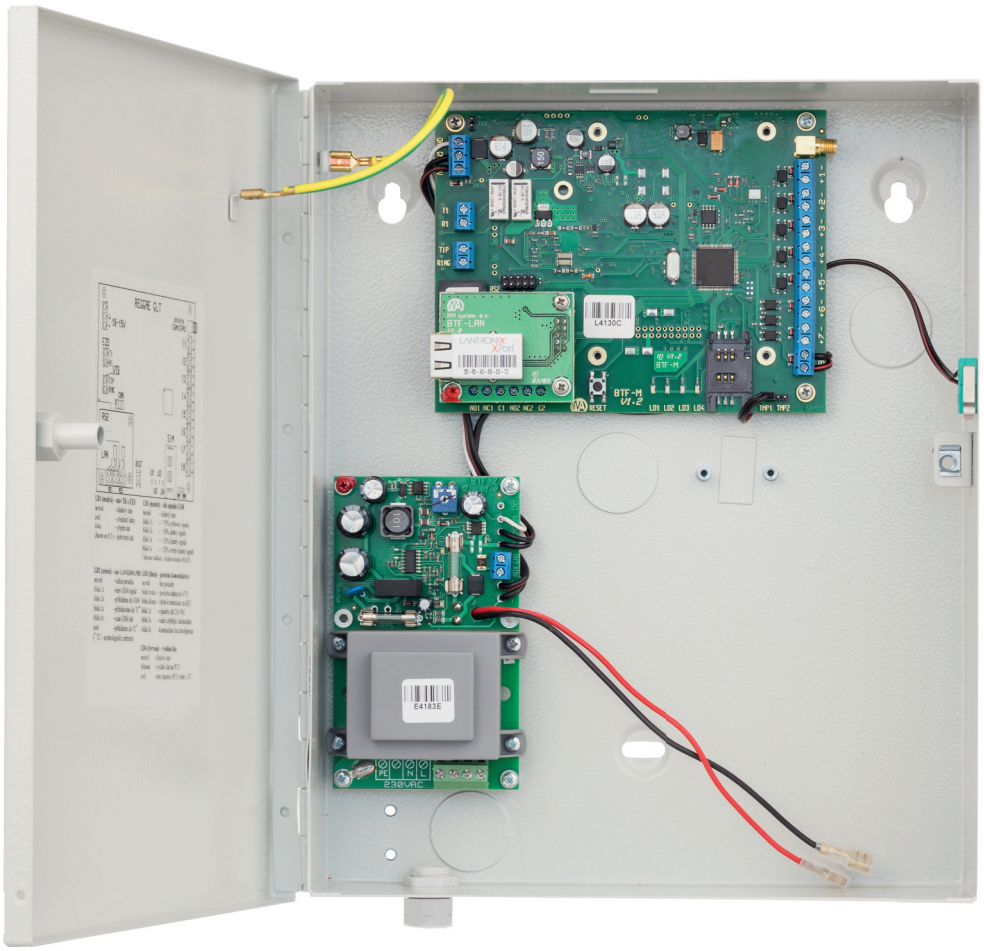
U S E R M A N U A L

REGGAE
COMMUNICATORS

REGGAE GLT/GLTbz

Combined communicator for GPRS/LAN transmission

Document: 1.60



NAM SYSTEM®
MONITORING TECHNOLOGY

CONTENT

INTRODUCTION

Communicators REGGAE GLT, REGGAE GLTbz, REGGAE GLTbz232 and REGGAE GLTbz485 are devices, which allow receiving messages and occurrences from security centrals (AS or FAS) and its transmission by different communication channels to Alarm Receiving Centres (ARC). AS Panels receive messages via telephone lines. Messages from FAS panels are received via serial ports through FAS third-party converters. Reception of occurrences is ensured by insulated inputs. Communicators also generate several occurrences of inner states. Messages and occurrences are then transmitted to ARC by computer network (LAN/WAN), by GPRS channel or via SMS (GSM channel).

The phone unit in communicators REGGAE GLT and REGGAE GLTbz/GLTbzxxx is capable of communication with AS panels in all common pulses and DTMF formats. Incoming phone number dialled from AS may be pulse or DTMF. Communicators are capable of detecting a fault on the line of public switched telecommunications networks (PSTN) and are capable of disconnecting this network and continue to receive messages from AS and transmit them to ARC via channels LAN/WAN and GPRS.

Configuration of the communicators can be done remotely via channels LAN/WAN and GPRS, or locally via serial port.

Diagnostics of operating and fault states of the communicators can be done locally via serial port or remotely via channels LAN/WAN and GPRS.

Communication between REGGAE GLT or REGGAE GLTbz/GLTbzxxx and ARC takes place on both sides with receipt reports from ARC.

Connection between communicators and ARC is regularly checked during message transmission via channels LAN/WAN and GPRS. Communication failure is reported to ARC.

Communicator REGGAE GLTbz is version of communicator REGGAE GLT supplemented by source REGGAE and placed into a box.

Communicator REGGAE GLTbz 232 is version of communicator REGGAE GLTbz supplemented by insulated serial interface module RS232.

Communicator REGGAE GLTbz 485 is version of communicator REGGAE GLTbz supplemented by insulated serial interface module RS422/485.

OPERATING CONDITIONS

Devices
REGGAE GLT,
REGGAE GLTbz,
REGGAE GLTbz232
and REGGAE GLTbz485
contains a radio transmitter in the GSM band (900/1800 MHz). Their operation is possible under the general authorization number VO-R/a/12.2008-17 issued by The Czech Telecommunication Office.

NAM system, Inc. hereby declares, that devices
REGGAE GLT,
REGGAE GLTbz,
REGGAE GLTbz232
and REGGAE GLTbz485
are in conformity with the essential requirements and other relevant provisions of Guideline 199/5/ES and of Government Regulation number 426/2000 collection.

"Declarations of conformity" are released for communicators
REGGAE GLT,
REGGAE GLTbz,
REGGAE GLTbz232
and REGGAE GLTbz485,
according to Government Regulation number 426/2000 collection, which are stored at the device manufacturer.

Operating
REGGAE GLT,
REGGAE GLTbz,
REGGAE GLTbz232
and REGGAE GLTbz485
is not possible near medical instruments and other equipment sensitive to electromagnetic field.

Manufacturer shall not be liable for any damages resulting from interventions in the devices
REGGAE GLT,
REGGAE GLTbz,
REGGAE GLTbz232
and REGGAE GLTbz485
outside the scope of this installation manual (in particular the method of installation, repair and modifications not approved by the manufacturer).

Devices connected to
REGGAE GLT,
REGGAE GLTbz,
REGGAE GLTbz232
and REGGAE GLTbz485
must comply with the applicable standards (according to security EN 60950-1 etc.).

PC in class I can be connected to the devices
REGGAE GLT,
REGGAE GLTbz,
REGGAE GLTbz232
and REGGAE GLTbz485
only if it has properly applied its own protection against accidental contact, or against electric shock.

Devices must be installed and operated in dry areas and in the temperature range between -25 °C to +65 °C.

DESCRIPTION OF COMMUNICATORS REGGAE GLT/GLTBZ/GLTBZXXX

Basic technical parameters

REGGAE GLT

Rated power REGGAE GLT	10 – 15 VDC; max. 500 mA
Environment	class II, inner according to general ČSN EN 50131-1
Operating temperature range	-25 °C to +65 °C
Dimensions REGGAE GLT	146 × 114 × 39 mm
Dimensions REGGAE GLT232/GLT485	146 × 114 × 43 mm

Inputs	8× insulated voltage loop
Outputs	2× changeover relay contact max. 1 A / 30 VDC (0.3 A / 60 VDC), 0.5 A / 125 VAC

Communication channels	serial port RS2	– TTL (3V) uninsulated (R×D, T×D, RTS, CTS)
		– TTL (5V) uninsulated (R×D, T×D)
		– standard RS232 uninsulated (R×D, T×D, RTS, CTS)
		– standard RS232 insulated (R×D, T×D, RTS, CTS)
		– standard RS422/485 insulated
	telephone communicator (line PSTN, line AS)	
	GSM/GPRS communicator (SMS/data channel)	

REGGAE GLTbz/GLTbzxxx

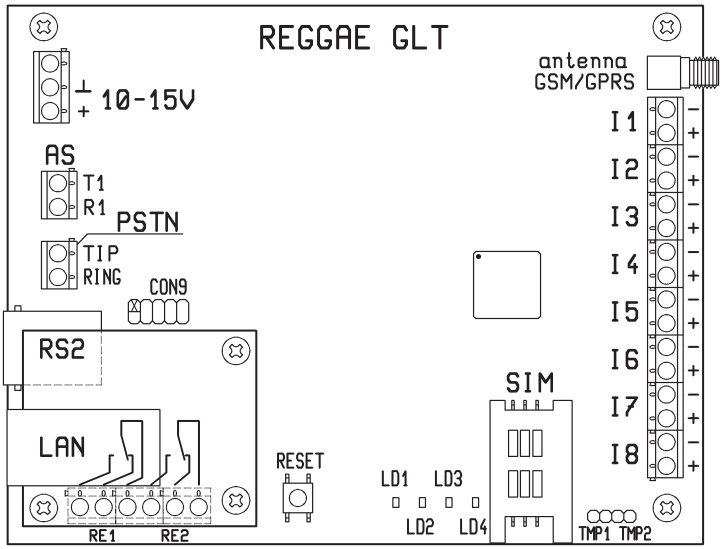
Power voltage	230 VAC ± 10 % (207 VAC to 253 VAC)
Supply current	max. 0.15 AAC
Medium wattage	< 5 W
Power frequency	50 Hz ± 2 Hz
Output voltage AUX	> 13.10 V @ 50 mA; +25 °C
Output current AUX	max. 50 mA
Output fuse AUX	return safety fuse
Type of backup battery	12 V, leaden without maintance hermetically sealed (VRLA/SLA)
Capacity of backup battery	1.3 Ah, (2.3 Ah), 4 Ah, 7 Ah
Battery charge current	typ. 400 mA, max. 435 mA
Operating temperature range	-25 °C to +65 °C (except backup battery)
Operating humidity	0 – 95 % noncondensing
Protection level	IP20
Class of device protection	class I
Dimensions REGGAE GLTbz/GLTbzxxx	301 × 249 × 78 mm (without cable bushing)

GSM/GPRS

Communication band	850 / 900 / 1800 / 1900 MHz
Output power	2 W / 1 W
GPRS class	8
Antenna impedance	50 Ω
Connector type	SMA

Circuit board of REGGAE GLT communicator

The circuit board of the REGGAE GLT communicator enables the control and configuration of the complete mechanism. It includes terminal plates for connecting voltage insulated inputs, relay outputs and telephone lines (AS and PSTN). It also contains connectors for connecting serial ports (RS232 and TTL), connector for connecting to LAN/WLAN and connector for connecting antennas for GSM/GPRS.



Powering REGGAE GLT communicators

Voltage supply to the REGGAE GLT communicator is brought in through the terminal plate marked „12V" and „GND". Positive field supply is connected to terminal „12V", negative to terminal „GND". The communicator must be powered by direct current voltage in the range of 10 – 15 VDC. Supply voltage cannot have undulations of more than 0.2 V_{rms}. During supply of voltage there cannot be a faster decline in supply (during normal operation) of more than 2 V per 1 s (a faster decline will be detected as a power failure).

Medium current consumption of the communicator is less than 260 mA. During communication with GSM/GPRS, consumption may rise to up to 500 mA. At this consumption level the power source must be dimensionalized.

It is possible to power the communicator from the power source of the AS/FAS panel, as long as the source of the panel is sufficiently dimensionalized for this additional consumption.

It is assumed that the voltage supply is protected at the source, this being with a fast fuse with a current rating of 630 mA to 1.6 A (F630 mA/250 V to F1.6 A/250 V). If the power source does not contain this type of fuse at its output, it is necessary to add this to the power carrier of the communicator (as close as possible to the power source output).

Voltage insulated inputs

The communicator has eight voltage insulated inputs I1 to I8, which switch the supplied voltage to the correct pole. Each input is implemented by two terminal plates, on which the polarity of the incoming voltage is marked.

Each input is insulated by an optocoupler. The strength of insulation between the input terminals I1 to I8 and the remaining circuits of the REGGAE GLT communicator is at least 1 kVAC (50 Hz). The same strength of insulation is also mutually between each input.

Voltage at the inputs must be brought in for longer than the time set in the configuration of the communicator in order to make sure that inputs are clamped closed (100 ms – fast input or 300 ms – slow input). The reaction of inputs to inflowing voltage can be inverted in the configuration of the communicator.

The table below shows the reaction of inputs to inflowing voltage:

Loop status	Voltage in loop	Consumption
Closed – alarm	+8 V až +40 V	max. 6 mA
Unspecified status	+5 V až +8 V	
Released – idle -circuit condition	-40 V až +5 V	max. 6 mA

Diagnostic and configuration serial port RS2

Serial port RS2 serves to connect the communicator to a PC with the diagnostic sowtware or can be used for message transfere from AS third-party converters.

Connector for connecting the PC is type RJ-45 and is located under the additional circuit board of LAN/WAN module. The standard of this connector conforms to the standards RS232 (EIA-232-F, ITU V.28). This serial port is not insulated from the remaining parts of the communicator. A cable reducer KAB 08 is used for connecting the REGGAE GLT communicator to a PC. Please contact the producer, NAM system, a.s., for more details of this cable reducer.

Serial port RS2 is carried on pin field CON09. Here it serves to transfer messages from AS. The levels of serial port RS2 on CON9 are TTL (3V). The serial port at the TTL (3V) level is not insulated from the remaining parts of the communicator. For connections with FAS panel it is necessary to have a module for transfers at the TTL (3V) level from the circuit board of the REGGAE GLT communicator to the level of the serial port of the specific FAS. The basic type of module for uninsulated interfaces TTL (5V) and insulated interfaces RS232, RS422 or RS485 are available from the producer, NAM system, a.s. The description of the modules for the insulated serial ports RS232 and RS422/485 can be found on page 14. The modules ensure insulation of the serial ports RS232/422/485 from the remaining parts of the communicator.

When using module for interface TTL (5 V), RS232 or RS422/485, then it is not possible to use serial link RS2 on the connector RJ-45 for diagnostics and configuration. In this case diagnostics and configuration of the communicator REGGAE GT is possible only remotely via channels LAN/WAN and GPRS.

Relay outputs

On the circuit board of the REGGAE GLT communicator there are two relay outputs RE1 a RE2 implemented by two independent relay contact switches.

The terminal plate markings are standard. The mutual outlet of the switch contact is marked „C“ (Common). The contact outlet that is clamped close when the status is idle-circuit is marked „NC“ (Normally-Closed). The contact outlet that is in release when the status is idle-circuit is marked „NO“ (Normally-Open).

The carrying capacity of each relay output is a maximum of 1 A / 30 VDC (respectively 0.3 A / 60 VDC) or 0.5 A / 125 VAC.

RESET button

The RESET button serves to carry out the initiation of the status of the REGGAE communicator. Pressing the RESET button for a longer time (longer than 1 s) initiates the restart of the communicator. During this restart, initiation of all communication channels is carried out. Restart of the communicator does not cause the deletion of news and occurences tables and corresponds to the turning on of supply to the communicator.

Pressing the RESET button for a short time starts the indication of the signal strength of GSM/GPRS on the blue LED LD1. This indication is active for 1 minute. After this time, the blue LED LD1 will again indicate the status of the telephone communication wilth the AS.

Indication of the state of the communicator - LED lights

LED LD1 to LD4 on the circuit board of the REGGAE GLT communicator serve to indicate the present state of the REGGAE communicator.

The meanings of the LED diods indication lights are as follows:

LD1 (blue) – indicates state of telephone communication with AS

LD1 (blue)	Meaning
Not shining	Idle-circuit state
Shining	Line is being answered
Flashing	Receiving data
Turns off for 0.5 s	Confirmation of data receipt

LD1 (blue) – strength of GSM/GPRS signal
(1 minute after a short press of the RESET button)

LD1 (blue)	Meaning	
Not shining	Idle-circuit state	
Flashes 1×	Excellent signal	(>75 %)
Flashes 2×	Good signal	(>50 %)
Flashes 3×	Bad signal	(>25 %)
Flashes 5×	Very bad signal	(<25 %)

LD2 (green) – state of LAN/WAN and GSM/GPRS

LD2 (green)	Meaning
Not shining	Serious breakdown
Flashes 1×	No GSM signal
Flashes 2×	Logged in GSM
Flashes 3×	Logging in TC (*)
Flashing quickly	Scanning of GSM network
Shining	Logged in TC (*)

(*) technological centre

LD3 (yellow) – breakdown of communicator

LD3 (yellow)	Meaning
Not shining	No breakdown
Short flashes	Breakdown (disconnected) PTN
Long flashes (*)	Communication problem at RS2
Flashes 2× (**)	Outage of 230 VAC network
Flashes 3× (**)	Defective/missing accumulator
Flashes 5×	Communicator without configuration

(*) only when FAS is activated in configuration
(**) only for communicators GLTbz/GLTbzxxx

If a number of breakdowns occur at one time, they are shown in sequence with 1 second gaps between each breakdown

LD4 (red) – data transmission

LD4 (red)	Meaning
Not shining	Idle-circuit state
Flashing	Transmitting data to ARC
Shining	Not connected to ARC or to TC (*)

(*) technological centre

LED on module Lantronix (on the left)

Indication	Connection status
Not shining	Not connected
Yellow	10 Mbps
Green	100 Mbps

LED on module Lantronix (on the right)

Indication	Activity
Not shining	Inactive network
Yellow	Halfduplex operation
Green	Full duplex

LAN Connector

For connecting the circuit board of REGGAE GLT communicator to the computer network LAN/WAN serves connector type RJ-45 on additional circuit board above the serial port connector RS2. LAN/WAN interface is compatible with network interface 10Base-T and 100Base-TX. In the default settings of the communicator is activated auto-detection of network interface.

Antenna connector - GSM/GPRS

For connecting antennas for GSM/GPRS there is a connector of type SMA on the circuit board of the REGGAE GLT communicator. Any antenna that satisfies the necessary operation conditions in the range GSM/GPRS 850/900/1800/1900 MHz with impedance 50 Ω can be used.

Antennas must be adapted for both indoor and outdoor usage.

Antennas with a magnetic base are most commonly used, and these can be fixed to the outer surface of the panel or REGGAE communicator cases.

Telephone part of communicator

The telephone part of the circuit board of the REGGAE GLT communicator is able to communicate with the AS panel in all common pulsation and DTMF formats. Supported formats are 4+2, Ademco Point ID (Contact ID), communication speed 10, 20 or 40 bps with handshake 1400 Hz, 2300 Hz or multi-tone.

Dialled telephone numbers can be set up as pulsation or DTMF at the AS panel.

The telephone part of the REGGAE GLT communicator can generate the dialling tone of the line for the AS panel. This function is optional in the communicator configuration.

The terminal plates marked „T1“ and „T2“ are used for connecting telephone lines from the AS panel. If the AS panel has to communicate directly with the ARC, the PSTN telephone line must be connected to the terminal plates marked „TIP“ and „RING“. Also, if the communicator has to send news and occurences on the ARC channel, the PSTN telephone line must be connected to the terminal plates marked „TIP“ and „RING“.

Also, if the communicator has to send news and occurences on the ARC channel, the PSTN telephone line must be connected to the terminal plates marked „TIP“ and „RING“.

Tampers on the communicator

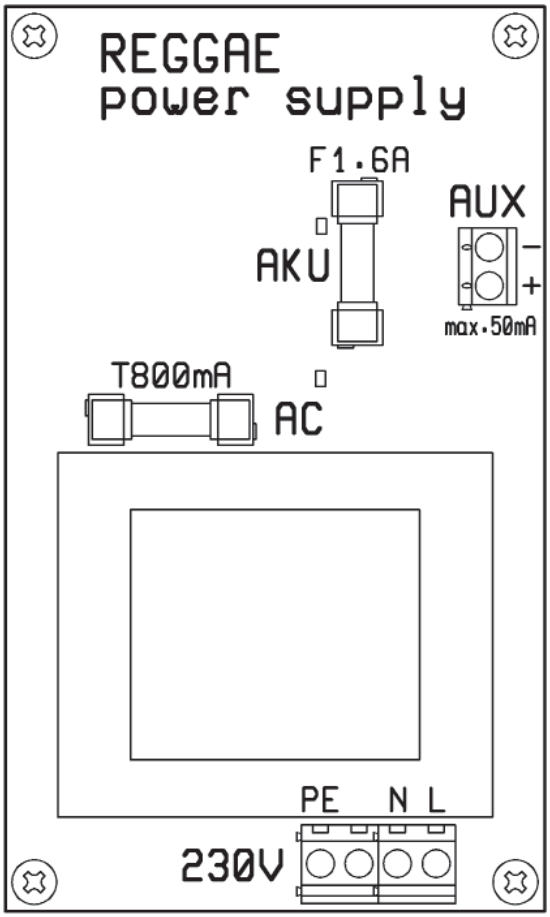
The connectors TMP1 TMP2 on the circuit board of the REGGAE GLT communicator are used to connect up to two tampers. The connector has four pins. The two pins on the left side marked TMP1 are used to connect the first tamper. The two pins on the right side marked TMP2 are used to connect the second tamper.

For both tampers it is assumed that contact will be released immediately if they are disrupted.

The tamper on the box of REGGAE GLTbz/GLTbzxxx communicators is standardly connected as TMP1.

Power source circuit board - REGGAE

REGGAE GLTbz/GLTbzxxx communicators are powered by alternating supply grid 230 V / 50 Hz. The power source circuit board is used to create direct current power voltage 13.8 V for the REGGAE GLT communicator. The output of direct current voltage from the power source curcuit board is backed up by a VRLA accumulator 12 V.



Powering the REGGAE GLTbz/GLTbzxxx communicators

Direct current power voltage 230 V is brought into the communicator through the terminal plates marked „L", „N" and „PE". The maximum power consumption of the communicator from the alternating current supply grid is less than 150 mA.

Back-up accumulator

The back-up accumulator is connected to the red and black conductors of the power source circuit board (with end fasteners). The power source circuit board ensures the operating state of the accumulator – this means charging and connection/disconnection of the accumulator from the direct current output from the power source circuit board. The maximum charging supply of the accumulator is limited to 435 mA. During operation of the power source circuit board at alternating grid 230 V, the accumulator is constantly charged at a voltage of 13.8 V. The power source is designed to serve VRLA accumulators 12 V with a capacity in the range of 1.2 to 7.5 Ah.

The power source circuit board ensures automatic disconnection of the accumulator in cases where its open circuit voltage falls below 8.9 V during operation of the communicator by the accumulator (this means at times of loss of alternating current supply voltage 230 V). Even during the absence of alternating current supply voltage 230 V it is possible to put the communicator into operation by connecting an accumulator with an open circuit voltage of more than 11.5 V.

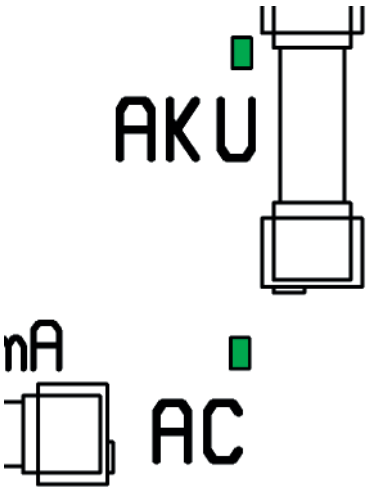
Supply output AUX

Supply of output AUX is achieved by using the terminal plates marked „AUX" and „GND". This output is meant for possible supply of the circuit of the voltage insulated inputs I1 to I8 on the circuit board of the REGGAE GLT communicator.During operation of the communicator using the alternating grid 230 V the AUX output allows direct current voltage of 13.1 – 13.8 V. During operation of the communicator using the back-up accumulator, voltage of the AUX output may fall to a value of 8.5 V. The maximum power consumption of the AUX output is 50 mA. The AUX output is not insulated from the remaining parts of the communicator and so its usage for supplying any of the inputs I1 to I8 leads to the breach of the insulation of the inputs involved.

The AUX output is protected from short-circuiting by a return safety fuse. This guarantees the limiting of power coming from the short-circuit of the output to less than 100 mA.

LED indicators on the power source circuit board

Two LED indicators are located on the power source circuit board.



When the green LED light marked „AC“ shines this indicates the presence of alternating current voltage at the input 230 V.

When the green LED light marked „AKU“ shines, this indicates that the power source is ready to charge the circuit board of the REGGAE GLT communicator from the accumulator and also from the grid 230 VAC. The LED light „AKU“ shines even when the accumulator is not connected as long as alternating current power voltage 230 V is connected. The LED light „AKU“ does not indicate the status of the accumulator. Diagnosis of the state of the accumulator is carried out and indicated on the circuit board of the REGGAE GLT communicator.

During operation of the REGGAE GLTbz/GLTbzxxx communicator by the back-up accumulator, the LED light „AKU“ will shine when the accumulator is connected to the power source circuit board of the REGGAE GLT communicator. If the circuit source disconnects the accumulator due to its low open circuit voltage (< 8.9 V), the LED light „AKU“ will turn off.

Safety fuses

Two safety fuses are located on the power source circuit board. Safety fuse T800mA serves to protect output transformators at source in the case of serious violations of the output circuit source.

Safety fuse F1.6A protects the circuit source against the reserval of poles on the accumulator.It also protects the accumulator in the case of serious violations of the output circuit source.

Operating time of REGGAE GLT/GLTbz/GLTbzxxx communicators using the back-up accumulator

The table below shows the approximate times that REGGAE GLT, REGGAE GLTbz, REGGAE GLTbz232 a REGGAE GLTbz485 communicators are capable of operating for when using back-up accumulators of various capacities.

Capacity accumulator	Operating time new accumulator	Operating time older accumulator
1.3 Ah	10 hours	8 hours
4 Ah	45 hours	36 hours (1.5 days)
7 Ah	75 hours	60 hours (2.5 days)

The times shown in the table are for standard operation of the communicators (e.g. 10 telephone line communications daily with the AS including news sent on the ARC via channel LAN/WAN or via channel GPRS). Operation of the communicator is expected up to a voltage of 9 V on the accumulators terminal.

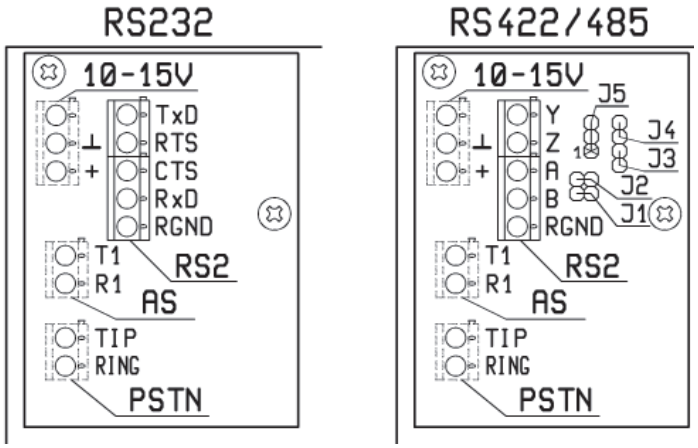
The operating times for new accumulators shown in the table are valid when the capacity of the accumulator is 100 % of its voltage rating.

The operating times shown for older accumulators are valid when the capacity of the accumulator is 80 % of its voltage rating. Standard VRLA accumulators usually reach a capacity of 80 % of voltage rating after approximately 2 years operation at room temperature (20 °C to 30 °C), according to information from the producers of the accumulators.

Modules RS422/485 and RS232

Modules serve to transfer data between FAS third party convertors and REGGAE GLT communicators. The standard of input and output modules RS422/485 fully conform to standards ANSI RS-485 and ISO 8482:1987(E). The standard of input and output module RS232 fully conforms to standards EIA-232-F and ITU V.28.

Modules RS422/485 and RS232 ensure the insulation of the communication channel RS2 from the remaining parts of the communicator. The strength of insulation between the communication channel and the remaining circuits of the communicator is a minimum of 1 kVAC (50 Hz).



Connecting modules RS422/485

The meanings of each terminal on the circuit board of the module RS485 in relation to the REGGAE GLTbz485 communicator are as follows:

Terminal	Meaning
Y	Data output Y
Z	Data output Z
A	Data input A
B	Data input B
RGND	Signal - Reverse ground

The length of the connecting cable for the communication serial port RS422/485 may be a maximum of 1000m taking into account possible disturbances and overall capacity. The recommended type of cable is UTP. If a STP cable is used, the shielded cable is connected to terminal „RGND".

Short-circuit connectors J1 to J5 are configurated by modules RS422/485 according to requested type of interface. Closed connector J1 is connected to end resistor 120 Ω between inputs A-B. Closed connectors J3 and J4 connect inputs A/B with outputs Y/Z for interface RS485. Closed pins 1 and 2 of connector J5 set a positive idle-circuit level at input A/B. Closed pins 2 and 3 of connector J5 set a negative idle-circuit level at input A/B. To ensure the correct function setting of the idle-circuit level using connector J5, connector J2 must be closed. For configuration of the module at interface RS485, it is usual to use all connectors. For interface RS422 it is usual to close only connector J1.

Connecting modules RS232

The meanings of each terminal on the circuit board of the module RS232 in relation to the REGGAE GLTbz232 communicator are as follows:

Terminal	Meaning
T×D	Data output
RTS	RTS output
CTS	CTS input
R×D	Data input
RGND	Signal – Reverse ground

The length of the connecting cable for the communication serial port RS232 may be a maximum of 15 m taking into account possible disturbances and overall capacity. The overall capacity for each signal conductor against grounding of communication lines cannot exceed approx. 2000 pF.

INSTALLATION OF THE COMMUNICATOR REGGAE GLT/GLTBZ/GLTBZXXX

Location requirements for communicator REGGAE GLT

Handle the REGGAE GLT communicator circuit board with care to avoid damaging (breaking) ferrite inductors, particularly on the underside of the circuit board.

Fasten the circuit board into the panel box or into other device with four self-adhesive distance columns (included in the package of REGGAE GLT communicator). While placing the circuit board of communicator onto metal underlay, secure the space underneath the bottom side. Check, if any surface inequalities are not too close to the board components. Minimum distance between components and surface must be more than 3 mm.

Placement requirements for communicator REGGAE GLTbz/GLTbzxxx

In the rear wall of the metal box of communicator REGGAE GLTbz/GLTbzxxx are prepared holes for stretching all the cabling. Holes are blanked off from production. Remove blanking metal wheels from needed holes and stretch the cabling into the box of communicator.

Fasten the box of communicator on the wall using three screws, there are three holes designate on rare wall of the metal box. Two holes are adapted for hanging up in the upper corners of the box. Into the third hole in the middle of the bottom part of the box screw a screw, which will fix the box against slipping out of hanging.

After installing the metal box on the wall, always check the strength of gripping to prevent later injury or damaging estate by releasing the communicator box from hanging!

Connecting to LAN/WAN

Connect the LAN/WAN computer network cable to the LAN connector of the circuit board of the communicator REGGAE GLT (connector RJ-45 with metal shielding). Interface does not support function Auto MDI/MDIX. So if device on the adverseparty also does not support function Auto MDI/MDIX, it is necessary for connecting to choose proper connecting cable (direct or crossover). Device is not compatible with PoE (Power over Ethernet). **Don't use computer network cable LAN/WAN with active function PoE for connecting the circuit board of the communicator REGGAE GLT!.** In the default settings of the communicator is for logging in to the computer network LAN/WAN activated DHCP regime. If the communicator will not log in to the technical centre within 1 minute after turning on the power, then probably regime DHCP is not suitable and it is necessary to change the configuration of the communicator. Detailed information about the interface LAN/WAN configuration can be found in the description of the settings of the communicator.

Connecting the GSM/GPRS anthenna

GSM/GPRS antenna must be placed outside the metal box, where the communicator is placed, otherwise proper communication will not be ensured.

Coaxial antenna cable designed for interior is thin and flexible. Such antenna types are possible to connect without major problems directly to the SMA connector of the communicator. Always make sure to avoid breakage of the coaxial cable, or a sharp bend on a small radius.

It is appropriate to connect external antenna and communicator with quality coaxial cable (impedance 50 Ω), e.g. type RLH1000. Such cable type cannot be directly connected to SMA connector of the communicator. To connect inflexible coaxial cable to connector of the communicator use short cable reduction with corresponding connectors (e.g. SMA <--> N).

Connecting the inputs

Connect the insulated voltage inputs. In the inputs description and in the communicator configuration you will find detailed information about inputs function.

Connecting the outputs

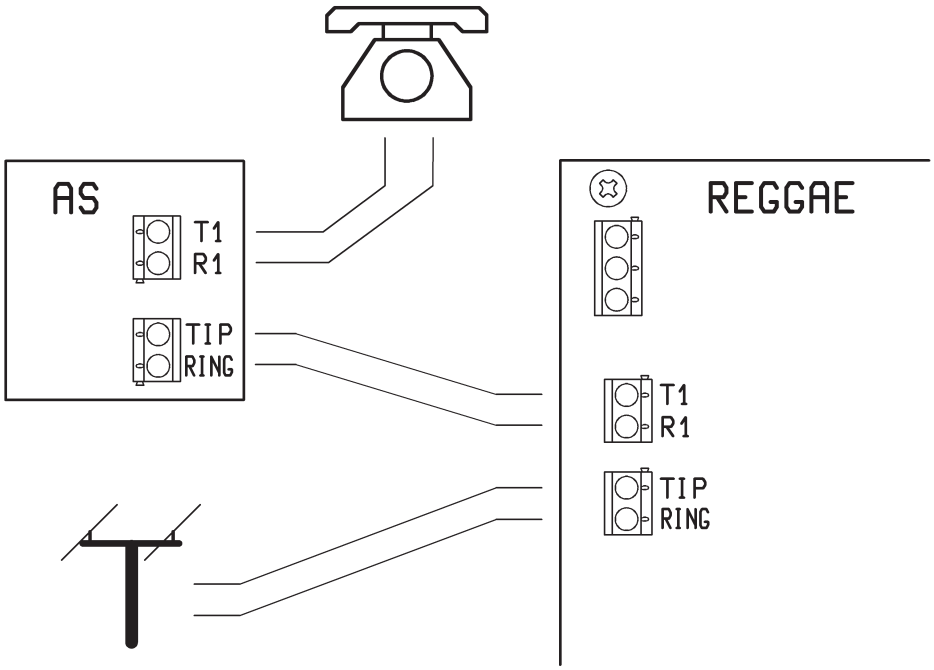
Connect the relay outputs. In the relay outputs description and in the communicator configuration you will find detailed information about technical parameters and about outputs function.

Connecting the serial port RS2

Connect the communication serial port for message transfer from AS third-party converter to module TTL (5V), RS232 or to RS422/485 of the communicator REGGAE GLTbz, REGGAE GLTbz232 or REGGAE GLTbz485.

Detailed information about connecting the terminal plate and about technical parameters of serial port modules can be found in modules RS422/485 and RS232 description.

Connecting the telephone line



Connect the panel AS telephone line RING/TIP onto terminal plates marked as "R1" and "T1" of the communicator REGGAE GLT circuit board.

For proper function of telephone communication between AS and communicator, connection to PSTN is not necessary. When PSTN line is not connected, communicator automatically transfers to the simulated line regime on the AS side. In case of not raised link on side of the AS in the simulated line regime, there is approx voltage 23 V on terminal plates "R1" and "T1" of communicator REGGAE GLT circuit board.

If you want to retain the option of communication between AS panel and ARC, then connect telephone line PSTN onto terminal plates marked as "RING" and "TIP" on communicator REGGAE GLT desk. In case of disorder on the telephone line PSTN (voltage drop on the line) is the line automatically disconnected to avoid communication interference between AS and communicator.

In order to have functionally connected telephone device on terminal plates R1/T1 of AS panel, there must be available connection to PSTN line for communicator. Communicator REGGAE GLT desk is unable of GSM gateway function.

Detailed information about technical parameters and about functions of telephone communication can be found in description of the telephone section of communicator and in description of communicator configuration.

Power supply connection to the communicator REGGAE GLT

Connect power supply 10 – 15 V in the communicator REGGAE GLT. Conduction of the supply voltage wires, which is used for communicator, must be secured against possible circuiting sabotage. Therefore it is inappropriate to use the same power supply as for the sensors, where the short circuit, in this usually relatively easily accessible charge, causes communicator dysfunction. It is necessary, that on the terminal plates of communicator will be respected parameters listed in the description of supplying communicator REGGAE GLT. Detailed information for technical parameters of power supply can be found in description of supplying the communicator REGGAE GLT.

Power supply connection to the communicator REGGAE GLTbz/GLTbzxxx

Connect power supply 230 VAC of the communicator REGGAE GLTbz/GLTbzxxx to the terminal plates "PE", "N" and "L" on the power source circuit board. **Communicator must always be connected to the protective conductor of the grid 230 V**. Connection to the grid 230 V is carried out by a movable supply line with plug or by fixed supply. **Movable supply line must lead through bushing. In the bushing it must be well fixed against pulling**. Bushing also protects supply line against abrasion of the insulation by sharp edges of the box. **Network plug of flexable supply line serves as a means for disconnecting the communicator from the grid. Power socket must be then close to the device and must be easily accessible. Overcurrent protection must be part of the installation of the socket**. If necessary, movable supply line with plug can be replaced by wired connection. **Wired connection must only be performed by a person with a valid certificate for such activity! When connecting the wired connection, there must be appropriate disconnecting medium implemented as part of the electrical installation in the building. Nominal value of superposed overcurrent protective element can be maximum 16 A**. Detailed information about technical parameters of supply voltage can be found in description of the power supply of the communicator REGGAE GLTbz/GLTbzxxx.

Configuration and testing the communicator

Configure the communicator locally on PC by using programme NAM manager (connecting via serial port), also possible remotely by programme NAM manager. Process of configuration is listed in the user manual of programme NAM manager.

Test all of the installed communication channels (communication with AS/FAS, communication with ARC via GSM/GPRS and LAN/WAN). Then also test functions of all installed inputs and outputs. For testing preferably use a serial port connection to PC and programme NAM manager. Detailed information about testing options are listed in the user manual of the programme NAM manager, in description of diagnostics of the communicator. For cursory communicator function testing can be used status indication via LED LD1 to LD4 (see communicator status indication via LED).

SETTING UP THE NETWORK CONNECTION

Conditions for operating the communicator

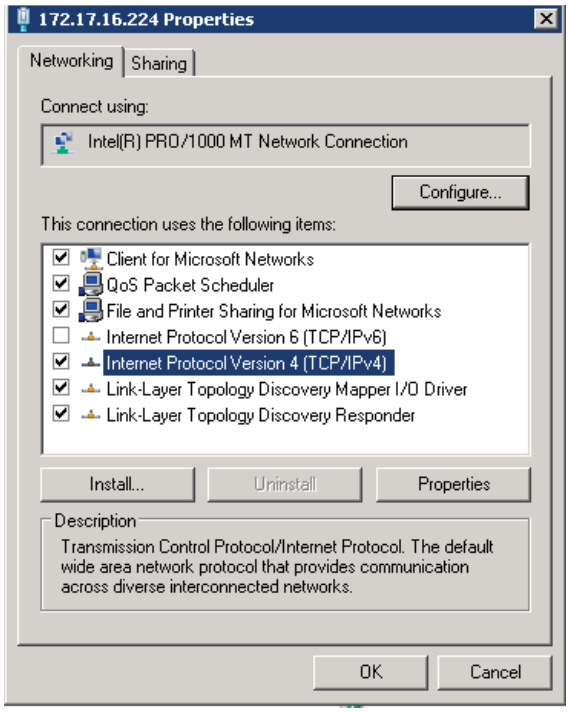
In order to put the REGGAE GLT communicator into operation it is important that the place where you want to locate the communicator is connected to the Internet. This connection does not have to be directly to the Internet (by public IP address), it is sufficient to have a connection with a converted address (NAT). An important condition is that the UDP data-grams get from the REGGAE GLT communicator and the internal network to the Internet and that replies to these data-grams arrive back to the communicator.

It is possible to test the connectivity of the REGGAE GLT communicator by for example using a notebook with the ReggaeNetTest programme. Details of this process are as follows:

Diagnostics of the network connection

The process for controlling the connectivity of the communicator should be as follows:

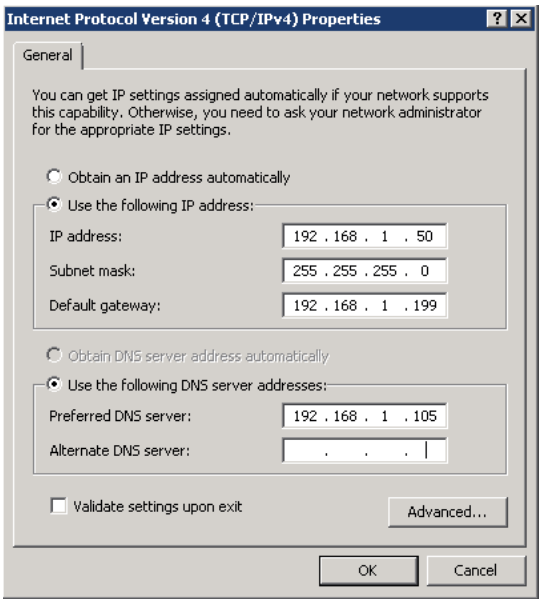
1. Copy the ReggaeNetTest.exe files into the mutual files on the notebook on which you plan to test the applicability of the communicator.



2. On this notebook open Start -> Control panel -> Network connection and choose the connection that you want to use. Press the right-hand button and open „Properties".

3. Choose „Protocol Internet Network" (TCP/IP) and again press „Properties".

4. If „Get IP address on DHCP server automatically" is not set up, write the present IP address, masks and portals that has been set so that after testing you will be able to return and choose this option.

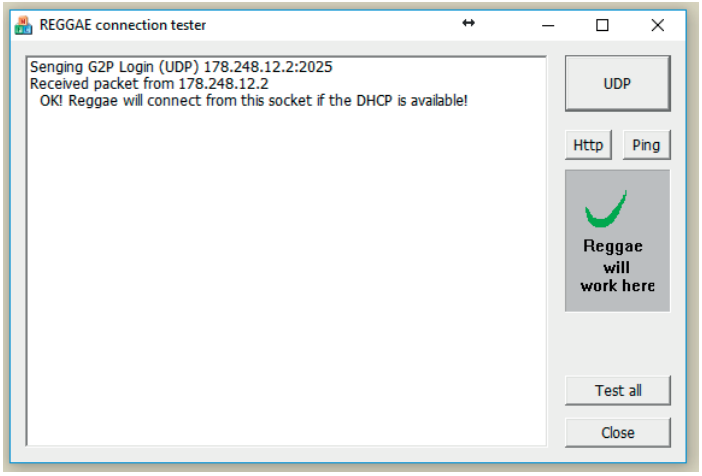


5. Close all open windows in the network configuration by pressing „OK"

6. Connect the cable designed for connecting the REGGAE GLT communicator to the LAN/WAN computer network to the network card of the notebook.

7. Press on the network connection icon on the control panel and choose „Status". Control if IP address has been added to the DHCP server.

8. Run the ReggaeNetTest programme and press „UDP". If „OK" is shown, the REGGAE GLT communicator is functional for this connection.



9. If, during the previous step, „OK“ is not shown, you can test the accessibility of the technological centre using the HTTP protocol and PING utility (another two buttons on the ReggaeNetTest programme). If these protocols get through (or at least one of them gets through), it will probably be necessary for the computer network manager to allow the inbound and outbound packets UDP. The adverse party of the REGGAE GLT communicator is 212.65.244.148 and port 2013 (technological centre).

10. If you want to operate the REGGAE GLT communicator with a fixed IP address, it is possible to bypass steps (2, 3, 4, 5 a 7).

MESSAGE RECEPTION FROM REGGAE GLT/GLTBZ COMMUNICATORS

We use a NSG receiver for receiving messages from REGGAE communicators. The receiver can communicate with ARC via TCP/IP or via serial port (optional accessories) by universal format Sur-Gard. This format is supported by almost all common software for ARC.

Basic parameters of the NSG receiver

• Main channel for communication with NSG:	Encrypted connection via internet
• Backup channel for communication with NSG:	GSM/GPRS
• Output Sur-Guard:	Serial (assisted by MOXA convertor) or via TCP/IP
• Number of connectable devices (REGGAE):	0xFFF = 4095
• Formats of output codes:	4+2, Contact ID, BSD

The table of occurrence codes from the REGGAE communicator can be found in the separate manual for the NSG receiver, version 1.60.

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