

Description

The product is designed to control the operation of the sewage treatment plant (in a non-explosive environment).

The electronics are equipped with a plastic self-extinguishing box with high coverage.

There are 10 blue lights on the front panel, one green and one red. The lights are for indication of basic conditions. In addition to the lights, there are two buttons for basic operation of the treatment plant.

The electronics are equipped with WiFi connection. This connection allows the control unit to fully control, to set and detect its status.

WiFi connection creates a wireless network (AP). By connecting to this network, you can help Web browser to view the Web site of the control unit.

Optionally, the unit can be equipped by TOM-GSM module. The module can receive and send SMS messages or connect to the dispatch centre via GPRS. The backup lithium non-rechargeable battery 2x1,5 V size AA is located on the module. The battery is used to maintain the power of the GSM module for sending Information SMS on power failure (LEDs, relays or WiFi are not backed up).

After sending the message, the entire electronics, including the GSM module, will automatically shut down. Module for your function does not require the presence of backup batteries. In this case, you cannot send information about power failure, but a larger operating temperature range is allowed. The GSM module is manufactured in two variants: for the normal temperature range (above 0 ° C) and for the extended temperature range. This resolution is only relevant when using backup batteries.



The installer and repairer is required to have the appropriate professional privilege and training and doing all work according to valid standards and safety regulations!

Technical data of the TOM control unit

<i>Power voltage:</i>	230 VAC ($\pm 10\%$)/50Hz
<i>Power of own unit:</i>	6 W max.
<i>Total switching power:</i>	700 VA max.
<i>Fighting:</i>	T3, 15 A (FU2) tube fuse 5x20mm mounted on PCB, The fuse is common to electronics and outputs
<i>Electrical protection:</i>	IP66
<i>Protection against electric shock by current:</i>	I, safe voltage parts II (double insulation)
<i>Installation class:</i>	power supply 230 V: 3, conductors to safe voltage: 2 (IEC 61000-4-5)
<i>Overvoltage category:</i>	II (ČSN EN60730-1)
<i>Connection terminals 230VAC:</i>	screw terminals for conductors with a cross section of $0.5 \div 2.5 \text{ mm}^2$
<i>Safe Voltage Terminals:</i>	spring terminals for wires with a cross section of $0.2 \div 1.5 \text{ mm}^2$
<i>Real Time Backup Battery:</i>	(BATTERY) lithium 3V coin cell BR2032
<i>Real-time backup battery life:</i>	approx. $5 \div 10$ years depending on the operating conditions (no mains voltage, ambient temperature)

Battery Backup Battery GSM: (BAT1) 2x 1.5V primary lithium AA battery 3000 mAh "Energizer Ultimate Lithium L91 "or" Varta Ultra Lithium 6106 " DO NOT use rechargeable batteries, fire and explosion hazards!

Battery life of GSM backup: more than 100 SMS alerts about a power failure design for temperatures above 0 ° C for about 5 years design for temperatures below 0 ° C for about 1 ÷ 5 years life depends greatly on the signal quality of the GSM network, ambient temperature and is conditional use of prescribed batteries.

Environment

spaces: internal

operating temperature: -30 ÷ +60°C (GSM module without backup batteries, suitable SIM card)

with GSM module and batteries: 0 ÷ +46°C (with specified battery)

with GSM module for extended temperature range and batteries: -15 ÷ +46°C (with specified battery)

storage temperature: -20 ÷ +40°C

humidity: 0 to 90 % relative humidity, non-condensing

Dimensions (WxHxD): 210 x 210 x 63 mm (including bushings)

Weight: 1 100 g (including GSM module without batteries)

Inputs

2x air pressure 0 ÷ 50 kPa clean, non-aggressive air for levelling

2x analogy input 0 ÷ 10V (Rin approx. 10KΩ) or 0 ÷ 24mA (Rin 120R); in particular, a voltage clamp and a for current input without switching, precision approx. 1%, cable up to 10m, is it is recommended to use a shielded cable shield connected to PE

3x contact contact for safe voltage (6VDC / 6mA), flow meter max. 10 imp / s, pulse length min 15 ms, cable up to 10m; when connecting an external voltage > 6.0 V the overvoltage protection of the input may be damaged

1x 230V input logic input for voltage 230V separated by opto-coupler

1x internal temperature sensor electronics

Communication

1x WiFi 802.11 b / g / n (802.11n up to 150 Mbps) 2.4 GHz ~ 2.5 GHz

2x serial line RS485 (COM1, COM2) it is recommended to use twisted cable, cable length > 10 m must be shielded, shield connected to PE

1x GSM (optional) micro SIM, Quad Band 850/900/1800/1900 MHz

Outputs

The total output current of 230V has to not exceed 3.0 A.

1 auxiliary power supply	(+ 6 V) 6 V / 100 mA (6,0 ÷ 6,5 V, R _{max} 2,5 Ω) Output of safe voltage for power supply of chemical probes etc.
2x 230V output	(DM, P1) switching contact of relay 5A for blower switching (together max. 500VA, outputs with overvoltage suppressors)
4x 230V output	(P2, P3, P4, P5) the relay contact contact 5 A
4x 230V output	(V1, V2, V3, V4) relay switch contacts 5 A (VxC ... terminal connected to breaking contact - voltage under voltage, VxO ... terminal connected to switching contact - in standby without voltage)

Assembly instructions

The control unit is designed to be mounted firmly into a wastewater treatment plant, a switchboard or a wall.

The unit is held vertically with the lights and buttons up. Sufficient must be ensured circulating air around the box to ensure adequate heat dissipation.

Connecting

The unit is powered by single-phase alternating voltage 230V. The operator's safety is secured by protection and safe low voltage on the electronics side (communication, analogue inputs, digital inputs D2..D4, auxiliary power supply + 6V, GSM module). Terminals for connecting the wires to the safe voltage are of the spring type. The hardened wire or conductor with the socket can only be inserted into the clamp. To loosen the conductor, you need to insert the screwdriver into the square hole in the clamp.

The devices connected to the 230V outputs have their PE terminals and are protected by a common FU2 tube fuse 5x20mm. The fuse also ensures the power supply of the electronics.

During installation, care must be taken to maintain the 4kV insulation strength between safe and dangerous voltage circuits. First of all, when connecting the wires to the screw terminals, it is necessary to check that the wire in the clamp is actually clamped and does not get under the clip clamp (the wire is plugged in but not held in the clamp). It is necessary to ensure that the accidental release of any conductor the safety of the device has been maintained (do not allow too long wires or to bind the wires).

After connecting the wires, it is necessary to secure the grommets, or to clog the unused bushings to prevent moisture from entering the electronics.

Maintenance

The control unit requires no maintenance except the replacement of the backup batteries.



Replacement of batteries may only be carried out by personnel with appropriate professional privilege. Before replacing the backup batteries, disconnect the power supply and unscrew the lid units. Both the control unit and the GSM module are electrostatically sensitive devices.

The backup battery backup battery for real-time backup is located in the battery holder on the printed circuit board with LEDs. When replacing, make sure that the battery is not short-circuited and the polarity is correct.

The backup battery of the GSM module must be fitted with the prescribed lithium batteries. The batteries are located in the battery holder on the GSM module and are secured by a plastic buckle. First you need to

remove the buckle (inserting the screwdriver into the hole at the edge of the buckle and gently swinging). After inserting new batteries, the buckle must be retightened to prevent the battery from falling out.

Installation of TOM-GSM

The GSM module can be retrofitted into the control unit.



The installation of the GSM module may only be carried out by a person with the appropriate professional privilege. Before installation, disconnect the power supply and unscrew the unit cover. Both the control unit and the GSM module are electrostatically sensitive devices.

At first, two cross-holder distances have to be crossed into the PCB with the shorter end in the control board. Then, the GSM module without the batteries is carefully attached to the longer ends of the plastic distances, the terminals of the connector are directed against the openings in the counterpart on the control unit, and the module comes to a stop. The module latch locks against release.

It is also necessary to connect the external antenna to the GSM antenna connector. Insert the card into the SIM card holder: Slide the left cover of the holder cover, open it, insert the card with the right slider up, close the lid, and slide it to the right again to prevent opening.

Finally, insert the battery for the back-up and secure with a plastic buckle, see maintenance section.