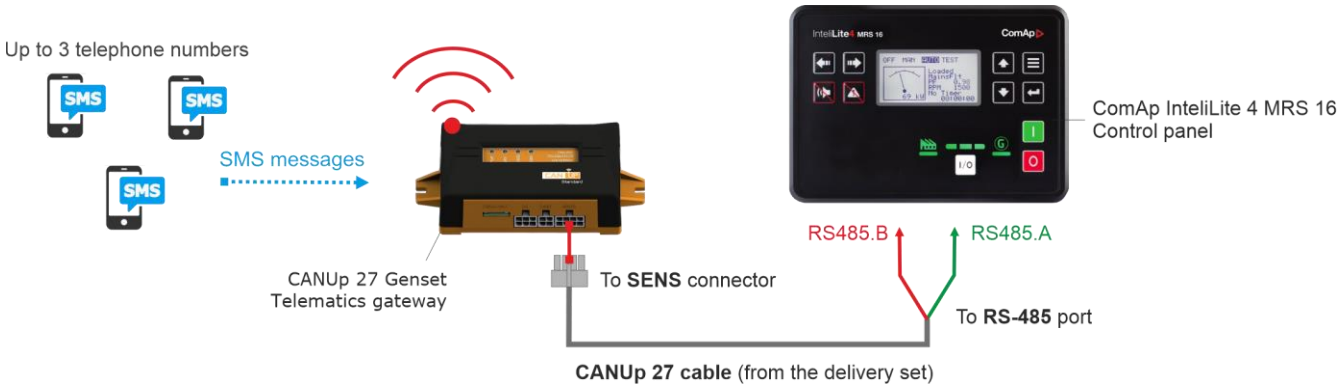
TELEMATICS GATEWAY
CANUp 27 Genset
Instructions for remote control configuration of ComAp InteliLite 4 MRS 16 panel by means of SMS commands
Version 1.0

1 To exercise remote control of ComAp InteliLite 4 MRS 16 panel of diesel generator, you need any mobile phone with SMS message service enabled (use of up to 3 entrusted telephone numbers is allowed).

You also need to connect CANUp 27 Genset via RS-485 serial interface (**SENS** connector) to ComAp InteliLite 4 MRS 16 panel using **CANUp 27 cable** (CANUp 27 Genset delivery set).

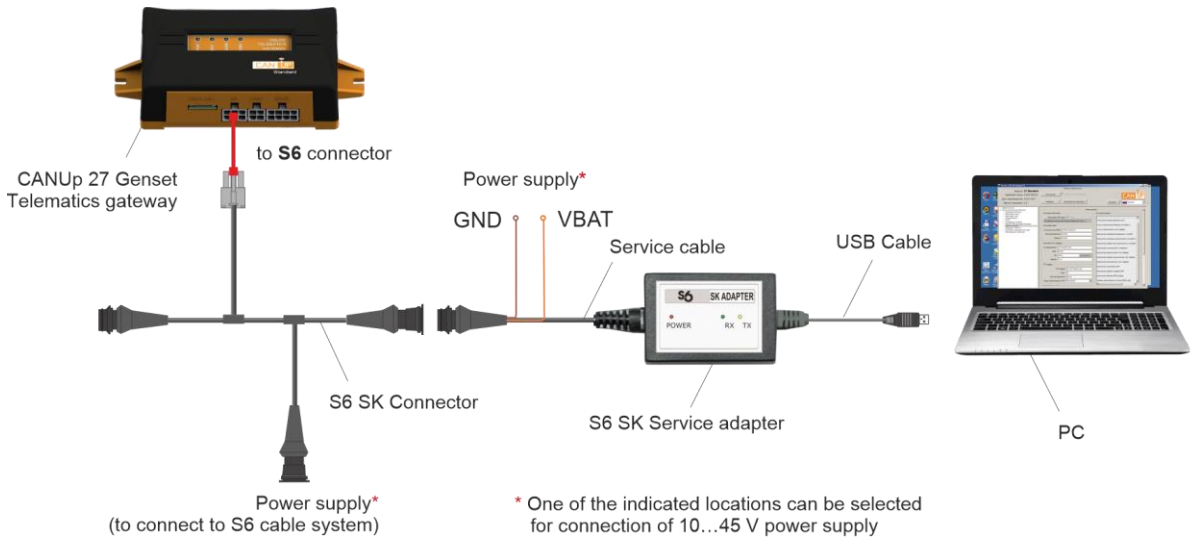
> ⚠ Information on CANUp 27 Genset electrical connection is provided in para. 2.5 of the document "CANUp 27 Telematics gateways. Operation manual".
> The electrical connection of ComAp InteliLite 4 MRS 16 control panel must be performed



2 Download the USB driver CP210x USB to UART Bridge VCP Drivers in section Software/Firmware and install it on the computer (PC); also download Service CANUp service software at https://www.jv-technoton.com/ and install it.

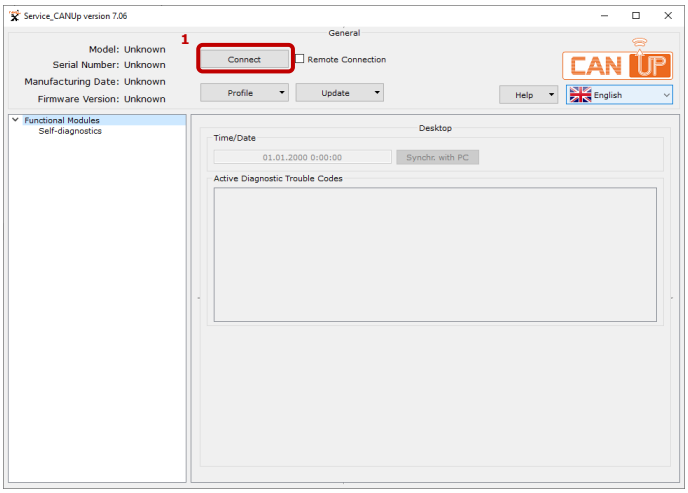
> ⚠ See detailed information on the service software and requirements to the PC in para. 2.4 of the document "CANUp 27 Telematics gateways. Operation manual".
> Information on CANUp 27 Genset settings displayed and/or edited using the service software is provided in the document "CANUp 27 Telematics gateways. Catalog of functional modules".

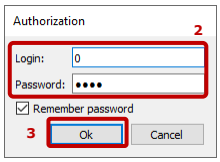
3 Connect CANUp 27 Genset to the PC using S6 SK service adapter, according to the diagram provided below. Switch on DC power supply within the range **10...45 V**.

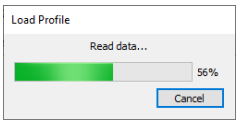


4 Start Service CANUp service software and press Connect button **(1)**. In **Autorization** window enter login **0**, password **1111 (2)** and press OK button, to confirm it **(3)**.

Note — If needed, the service software allows remote connection to CANUp 27 Genset via Internet for its configuration without using cable connection to the PC. See details in para. 2.4.9 of the document "CANUp 27 Telematics gateways. Operation manual".



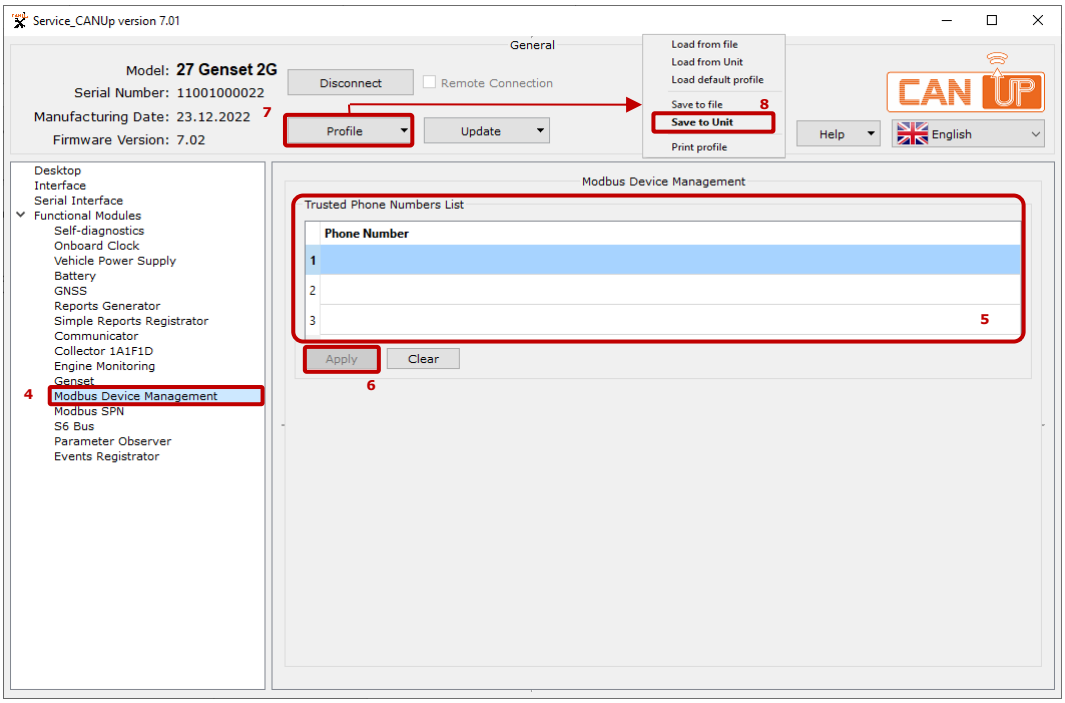




5 Open the submenu of **Modbus Devices Management FM (4)** to enter up to 3 pcs. entrusted telephone numbers in the international format (13 digits maximally) (PGN 63551) from which remote control over ComAp InteliLite 4 MRS 16 panel will be exercised.

To add each entered number to the **Trusted Phone Numbers List (5)**, press **Apply (6)** button. If you need to delete all telephone numbers from the list, use **Clear** button.

Press Profile button **(7)** and select the operation **Save to Unit (8)** in the menu, to save the modified profile in the internal memory of CANUp 27 Genset.



6 To enable remote control of ComAp InteliLite 4 MRS 16 panel, you need to send "Modbus register record" SMS command to CANUp 27 Genset from the entrusted telephone number (see table 1).

Table 1 — Designation of fields of the command "Modbus register record"

Command field	Designation	Comment
Command format: **++PVX;Y;Z;V;DDD…DDDD/++**		
++	Command start	—
PV	Version of SMS commands format	One "V" character.
X	CANUp 27 Genset service password	Digits, no more than 4. By default — 1111.
Y	Network address S6 (SA) for CANUp 27 Genset	100
Z	Command version (see table 2)	Characters (0,1,2…Z), no more than 4 characters.
V	Time of command execution	Specified in minutes, no more than 4 characters. Range: 1…9999. Time for command execution. In case the time specified is over and the command cannot be executed, the command is ignored.
DDD…DDD	Command field	Text containing specification of command parameters, up to 50 characters (see example in table 2).
/++	Command end	—

Table 2 — Options and examples of "Modbus register record" commands

Commands versions	Commands examples	Commands versions
W6 (record one register)	Recording into one register of Modbus device (function code — 6) of the value (decimal number system), with address specified. Example: ++B1111;100;W6;5;**3-3051,1,4**/++	Recording into Modbus device with address 3 into register 3051, number of recorded registers — 1, value 4.
W16 (record two registers)	Recording in succession into several registers (maximally two registers) of Modbus device (function code — 16) of the value (decimal number system), with address specified. Example: ++B1111;100;W16;5;**3-3051,2,0,5555**/++	Recording several registers into Modbus device with address 3, starting from number 3051, number of recorded registers — 2, values 0 and 555.

After receiving "Modbus register record" command, CANUp 27 Genset will automatically generate the event "Write Register Modbus Command Received" (SPN 521778), specifying the ComAp InteliLite 4 MRS 16 panel register which is being recorded, as well as the sender telephone number. The SMS message sender will receive the response of the command execution (see table 3).

After the command reception and processing, CANUp 27 Genset records the specified register into ComAp InteliLite 4 MRS 16 panel according to Modbus RTU protocol. After that, CANUp 27 Genset automatically generates the event "Modbus Register Write Result" (SPN 521779).

Table 3 — Possible SMS responses from CANUp 27 Genset to the result of "Modbus register record" command execution

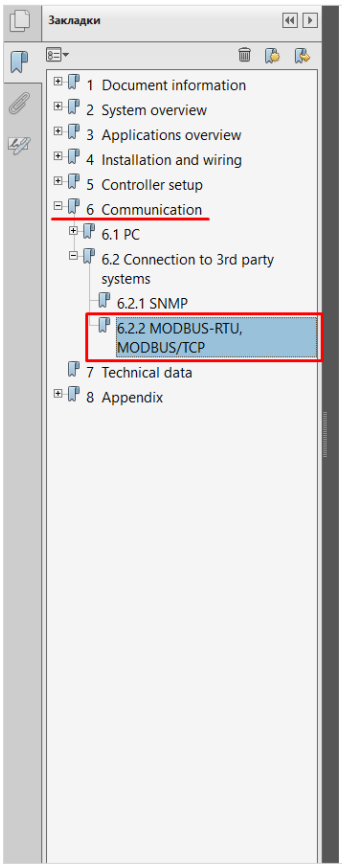
#	Text	Condition
1	Command error (W6, W16)	Incorrect command format
2	Command error (W6, W16): incorrect password	Authentification error
3	Command execution (W6, W16) in progress	In case SMS is sent another time or in case of sending a command whose function is already being executed
4	Command (W6, W16) executed successfully	Command executed successfully
5	No response to command (W6, W16)	Time for command execution is over due to RS-485 error

7 Remote control of ComAp InteliLite 4 MRS 16 diesel generator control panel according to Modbus RTU protocol is exercised by imitating the function of pressing its buttons — e.g. **Engine Start** and **Engine Stop**.

> ⚠ First, install InteliConfig software on your PC and study the information included on the data transfer protocol of RS-485 interface (Modbus RTU card of registers) of ComAp InteliLite 4 MRS 16 panel.

In order to find out addresses of control registers for controlling ComAp InteliLite 4 MRS 16 panel, start InteliConfig software and open **Controller manual** menu.

In the panel of tabs, open section **6 Communication** → subsection **6.2.2 MODBUS-RTU, MODBUS/TCP** → paragraph **Reserved registers**.

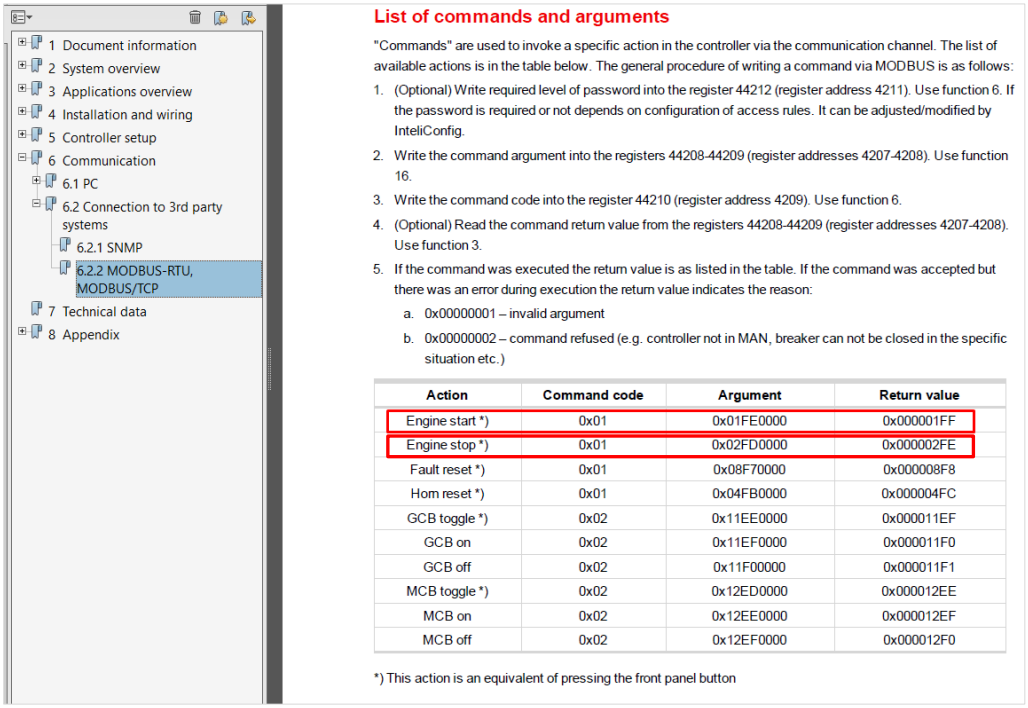


Reserved registers

There are several registers with specific meaning. These registers are available in all controllers regardless of the configuration.

Register addresses	Number of registers	Access	Data type	Meaning
4200 - 4201	2	read/write	Time	RTC Time in BCD code
4202 - 4203	2	read/write	Date	RTC Date in BCD code
4204	1	read/write	Unsigned8	Index of the language that is used for text data provided by MODBUS (e.g. alarmlist messages).
4205 - 4206	2	read	Unsigned32	Last application error. To be read after the device returns the exception code 04. It contains specific information about the error.
4207 - 4208	2	read/write	Unsigned32	Writing:command argument Reading: command return value
4209	1	write	Unsigned16	Command code
4010	1	-	-	Not implemented
4211	1	write	Unsigned16	Password
4212 - 4213	2	read	Unsigned32	Communication status
4214	1	read	Unsigned8	Number of items in the Alarmlist
4215 - 4241	27	read	Alarm	1. record in alarm list
4242 - 4268	27	read	Alarm	2. record in alarm list
4269 - 4295	27	read	Alarm	3. record in alarm list
4296 - 4322	27	read	Alarm	4. record in alarm list
4323 - 4349	27	read	Alarm	5. record in alarm list
4350 - 4376	27	read	Alarm	6. record in alarm list
4377 - 4403	27	read	Alarm	7. record in alarm list
4404 - 4430	27	read	Alarm	8. record in alarm list
4431 - 4457	27	read	Alarm	9. record in alarm list
4458 - 4484	27	read	Alarm	10. record in alarm list
4485 - 4511	27	read	Alarm	11. record in alarm list
4512 - 4538	27	read	Alarm	12. record in alarm list

For controlling ComAp InteliLite 4 MRS 16 panel, registers with decimal addresses **4207** and **4208** are used. The description of commands and arguments for the registers is provided in the table **List of commands and arguments**.



List of commands and arguments

"Commands" are used to invoke a specific action in the controller via the communication channel. The list of available actions is in the table below. The general procedure of writing a command via MODBUS is as follows:

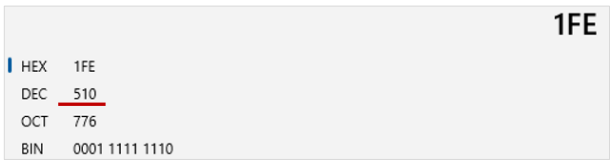
1. (Optional) Write required level of password into the register 44212 (register address 4211). Use function 6. If the password is required or not depends on configuration of access rules. It can be adjusted/modified by InteliConfig.
2. Write the command argument into the registers 44208-44209 (register addresses 4207-4208). Use function 16.
3. Write the command code into the register 44210 (register address 4209). Use function 6.
4. (Optional) Read the command return value from the registers 44208-44209 (register addresses 4207-4208). Use function 3.
5. If the command was executed the return value is as listed in the table. If the command was accepted but there was an error during execution the return value indicates the reason:
   a. 0x00000001 – invalid argument
   b. 0x00000002 – command refused (e.g. controller not in MAN, breaker can not be closed in the specific situation etc.)

Action	Command code	Argument	Return value
Engine start *)	0x01	0x01FE0000	0x000001FF
Engine stop *)	0x01	0x02FD0000	0x000002FE
Fault reset *)	0x01	0x08F70000	0x000008F8
Horn reset *)	0x01	0x04FB0000	0x000004FC
GCB toggle *)	0x02	0x11EE0000	0x000011EF
GCB on	0x02	0x11EF0000	0x000011F0
GCB off	0x02	0x11F00000	0x000011F1
MCB toggle *)	0x02	0x12ED0000	0x000012EE
MCB on	0x02	0x12EE0000	0x000012EF
MCB off	0x02	0x12EF0000	0x000012F0

*) This action is an equivalent of pressing the front panel button

To generate the controlling SMS command "Modbus register record", you need to recalculate the value of the argument (e.g. using Windows calculator) from the hexadecimal code into the decimal code.

Example 1: In **Engine Start** engine start command, 510 (DEC) corresponds to the argument value 1FE (HEX).

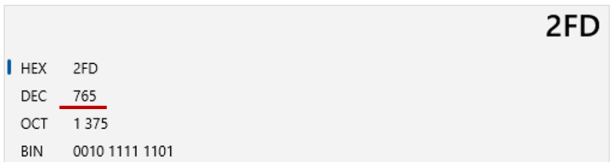


Record number 510 into register **4207** and record 0 into register **4208**.

Thus, the command for recording the argument **Engine Start** will assume the view:
++B1111;100;W16;5;1-4207,2,510,0/++

After the argument, you are to send the record command (W6) to register **4209** together with code 0x01 (HEX) to which 1 (DEX) corresponds: **++B1111;100;W6;5;1-4209,1,1/++**

Example 2: In **Engine Stop** engine stop command, 765 (DEC) corresponds to the value of the argument 2FD (HEX).



Record number 765 into register **4207** and record 0 into register **4208**.

Thus, the command for recording the argument **Engine Stop** will assume the view:
++B1111;100;W16;5;1-4207,2,765,0/++

After the argument, you are to send the record command (W6) to register **4209** together with code 0x01 (HEX) to which 1 (DEX) corresponds: **++B1111;100;W6;5;1-4209,1,2/++**

Information on correspondence of controlling SMS commands to functions of imitating pressing buttons on ComAp InteliLite 4 MRS 16 diesel generator control panel is provided in table 4.

Table 4 — Correspondence of controlling SMS commands to functions of imitating pressing buttons on ComAp InteliLite 4 MRS 16 diesel generator control panel

Button	Function	SMS command #1	SMS command #2
	Fault Reset	**++B1111;100;W16;5; 1-4207,2,2295,0/++**	**++B1111;100;W6;5; 1-4209,1,1/++**
	Engine Start	**++B1111;100;W16;5; 1-4207,2,510,0/++**	**++B1111;100;W6;5; 1-4209,1,1/++**
	Engine Stop	**++B1111;100;W16;5; 1-4207,2,765,0/++**	**++B1111;100;W6;5; 1-4209,1,1/++**
	Load Switching On/Off	**++B1111;100;W16;5; 1-4207,2,4590,0/++**	**++B1111;100;W6;5; 1-4209,1,2/++**

⚠ Also, it is possible to send the command "Modbus register record" from AVL Server to CANUp 27 Genset by means of GPRS message via TCP/IP channel (see the document "CANUp 27 Telematics gateways. Operation manual"). The formats of GPRS and SMS messages are completely identical.