EMS Brno

Data Acquisition Environment
Hardware – Software – Cloud application
www.emsbrno.cz

Datalogger GreyBox N2N

Network-to-Network SDI-12 to Internet

Main features:

- General purpose datalogger for collecting data in SDI-12 sensor network intended for on-line data access in harsh environment
- Contains GPRS modem, GPS receiver and solar powering management
- Ready for powering from internal or external lead acid batteries
- Manufactured by EMS


SD memory card


Larger enclosure with internal battery


IR access

Specification:

- Three (optionally six) SDI-12 separately powered ports, IrDA data access for communication with datalogger
- Internal memory for ca 220,000 values
- Additional SD memory card for few years of data
- Self–adjusting GPRS modem
- Configuration and data processing fully supported by Mini32 software

Datalogger GreyBox N2N

The datalogger GreyBox N2N is primarily intended for data transfer from SDI-12 sensor network to the Internet via GPRS. On-line data are supposed to be sent to EMScloud application which is made for comfortable data handling in terms of visualization, downloading, archiving and maintenance.

The datalogger is built into a heavy water-resistant aluminum box with high level of protection against water – IP65. The box is equipped with a holder for fixing to 50 mm pole, but it will survive also when just laid down on the ground. Robust Amphenol C016 connectors make the whole set ready for harsh environment.

The GreyBox N2N has integrated flexible system of powering. It allows powering from 5 Ah internal lead acid battery („L" version only) or from external lead acid battery with capacity up to 100 Ah. Both internal or external lead acid batteries are recharged after connecting of solar panel without any external controller.

The datalogger has three ports (six ports in „6P" version) for connection of three (six) independent SDI-12 networks. Each port can be powered continuously or in measuring period or only in the period of averaging (storing to memory).

Service channels (internal temperature and humidity) monitor the internal environment of the datalogger and indicate possible danger of wetting the electronics.

GreyBox N2N types

	**N2N 3P**	three separately powered SDI-12 ports
	**N2N 3PL**	three separately powered SDI-12 ports; internal lead acid battery 5 Ah or alkaline battery pack
	**N2N 6P**	six SDI-12 ports powered in pairs (1+4, 2+5, 3+6)
	**N2N 6PL**	six SDI-12 ports powered in pairs (1+4, 2+5, 3+6); internal lead acid battery 5 Ah or alkaline battery pack

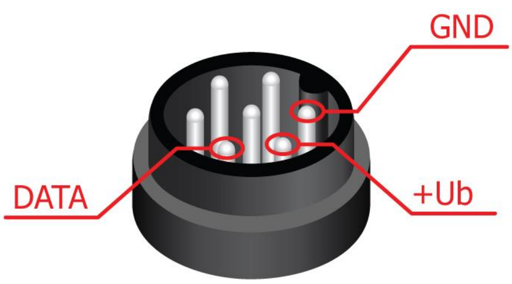
Software

Mini32 universal software is running under Windows® 7, 8 and 10. The software assures all necessary operations – system setup, data downloading and processing. Its data processing part is made for work with large and long-time data series. It offers exceptionally sophisticated visualization and data manipulation, it includes basic statistic features, creates and prints graphs and exports data to different file formats.

Specification

Base memory size	512 kB
Extension of memory capacity	up to 32 GB (Micro SD or Micro SDHC formatted for FAT12, FAT16 or FAT32)
Value save resolution	16 bits
Clock accuracy (-10 to 40 °C)	better than ±15 sec/month
Measuring intervals	20 sec to 4 hrs (depends on number of sensors)
Storing intervals	20 sec to 4 hrs
Sending interval	in selected hours or in intervals of data averaging
Data transmission	GSM/GPRS network
SIM card size	Mini-SIM (2FF)
Power supply	internal lead acid battery 5 Ah or 8x D alkaline battery pack („L“ version only) or external lead acid battery completed with solar panel
System clock back-up	Lithium coin type battery CR2032
Sensor excitation voltage	equal to power supply voltage; 10 to 16 V, fused
Overvoltage protection	diode suppressors connected to each port
Solar panel	nominal voltage 12 V, up to 80 W
Recharging capacity	5 A, protected against overloading
Power consumption:	
- idle	ca 0.35 mA
- data transmitting	ca 30 mA (without sensor powering)
SDI-12 port connection	Amphenol C16 connector male
External powering and solar panel connection	Amphenol C16 connector male
Internal temperature sensor accuracy	± 0.2 °C
Internal humidity sensor accuracy	± 3 %
Protection rating	IP65
Size	210 (300 - „L“ version) x 180 x 100 mm
Weight	ca 2.5 kg
Operating environment temp.	-40 to 60 °C
Operating environment humidity	0 to 100%

GreyBox N2N SDI-12 ports
- Amphenol C16 male connector wiring



GreyBox N2N powering
- Amphenol C16 male connector wiring