GND)

5.3 Electrical connections to the sensors



Sensor cable:

Blue: Sensor cable, blue

Black: Sensor cable, black (GND)

Control cable:

S3: Control cable, brown (+15 V DC)

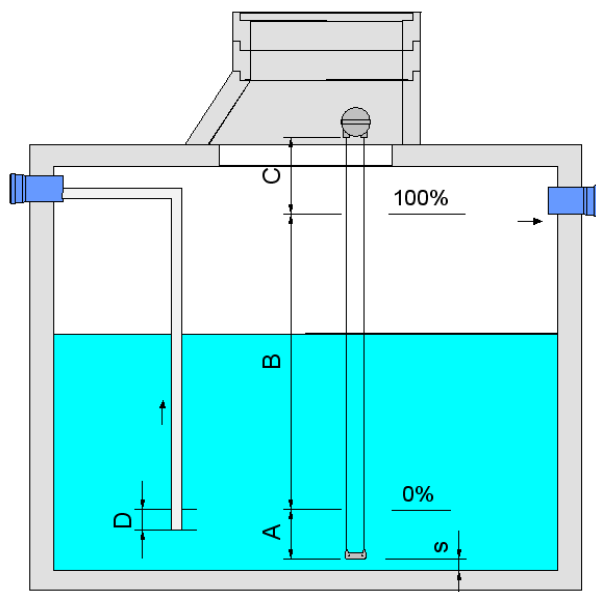
S2: Control cable, black (+ signal)

S1: Control cable, grey (GND)

The laying of the control cable from RAINMASTER Eco to rainwater storage is done in a shielded hose. If a cable extension is required, then this cable should be water-proof. The total length of the control cable must not exceed 80 m.

The polarity of the cable is to be observed at all times!

5.4 Installation of sensor in rain water storage tank



- S Bottom distance of the weight (approx. 5-10 cm)
- A Distance of the 0%-level from the sensor cable end
- B Display range 0-100%
- C Min. 20 cm safety distance from the max. water level
- D Safety distance from the inlet to the 0% level of min. 10 cm

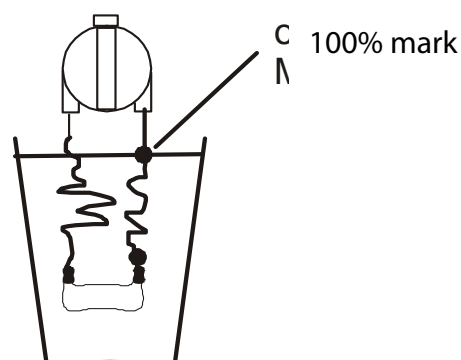
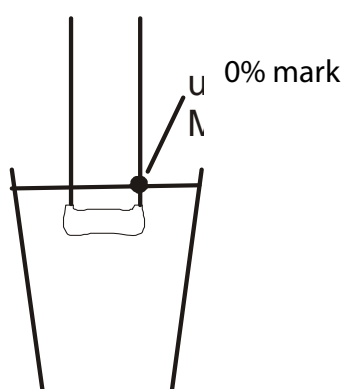
1. Determine the installation position of the sensor housing in the dome shaft or in the upper area of the tank. The safety distance to the maximum water level is approx. 20 cm. The sensor cable hangs freely in the tank over its entire length and is shortened accordingly. (Winding up the excess sensor cable distorts the measuring result!)
2. Determine the sensor length from the lower cable gland of the sensor housing to the sensor cable end. Shorten with a 7 cm addition (cable length inside the sensor socket). $\text{Length} = A + B + C + 7 \text{ cm}$.
3. Determine the measuring range (B):
For the adjustment, make a mark at the 0% and 100% positions (e.g. insulating tape).
Minimum: At least 10 cm above the exhaust to avoid suction by air.
Maximum: The maximum level is generally the height of the tank emergency overflow.
4. The sensor cables are pulled through the sealing plugs of the sensor housing and the cable ends are stripped approx. 0.5 cm to crimp the enclosed wire end sleeves. Connect the sensor cable and the control cable to the five-pin clamp. When doing so, observe the correct polarity. Carefully tighten the cap nuts of the cable gland with an appropriate pair of pincers until the seal insert protrudes slightly from the cap nut.

6. Calibration

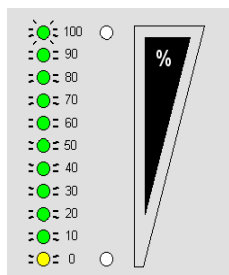
The sensor calibration is performed initially with the aid of a water bucket. The fine calibration can be performed later, when the sensor system is hanging in the rainwater tank and the minimum and maximum water levels actually exist.

Important: Calibrate the 0% point first, before calibrating the 100% rainwater-level indicator.

Submerge the sensor cable in water up to the 0% mark, at which point the cable should be stretched to its full length. Then press the lower, submerged 0% calibration button (using a pen, etc.). The value has been read when the display flashes briefly. The 100% calibration is performed similarly: Submerge the sensor cable up to the 100% mark and then press the upper 100% calibration button.



7. Modes of operation



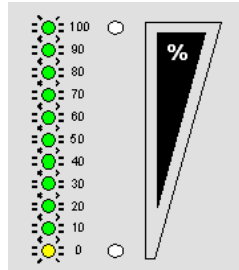
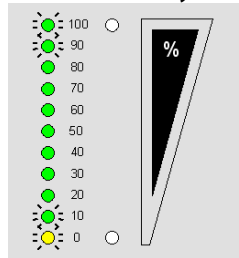
Rainwater-level indicator

As the level of rainwater increases, all light emitting diodes light up till the current level.

Note:

If the max. water level exceeds by approx. 10 %, then this is indicated by a flashing 100 % LED. (Rectify by pressing 100% calibration button)

8. Trouble shooting in case of problems

Description of error	Cause	Solution
0-100% LEDs all flashing simultaneously 	a.) incomplete or reverse polarized connection to the sensor b.) Sensor electronic circuit is faulty	a.) Check connection and polarity at the sides of controller and sensor b.) Change sensor electronic circuits
0-10% and 90-100% LEDs both flashing simultaneously 	This indicator is active if the calibration is faulty, i.e. the lower calibration value is higher than the above calibration value.	Calibrate a new value and / or recalibrate the second value
When water touches the sensor cable, the display jumps up to 100%	a.) Incorrect polarity of the sensor cable b.) Damaged sensor cable	a.) Correct the sensor polarity b.) .) Replace the sensor cable
No LED display	The power supply is interrupted	Check the switching power supply of the RAINMASTER ECO

9. Maintenance

All parts of the rainwater-level indicator should be checked once per year to make sure that it is functioning correctly. To do so, lift the sensor cable out of the tank and inspect for any defects.

10. Replacement parts

The replacement parts can be ordered with the specification of board number (printed on the top side of board).

Article description	Index no. (see page 3)	Order code
Display unit RM ECO FS	[1]	RM-ECO-FS ST
Sensor socket with encapsulated sensor electronics	[2]	RMD 24 SE3
Sensor cable 3 m	[3]	RMD 24 SK3
Control cable per m	[4]	RMD 24 STK

11. Contact

For customers in Germany:

For any queries, ordering of spare parts, as well as in case of service, kindly contact INTEWA GmbH directly, quoting your product's model and identification numbers and the purchase invoice details, at:

INTEWA GmbH
Jülicher Straße 336
52070 Aachen

Tel.: 0049-241-96605-0
Fax: 0049-241-96605-10
Email: info@intewa.de
Internet: www.intewa.de

For customers in other countries:

For any queries, ordering of spare parts, as well as in case of service, kindly contact your installer or the authorised importer, quoting your product's model and identification numbers, and the purchase invoice details.