Customer-tailored Datalogger GreyBox GSM

Main features:

- General purpose datalogger intended for collecting data from analog and SDI-12 sensors and for on-line sending via GSM network to EMScloud application
- Ready for harsh environment
- Powered from internal primary lithium cell SAFT LSH20
- Manufactured by EMS

GreyBox GSM 7B838
IMEI: 860657053229031
Serial No.: 2202230245

Specification:

- Memory capacity ca 600,000 values
- Self–adjusting GPRS modem
- Battery saving mode active under -8°C (only measuring and storing; no sending)
- Configuration and data processing fully supported by Mini32 software
- Size 120 x 120 x 100 mm, IP rating IP 66
- Weight 1.5 kg

GreyBox GSM

GreyBox GSM is datalogger intended for measurement and on-line transmitting data in GSM network to manufacturer cloud application. It contains also a backup memory for ca 600 000 values. This datalogger composes the base of customer-tailored versions for certain measuring purpose. Those versions are configured with respect to connected sensors and time period of data collection makes compromise between battery lasting and data density. Set-up of each version ensures the functionality of the system, and it is not recommended to change it without prior consultation with the supplier.

Specification

Memory capacity	1536 kB (2 bytes per value)
SDI-12 ports	max 2 (up to 10 sensor each)
Frequency channels	max 4 (compatible with Campbell CS616)
Pulse channels	max 2
Voltage channels	max 3
Internal temperature sensor	YES
Internal humidity sensor	YES
Available energy countdown	YES
Measuring interval	1 min up to 4 hrs (limited by number and type of sensors)
Averaging interval	1 min up to 4 hrs (limited by number and type of sensors)
Operating range	-40 to 60 °C
Exciting SDI-12 sensors voltage	9 V (adjustable by the manufacturer to 6 – 15 V)
Modem activity	each 2, 4, 8 or 12 hrs in daily cycles
Data transmission	GSM/GPRS network
SIM card size	nano SIM
Power supply	SAFT LSH20 (with connector MRT9-2)
System clock back-up	coin type battery CR1620
Communication connector	Jack 2.5 mm (for communication cable RS232/USB Jack 2.5 mm)
Protection	IP 66
Weight	1.5 kg
Size (L x W x H)	120 x 120 x 100 mm

LED indication

Operation:
RED light on (approx. 10 sec) - datalogger is currently measuring
GREEN light on (approx. 1 min) - data is being transferred

Response to magnet (under the plug of the communication connector):
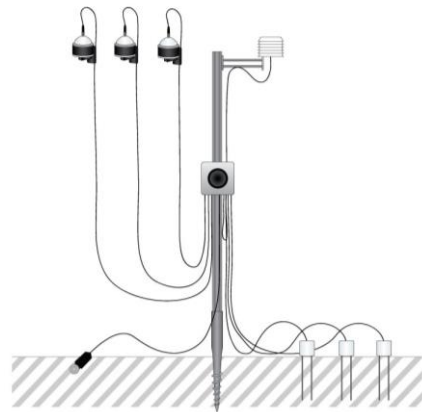**GREEN** 3 times - correct function
RED 5 times - weak battery; replacement required
RED 20 times very fast - diagnostics required; computer needed for further inspection

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Software: Mini32 universal software running under Windows® 7, 8 and 10. The software assures all necessary operations – system setup, data saving, data processing. It includes basic statistic features, creates and prints graphs and exports data to different file formats.

GreyBox GSM 7B838

GreyBox GSM 7B838 is the version equipped with three dendrometers DR26P, soil water potential sensor TEROS 21 (SDI-12 output), three soil moisture probes CS616 and air temperature and humidity sensor EMS33S (SDI-12 output). Data visualization, archiving and downloading is fully supported by EMScloud Internet application.

Specification - GreyBox GSM 7B838

SDI-12 sensors	2 (4 variables)
Freqency sensors	3
Ratio sensors	3
Measuring interval	30 min
Warm-up	0 sec
Operating range	-40 to 60 °C
Modem activity	each 12 hrs
Backup memory lasting	3 years
Battery lasting	3 years

Factory default configuration - guaranteed three-years battery lifetime

PC Time: 28.03.2022 12:40:36
DL Time: 28.03.2022 11:40:34

ON/off   **ON**

Device type: GSM 7B838
Device code 45
Batt: 3,65 V

Periods: Warm-up:
measuring 30 m ▼   0 s ▼
storing   30 m ▼   0 s ▼

Data sending
each 12 h hours ▼

# Type	ON/off	Range	Gauge	Description
1. Ratio	ON	---	Increment [mm]	Increment [mm] #1
2. Ratio	ON	---	Increment [mm]	Increment [mm] #2
3. Ratio	ON	---	Increment [mm]	Increment [mm] #3
4. Freqency	ON	100kHz	SWC miner. CS616 [-]	SWC CS616 [-] #4
5. Freqency	ON	100kHz	SWC miner. CS616 [-]	SWC CS616 [-] #5
6. Freqency	ON	100kHz	SWC miner. CS616 [-]	SWC CS616 [-] #6
7. Voltage	ON	---	Supply voltage [V]	Supply Voltage [V]
8. Temperature	ON	---	Temperature [oC]	Internal Temp. [deg.C]
9. Humidity	ON	---	Humidity [%]	Internal Humidity [%]
10. Internal	ON	---	Available energy [%]	Available Energy [%]
11. SDI-12 1(1)/1	ON	---	Temperature [°C] EMS33S	Air Temperature [°C] 1/1
12. SDI-12 1(1)/1	ON	---	Humidity [%] EMS33S	Air humidity [%] 1/1
13. SDI-12 2(2)/1	ON	---	SWP [kPa] TER21	SWP [kPa] 2/1
14. SDI-12 2(2)/1	ON	---	Soil temp.[°C] TER21	Soil T [°C] 2/1