

ENCO TERMINAL radio data storage DATASHEET



APPLICATION

ENCO TERMINAL is a device designed for the remote reading of meters and their binding with the permanent data reading antenna of data from meters manufactured by Axis Industries with a 868 MHz communication interface.

SPECIAL FEATURES

- Communication interface RF868
- Can be used as service tool for AMR radio network configuration.
- Configurable WMBus mode – T1, S1, Axis (bidirectional communication).
- Internal expandable memory: microSD card.
- Have direction./selection keys and graphic display.
- Device power supply: rechargeable Li-Ion battery, charging via miniUSB / 230 V adapter.

General properties	Working temperatures	5-55°C
	Maximum humidity	93 %
	Housing protection class	IP44
Power supply	Supply voltage	Internal 3.6 V 2200 mAh lithium battery (non-replaceable)
	Charging	Through USB interface
Functions	Communication interfaces	USB
	Display	128x128 monochrome, backlight
Radio parameters:	Communication type	Two-way
Transmitter parameters	Power	500 mW
	Central frequency	869.525 MHz
	Band width	250 kHz
	Speed	100 kbps
	Penetration	<10 %
Receiver parameters	Frequencies	868.024 MHz; 868.150 MHz; 868.450 MHz; 868.560 MHz; 868.300 MHz
	Speed	2400 bps; 4800 bps; 14400 bps; 57600 bps; 32768 bps
	Antenna connection	SMA
	Protocols	Axis 868; WMBus S1; WMBus T1
	Dimensions	161mm x 82mm x 39mm

ENCO TERMINAL MENU TREE:

- **Read Meters**
 1. **Start Read** – start reading the meters.
 2. **Start Readdress** – start the procedure for binding the meters with the network.
 3. **Net Nr** – it allows selecting the network where for reading will be searched. The selection range is 0 to 255.
 4. **Freq** – it allows selecting the frequency at which the reader will respond to the data request.
 5. **BitRate** – it allows selecting the bitrate at which the reader will respond the data request.
 6. **Tx Power** – it allows adjusting the transmitter power. The selection range is 15 to 30 dB.
 7. **Window Count** – it allows selecting the window size, on which the meter response time will depend.
 8. **Nearby Antennas** – it allows read the meter which are nearby device.
 9. **Save Parameters** – save data the data of previously changed parameters.
- **Service**
 1. **Read Stat** – it allows selecting the option for saving the data of the meters.
 - **All** – the data of all read meters will be saved.
 - **From List** – only the data of those meters which are presented in the pre-saved list will be saved.
 2. **Erase Flash** – delete the meter list from the flash memory.
 3. **Format SD card** – if a micro SD card is inserted, it will be formatted and all data saved on it will be deleted.
 4. **Check SD card** – the SD card functioning test is performed. In this case, all data saved on it will be deleted.
 5. **Restore Factory** – when this item is selected, the factory parameters will be restored.
- **W-Mbus Service**
 1. **Start Installing** – switch the meters into the installation mode. In this mode, the meters will be bound with the permanent data reading antenna.
 2. **W-Mbus S1** – ON / OFF protocol for reading meters. If this protocol is ON, then AXI protocol also read.
 3. **W-Mbus T1** – ON / OFF for reading meters.
- **Meter List** – can display the list of the read meters. If the meter list is empty, then only the number of the device we are using will be displayed. When the meter list is not empty, the desired meter can be selected for review. The data transmitted by the meter will be displayed in the opened new window.
- **Select Object** – if micro SD card are inserted, the Select Object option will appear in the Main Menu window. If this menu item is selected, no lists will be available on a new device and it will be possible only to add a new list by pushing the Add New List key. If several lists were entered using Axis RadioBox Configurator application, the menu can appear similarly to the
 - 1. **Add New List** – adding new meter list.
 - **Load List** – load the selected meter list.
 - **Delete List** – delete the selected meter list.
- **IDLE / SENDING / AXI LISTEN**
 1. **IDLE** – device shows that it has no read meters in its memory.
 2. **SENDING** – a data request is being sent to the meters. It will be displayed for around 30s after beginning of the meter reading activation.
 3. **AXI LISTEN** – waiting for data from the meters. The countdown displayed next to it will symbolise time remaining to reading completion.

By means of the up and down keys, we select the item to be changed and then push the right direction key. We can change the parameter in the opened new menu window. The parameter is changed by means of the up and down keys. Having the set parameter, we push the left direction key in order to return to the previous menu window. Having made all necessary parameter changes, we select the *Save Parameters* menu item to prevent the loss of the parameters when the device is switched off. In order to return the main menu, we push the left direction key; in order to start the reading of the meters, we select *Start Read*. After this item is selected, the programme will automatically return to the main menu window.

When the meters are read, whether reading was performed by the list or for all meters, the meter list will be presented in the Meter List menu item. By changing the marker position, select the meter to be analysed and push the right direction key. The data displayed in the opened new window.

The meter data analysis window:

- **ID** – the identification number of the device being read.
- **Hot water** – the device type is indicated. In this case, it is a hot water meter. Other types of readable devices are also possible: **Cold water** – cold water meter; **HCA** – heat cost allocator; **Heat** – heat meter; **Electricity** – electricity meter.
- **RSSI** – the received signal strength of the read meter is indicated. The smaller the number, the stronger the received signal is. The weakest signal level when a meter still can be read is 100 dB. The meter reading number is displayed next to the signal strength value. The meter reading number can range from 0 to 255.
- **Net Nr** – the number of the network to which the meter is assigned.
- **Meter FEI** – the parameter showing the mismatch of the antenna and meter central frequency. 1 unit equals to 61 Hz.
- **PANIC** – error code.
- **The date of the meter when data reading was performed.**
- **Cut Date** – the date of the reporting period.
- **Volume** – the current meter readings (volume).
- **Cut Vol** – the meter readings of the reporting period (volume).
- **ACC Panic** – error code.
- **ACT Panic** – error code.
- **Leakage** – water leakage indication. If the water flow runs through the meter for an excessively long time, this parameter indicates the abnormal operation of the meter.
- **Work T** – the error-free working time of the heat meter.
- **Energy** – the current reading of heat energy.
- **Cut Energy** – the reading of heat energy for the reporting period.
- **Cool** – the current value of cooling energy.
- **Cut Cool** – the reading of cooling energy for the reporting period.

There are 2 options to add a list:

- Having the Select Object of the Main Menu window, go to the Object Management Menu window. In order to add a new object, select Add New List and push the right direction key. The object titled *New Object1* will appear in the object list if it is the first object in the list. Place the marker on that object, push the right direction key, select *Load List* menu option in the new window, and wait until the object meter list is uploaded. Since the loaded object will be empty and contain no meters, when reading meter data, the data from all meters located within the communication zone will be stored. In this way, it is possible to read meters of several buildings and to arrange meter lists after transferring the data to a computer. Thus the number of readable meters will have only the following limitations:
 1. The maximum number of the meters of a single reading operation is not greater than 950.
 2. The total number of meters is limited by the capacity of the SD card.
- A meter list can be created with the use of a configurator