

Terminal
EL35.005

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REV.	DATE	References
1.0.0	31/05/2004	Emission
1.0.1	12/05/2005	SMS Command upgrade

Safety Information

The EL35.005 device incorporates a latest-generation Dual Band GSM engine. To install and use it correctly, the indications given in this manual are to be strictly respected.

The EL35.005 device is a low-power radio transceiving device. When it is operating, it sends and receives radio frequency energy.

Operating the EL35.005 device close to radios, televisions, telephones or electronic devices in general may cause interference.

The EL35.005 device may be subject to interference that affects its performance.

Do not install the EL35.005 device close to pacemakers, auditory prostheses or medical devices in general as the EL35.005 device may interfere with the operation of these devices.

The EL35.005 device must be turned off on aeroplanes. Make sure that the device cannot be turned on accidentally.

Do not use the EL35.005 device in the presence of inflammable gases or fumes. Turn off the device when close to petrol stations, fuel deposits and chemical plants.

The EL35.005 device operates by means of a radio signal, no mobile telephone operator is capable of ensuring a connection at all times. For this reason, the EL35.005 device cannot be used in life support systems.

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Installation

In order to ensure the operator's safety and the correct operation of the device you have purchased, the EL35.005 device is to be installed exclusively by qualified staff. The rules listed below are also to be strictly respected.

Environmental Conditions

The EL35.005 device (the device and all cables connected to it) are to be installed in places free of, or far from:

- Dust, damp, intense heat;
- Direct exposure to the sunlight;
- Objects that radiate heat;
- Objects that generate a strong electromagnetic field;
- Liquids or corrosive chemical substances

The EL35.005 device was designed to operate at a temperature of between -5°C and +45°C (standard working temperature)¹.

Avoid sudden changes in temperature and/or humidity.

Degree of Protection

During the installation of the EL35.005 device, the following degree of protection is to be ensured:

- IP40: minimum protection, must always be guaranteed;
- IP54: protection to be guaranteed when using the device outdoors.

Power Supply

Respect the following rules:

- Do not use cables longer than 3 m;
- The external power supply unit (e.g. mains charger), must comply with the EN 60950 directive (electrical safety);
- Do not invert the polarity of the power supply cables.

Signalling Inputs

During the installation of the device, the indications given in the section describing the signalling inputs must be strictly respected.

Respect the polarities and ratings indicated in the manual.

Relay Outputs

During the installation of the device, the indications given in the section describing the relay outputs must be strictly respected.

Install the devices correctly and respect the ratings indicated in this manual.

Never exceed the ratings for any reason whatsoever.

¹ The temperature range indicated refers to standard applications and corresponds to the factory setting.

Interfaces

<p>The diagram shows a device with various interfaces. On the left, there is a 35-pin connector with labels: STATUS LED (pin 18), POWER SUPPLY INPUT (pins 19, 20), ANTENNA CONNECTOR (pins 21-23), OUTPUT RELAY (pins 24-26), EXPANSION BUS (pins 27-30), and RS232 PORT (pins 31-35). On the right, there is a 17-pin connector with labels: OPTOCOUPLED SIGNALING INPUT (pins 14, 15), CLEAN-CONTACT SIGNALING INPUT (pins 16, 17), SIM CARD HOLDER (pin 18), and RELAY RELEASE/PROGRAMMING PUSH-BUTTON (pin 19). The device also features a red push-button labeled 'REL. ASS. OFF' and a logo for 'Elettroterm' with the website 'www.elettroterm.it'.</p>	<p>The terminal block diagrams show the following connections:</p> <ul style="list-style-type: none"> POWER SUPPLY: Pins 18 (+), 19 (-), 20 (GND). OUTPUTS: Pins 30 (N A M), 31 (C O M), 32 (N A M), 33 (C O M), 34 (N A M), 35 (C O M). Connections: OUTPUT 2 (pins 30, 31, 32), OUTPUT 1 (pins 33, 34, 35). CLEAN CONTACTS: Pins 6, 7, 8, 9, 10, 11, 12, 13. Connections: I1 (pins 6, 7), I2 (pins 8, 9), I3 (pins 10, 11), I4 (pins 12, 13). DIGITAL INPUTS: Pins 14, 15, 16, 17. Connections: I5 (pins 14, 15), I6 (pins 16, 17). 	<p>POWER SUPPLY</p> <ul style="list-style-type: none"> 9÷30V DC $I_{max}=500mA$ Max cables length: 3m <p>OUTPUTS</p> <ul style="list-style-type: none"> “rest” position: NC-COM nominal commutation capacity: 2A 250V AC minimum commutation capacity: 100mA 12V DC max cables length: 3m <p>CLEAN CONTACTS</p> <ul style="list-style-type: none"> It is possible to connect: <ul style="list-style-type: none"> Mechanical and electromechanical switches having adequate rating: 5V DC min 50μA Electronic switches having adequate rating: 5V DC min 50μA. Respect the polarity that is shown on the side Status: <ul style="list-style-type: none"> ON: closed OFF: open Max cables length: 3m <p>DIGITAL INPUTS</p> <ul style="list-style-type: none"> Respect the polarities that are shown on the side. Rating: <ul style="list-style-type: none"> 0÷5V DC $I_{max}=30mA$ Status: <ul style="list-style-type: none"> ON: 5V DC OFF: 0V DC Max cables length: 3m
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The EL35.005 device has the following user interfaces:

- power terminals;
- four clean-contact signalling inputs (internally powered);
- two optocoupled 0-5V digital signalling inputs;
- two monostable relay outputs;
- SMA antenna connector;
- a signalling LED;
- a pushbutton;
- a slide-in SIM Card bay accessible from the outside;
- an RJ45 RS232 port compliant with the EIA-561 standard;
- an expansion bus on RJ45 connector;

SIM Card

For the EL35.005 device to function correctly, you must insert a Plug-In SIM card not protected by a PIN code, capable of sending and receiving SMS messages and sending data.

N.B. Check with your mobile telephone operator whether your SIM card is able to send data and to send and receive SMS messages.

SIM cards are normally supplied in Full-Size format (see figure opposite), in this case, you must detach the Plug-In SIM card from its support.

The SIM card is used to save the informations used by the EL35.005 device during its operation; these informations include:

- The system password (chosen by the end user);
- The type of event signalled by the transmission of an SMS;
- The signalling SMS messages to be sent.



The SIM card bay is situated above terminals 6 and 7. To remove the drawer in which the SIM card is to be inserted, press the yellow pin gently.

N.B.: Before inserting or removing the SIM card from the device, make sure that the latter is turned off.

For a detailed description of how to set the parameters mentioned above on the SIM card, see the chapter on how to set the EL35.005 device.

Connecting the Antenna

To connect the antenna to the device, proceed as follows:

- turn off the EL35.005 device;
- connect the cable leading to the antenna to the one situated on the EL35.005 device. Do not apply excessive force. If it does not plug in easily, check that the antenna connector is positioned correctly;
- position the antenna taking care to check that the signal of the chosen mobile telephone operator is strong.

N.B.: Connect exclusively an antenna designed for use with Dual_Band GSM devices with an impedance of 50Ω.

Signalling Led

The EL35.005 device has a red LED indicator situated on the front panel of its casing, marked by the symbol :



The informations given by the LED are the following:

SIGNALLING Led	STATUS SYSTEM
Off	Device turned Off
The led is blinking with long duration flashes (the led is almost always on)	<ul style="list-style-type: none"> the SIM card is not properly inserted; the SIM is protected by PIN code; network search in progress or network login in progress;
The led is blinking with very short duration flashes (the led is almost always off)	The device logged to GSM network and ready to receive commands
On	A data transfer connection is in progress

As soon as the EL35.005 device is turned on, the signalling LED blinks quickly.

It blinks quickly for a few seconds to indicate that the EL35.005 device is registering. If it blinks quickly for a longer time, without stopping, we recommend you:

- check that the SIM card is inserted correctly;
- check that the SIM card is not protected by a PIN code;
- check that the antenna connected to the EL35.005 device is positioned in a place where there is a strong signal from the GSM network.

Slow blinking indicates that the EL35.005 device is connected to the GSM network and is ready to receive commands or to send signalling SMS messages.

During normal operation of the EL35.005 device, the blinking may switch from slow to fast, and vice versa. This condition does not indicate that the EL35.005 device is malfunctioning, but that the quality of the GSM network signal picked up by the device through the antenna used is poor. If this condition arises repeatedly, we recommend you:

- check that the antenna is installed correctly;
- check the quality of the signal received from the mobile telephone operator used and, if necessary, try using the SIM card of a different operator
- if possible, position the antenna in a different place;
- change the type of antenna.

Signalling Inputs

The EL35.005 device has 6 signalling inputs and the end user may assign each input an SMS message to be sent when a particular condition arises.

The procedure to be followed to enter the signalling SMS messages and to program the type of event that is to generate a request to send a signalling SMS message will be illustrated in the section that describes how to program the EL35.005 device.

Relay Outputs

The EL35.005 device has two monostable relay outputs that can be activated singly or simultaneously by the end user simply by sending an SMS message.

The ratings for the relay outputs are:

- rated switching capacity: 2A 250V AC
- minimum switching capacity: 100mA 12V DC

N.B. Do not connect devices with ratings that do not conform with those indicated in this section to the relay outputs. ElettroTERM Srl declines all liability for any damage caused by improper use of the EL35.005 device.

The first time that the EL35.005 device is started, both outputs have the contacts set to NC and COM (relay coils not energized).

The current status of the relay outputs is saved whenever there is a change in status, and is restored when the power supply is shut off.

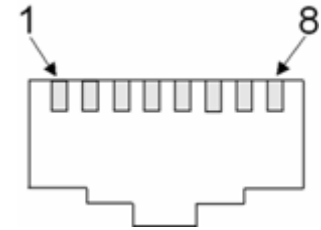
Serial Port

The EL35.005 device has a RS232 serial port on an RJ45 connector that complies with the EIA-561 standard (of which only a few pins are used).

The serial port is located on the front panel of the EL35.005 device, and is marked with the label RS232. The figure opposite shows the pins of the connector on the device (looking inside the connector).

The serial port has the DCE configuration, and the pins available are:

n° PIN	NAME	DCE Configuration
1		
2		
3	DTR	In
4	SG	
5	RxD	Out
6	TxD	In
7		
8		



The qualified staff can use the serial port to:

- check that the device is working properly;
- check that the device is installed correctly;
- carry out tests;
- set the parameters required for the device to function correctly.

To be able to connect the EL35.005 device to an external PC, you must use a non-twisted UTP or FTP mains cable, and an RJ45-DB9F adapter.

Expansion Bus

N.B. You can only connect devices designed and certified by ElettroTERM Srl to the expansion bus. ElettroTERM Srl declines all liability for any damage caused by improper use of this bus.

Pushbutton

On the front panel of the EL35.005 device, there is a pushbutton marked with the label *Relays OFF* below the signalling LED.

This pushbutton can be used to:

- return all the relay outputs managed by the EL35.005 device to their rest condition during normal operation of the device (NC and COM contacts short-circuited);
- program the EL35.005 device during the installation phase.

The Expansions

The EL35.005 device is capable of controlling two types of expansions:

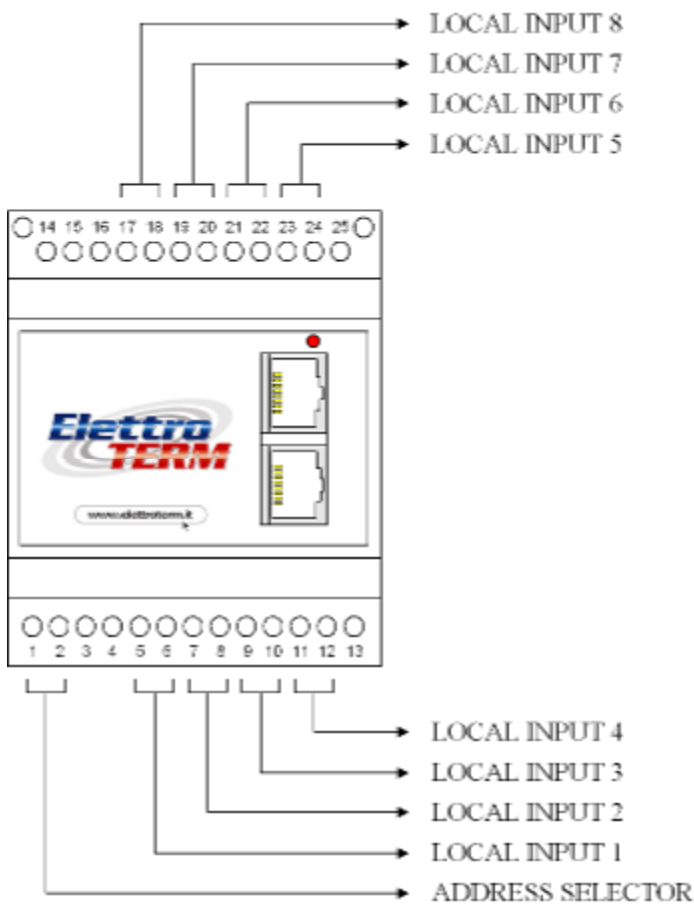
- input expansions;
- output expansions.

In all, you can connect two input expansions to the EL35.005 device (thus increasing the total number of signalling inputs to 22), and an output expansion (thus increasing the total number of output lines to 10).

The expansions are powered directly by the EL35.005 device through the expansion BUS.

Input Expansion

The figure below illustrates the interface of an input expansion:



n°	Description	
1	Expansion address selection	Close: Address = 1
2		Open: Address = 2
3	Not used	
4		
5	Contact -	Local Input n°1
6	Contact +	
7	Contact -	Local Input n°2
8	Contact +	
9	Contact -	Local Input n°3
10	Contact +	
11	Contact -	Local Input n°4
12	Contact +	
13	Not Used	
14		
15		
16		
17	Contact +	Local Input n°8
18	Contact -	
19	Contact +	Local Input n°7
20	Contact -	
21	Contact +	Local Input n°6
22	Contact -	
23	Contact +	Local Input n°5
24	Contact -	
25	Not Used	

Each input expansion has eight clean-contact signalling inputs (internally powered) and the user can assign each input an SMS message to be sent when a particular condition that can be programmed during the installation procedure occurs.

To this type of inputs, you can connect:

- mechanical and electromechanical switches with suitable ratings: 5V DC min, 50µA min;
- electronic switches with suitable ratings: 5V DC min, 50µA min. If electronic switches are used, the polarity of the terminals indicated in the table must be respected.

To ensure correct functioning, each input expansion connected must have a unique address.

There are two available addresses: 1 or 2.

The address of an input expansion can be selected using terminals n°1 and n°2 on the bottom of the expansion. In particular:

- address 1 is selected by applying a jumper between terminals n°1 and n°2;

- address 2 is selected by leaving the terminals open.

N.B.: you can connect an input expansion with address 2 only if the an input expansion with address 1 is connected to the EL35.005 device.

Before proceeding to program the signalling SMS messages, it should be pointed out that:

- the signalling SMS no. 7 managed by the EL35.005 device corresponds to local input n°1 of the input expansion with address 1;
- the signalling SMS no. 15 managed by the EL35.005 device corresponds to local input n°1 of the input expansion with address 2;

Output Expansion

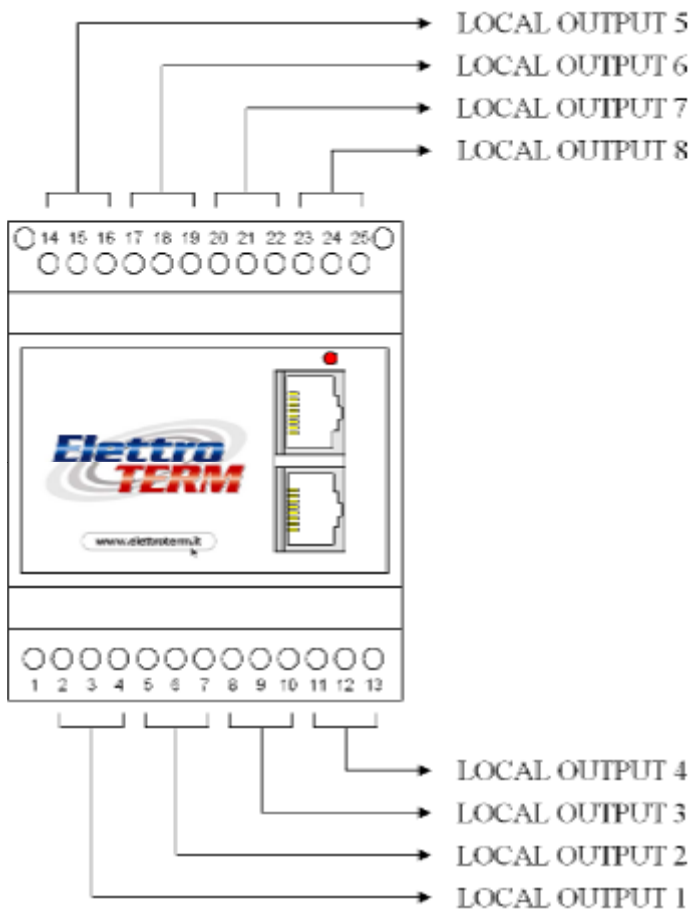
The EL35.005 device is capable of controlling an expansion with eight monostable relay output lines, in addition to the two outputs present on the basic module.

The ratings for the relay outputs are:

- Rated switching capacity: 2A 250V AC;
- Minimum switching capacity: 100mA 12V AC.

N.B.: Do not connect devices with ratings that do not comply with those indicated in this section to the relay outputs. ElettroTERM Srl declines all liability for any damages caused by improper use of the EL35.005 device and its expansions.

The figure below shows the interface of the output expansion:



n°	Description	
1	Not Used	
2	NO	Local Output n°1
3	COM	
4	NC	
5	NC	Local Output n°2
6	COM	
7	NO	
8	NO	Local Output n°3
9	COM	
10	NC	
11	NC	Local Output n°4
12	COM	
13	NO	
14	NO	Local Output n°5
15	COM	
16	NC	
17	NC	Local Output n°6
18	COM	
19	NO	
20	NO	Local Output n°7
21	COM	
22	NC	
23	NC	Local Output n°8
24	COM	
25	NO	

The first time the EL35.005 device is started, all the relay outputs of the EL35.005 device and the output expansions have the contacts set to NC and COM (relay coils not energized).

After a reset due to a power failure, the status of the relays present on the expansion is restored after about 10 sec. Before being reset, all the relays have their contacts set to NC and COM.

Before proceeding with the letter of the section of the command SMS messages, it should be pointed out that:

- Output no. 3 managed by the EL35.005 device corresponds to Local Output n°1 of the expansion;
- Output no. 10 managed by the EL35.005 device corresponds to Local Output n°8 of the expansion.
- the EL35.005 device will only accept command SMS messages that concern outputs that are actually present.

Installing the Expansions

The expansions that can be connected to the EL35.005 device have been studied taking into consideration the ease of installation and use of the expansions, and the advantages offered by their use.

The possible configurations are:

EL35.005	Expansion		
	Input Address=1	Input Address=2	Output
	X		
	X	X	
	X	X	X
	X		X
			X

The expansions may be installed during the installation of the EL35.005 device or subsequently.

The devices are very simple to install.

The general procedure to be carried out to install the device is the following:

- turn off the EL35.005 device;
- connect the expansions you intend to install to the EL35.005 device using the various cables
 - insert one end of the connecting cable in the socket on the front panel of the EL35.005 device indicated by the word BUS;
 - insert the other end of the cable in either of the sockets on the front panel of the first expansion that is to be installed.
 - install any expansions as indicated in **figure 1**.
- follow the programming procedure indicated in the "Programming" chapter.

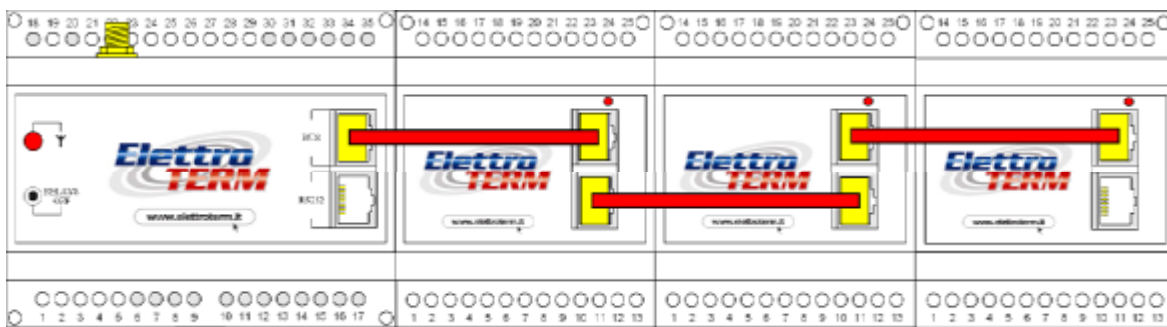


figure 1

Programming

For the EL35.005 device to function correctly, some parameters are to be set in the phone book of the SIM card.

Before proceeding, make sure you have:

- the SIM card in plug-in format for insertion in the EL35.005 device;
- a PC with a serial port;
- the CelSoft5 program (supplied with the EL35.005 device) produced by ElettroTERM Srl.

The SIM card

The parameters to be entered in the phone book of the SIM Card are:

- the system password;
- the type of event that causes a signalling SMS message to be sent.

Before proceeding, take the following steps:

- Make sure that the EL35.005 device is off;
- Insert the SIM card you intend to use in the EL35.005 device;
- Press the Relays Off button and hold it pressed;
- Turn on the device;
- As soon as the signalling LED starts to blink, release the Relays Off button;
- Wait for a minute and then start the CelSoft5 program;
- Set the necessary parameters using the CelSoft5 program (Password, signalling SMS messages, events). For more information, see the program's manual.
- Having completed the setting procedure, wait for a minute and then press the Relays Off button;
- The programming procedure is complete.

At the end of the programming procedure, the contents of the phone book of the Sim Card inserted in the EL35.005 device will be as follows:

SIM CARD PHONEBOOK	LOCATION	CONTENT		MEANING
	1	Name:	PW	
	Number:	P ₁ P ₂ P ₃ P ₄		
2	Name:	LOCAL		Local Inputs Events
	Number:	11E ₆ E ₅ E ₄ E ₃ E ₂ E ₁		
3♦	Name:	EXP1		Expansion 1 inputs events
	Number:	E ₁₄ E ₁₃ E ₁₂ E ₁₁ E ₁₀ E ₉ E ₈ E ₇		
4♣	Name:	EXP2		Expansion 2 Inputs events
	Number:	E ₂₂ E ₂₁ E ₂₀ E ₁₉ E ₁₈ E ₁₇ E ₁₆ E ₁₅		
⋮				Not Used

where:

- P_X: is any decimal figure between 0 and 9
- E_X: is a digit that may be 0 or 1. The meaning is as follows:
 - 0: the signalling SMS message associated with input X is only sent following a ON→OFF transition on the terminals of signalling input X;
 - 1: the signalling SMS associated with input X is only sent following a OFF→ON transition on the terminals of the signalling input X.
- ♦ Location 3 is only to be activated if an input expansion with address 1 is present.
- ♣ Location 4 is only to be activated if there are two input expansions with different addresses.

A description of the parameters listed above is provided below.

System Password

The EL35.005 device was designed in such a way as to be protected by a password made up of four decimal figures (from 0 to 9), defined “system password”.

The system password can be chosen freely by the end user, and is to be used whenever a command SMS message (described in the next chapter) is sent; the only constraint is the number of digits that make it up: *the system password must always be made up of four decimal digits.*

The system password is to be entered in the first location (position n°1) of the phone book of the SIM card.

N.B. if the system password is not entered correctly, the EL35.005 device will not function correctly.

Events

As illustrated previously, the EL35.005 device has six signalling lines (four clean contact and two digital), and can control up to two output expansions.

The end user may assign each signalling input an SMS message (he may choose both the text and the recipient), defined the “signalling SMS message”, and the event that causes it to be sent.

The word “event” is intended to mean the condition that is to arise on the input terminals of a signalling line for the EL35.005 device to send the SMS message associated with it.

The meaning of the telephone numbers entered (with reference to the table on the previous page), is as follows:

- E₁ is the event associated with signalling input 1 of the EL35.005 device (with which the signalling SMS message no. 1 is associated);
- E₇ is the event associated with signalling input 1 of the expansion with address 1 (with which the signalling SMS message no. 7 is associated);
- E₂₂ is the event associated with the signalling input 8 of the expansion having address 2 (with which signalling SMS message no. 22 is associated).

The definition of “event”, that is, the digit entered, changes according to the type of signalling input:

- if the signalling input is of the clean-contact type:
 - 0 indicates that the signalling SMS message associated with the input is to be sent when the input switches from closed to open (ON→OFF transition);
 - 1 indicates that the signalling SMS message associated with the input is to be sent when the input switches from open to closed (OFF→ON transition).
- if the signalling input is of the digital type:
 - 0 indicates that the signalling SMS message associated with the input is to be sent when the voltage applied to the terminals switches from 5V DC to 0V DC (ON→OFF transition);
 - 1 indicates that the signalling SMS message associated with the input is to be sent when the voltage applied to the terminals switches from 0V DC to 5V DC (OFF→ON transition).

Supposing we enter the telephone number 11011101 in position n°2 of the phone book on the SIM Card:

- the signalling SMS message associated with input n°1 will only be sent after an OFF→ON transition;
- the signalling SMS message associated with input n°2 will only be sent after an ON→OFF transition;
- and so on.

The occurrence of a programmed event and the consequent transmission of a signalling SMS message are saved by the EL35.005 device.

If a power failure occurs after a signalling SMS message has been sent, when it restarts, the EL35.005 device sends exclusively the signalling SMS messages that correspond to transmission requests that have not been fulfilled (if any).

Subsequent Programming

If the need arises to change the password or the type of events, proceed as follows:

- turn off the EL35.005 device;
- repeat the procedures given in the “SIM card” sections;

Command SMS Messages

The EL35.005 device was designed to be controlled using simple instructions in the form of SMS messages (the command SMS messages) sent to the telephone number of the SIM card inserted in the device. To allow a suitable degree of protection, each command SMS message must contain the system password² set during the programming procedure.

The three categories of commands that can be sent are:

- change the status of the outputs;
- change a signalling SMS message;
- request the current status of the outputs.

The EL35.005 device answers each command SMS with a confirming SMS message. If the command sent is not correct (wrong password, invalid format, etc.), the EL35.005 device answers with an error SMS.

N.B. SMS messages are sometimes subject to delays.

N.B. ElettroTERM Srl declines all liability for unavailable services caused by the mobile telephone operators.

Setting the Outputs

By sending a command SMS to the telephone number of the SIM card inserted in the EL35.005 device, you can remotely modify the status of the relay outputs.

By sending a single SMS message, you can simultaneously change the status of all the outputs managed by the device, or change the status of a single output without changing that of the others.

Once a command SMS has been received, the EL35.005 device checks that it is correct and, if it is, executes the command. Having done this, the EL35.005 device sends a notification SMS to the sender's mobile telephone number containing the current status of the system outputs. If the command is not correct, the EL35.005 device sends a notification SMS containing an error signal to the sender's mobile telephone number.

The notification SMS messages sent when the status of the outputs is changed will be illustrated in the “Notification SMS messages” section.

Once the command has been executed, the EL35.005 device saves the status of the outputs. If the device is restarted due to a power failure, the outputs are set using the last status saved.

Command 1

Command 1 (one) is used to remotely activate a single relay output, leaving the status of the other outputs present unchanged.

The command has the following format:

*	Password	#	1	#	OUTPUT no.
---	----------	---	---	---	------------

dove:

- *: is a marker;
- Password: is the system password;
- #: is a marker
- 1: is the activation command;
- #: is a marker;
- OUTPUT no.: the number that identifies the output line that is to be activated;

N.B.: an output line that is not present cannot be activated.

Supposing we send the command:

*1234#1#2

the EL35.005 device will activate output n°2.

Supposing you have connected the output expansion to the device, by sending the command:

*1234#1#6

² The password 1234 will be used in the various examples given in this chapter

the EL35.005 device will activate output n°6, that is, output n°4 of the output expansion.

Command 0

The command 0 (zero) is used to remotely deactivate a single relay output, leaving the status of the other outputs present unchanged.

The command has the following format:

*	Password	#	0	#	OUTPUT no.
---	----------	---	---	---	------------

dove:

- *: is a marker;
- Password: is the system password;
- #: is a marker
- 0: is the deactivation command;
- #: is a marker;
- OUTPUT no.: the number that identifies the output line that is to be deactivated;

N.B.: an output line that is not present cannot be deactivated

Supposing we send the command:

*1234#0#2

the EL35.005 device will deactivate output n°2.

Supposing we have connected the output expansion to the device and send the command:

*1234#0#6

the EL35.005 device will deactivate the output n°6, that is, output n°4 of the output expansion.

Command O

Command O (O as in Oslo) is used to change the status of all the relay outputs present simultaneously.

The format of the command, if the output expansion is not present, is as follows:

*	Password	#	O	#	U ₂	U ₁
---	----------	---	---	---	----------------	----------------

If the output expansion is present, the format of the command is:

*	Password	#	O	#	U ₂	U ₁	#	U ₁₀	U ₉	U ₈	U ₇	U ₆	U ₅	U ₄	U ₃
---	----------	---	---	---	----------------	----------------	---	-----------------	----------------	----------------	----------------	----------------	----------------	----------------	----------------

where:

- *: is a marker;
- Password: is the system password;
- #: is a marker;
- O: is the output status modification command (you can use either upper case or lower case characters);
- #: is a marker;
- U_X: is the status of the relay output n°X that is to be set;
- #: is a marker;
- U_Y: is the status of the relay output n°Y that is to be set.

The status of output U_X (or U_Y) may only be set to 0 (zero) or 1 (one), the meaning of which is as follows:

- 0: sets the relay output to NC (NC and COM short-circuited);
- 1: sets the relay output to NO (NO and COM short-circuited).

For example, supposing we have not connected the output expansion and we send the command:

*1234#O#10

the final status of the outputs will be as follows:

- Relay output n°1 to NC (NC and COM short-circuited);
- Relay output n°2 to NO (NO and COM short-circuited).

The EL35.005 device changes exclusively the status of the outputs actually present.

Notification SMS Messages

Having executed the command, the EL35.005 device sends a notification SMS message to the sender's mobile telephone number containing the current status of all the system's outputs and the active signalling inputs present. The format of the notification SMS message for command execution is as follows:

GSM Remote Control, outputs status: U₂U₁#U₁₀U₉U₈U₇U₆U₅U₄U₃ inputs on alarm:
I₆I₅I₄I₃I₂I₁#I₁₄I₁₃I₁₂I₁₁I₉I₈I₇#I₂₂I₂₁I₂₀I₁₉I₁₈I₁₇I₁₆I₁₅

where:

- U_X is the status of output n°X, and may only be set to 0 (zero) or 1 (one):
 - 0: output n°X deactivated;
 - 1: output n°X activated.
- I_Y is the status of signalling input n°Y, and may only be set to 0 (zero) or 1 (one):
 - 0: signalling input n°Y deactivated (that is at the terminals of signalling input n°Y the event programmed for this input has not occurred);
 - 1: signalling input n°Y activated (at the terminals of signalling input n°Y, the event programmed for this input has occurred).

The notification SMS illustrated above contains the indications for the input and output lines actually present in the system. For example, if there is no expansion present, a notification SMS message could be:

GSM Remote Control, outputs status: 10 inputs on alarm: 100011

If the contents of the command SMS message are not correct, the EL35.005 device makes no changes to the current status of the outputs, and sends a notification SMS message containing an error signal to the sender's mobile telephone, containing the following text:

GSM Remote Control: ERROR!

Changing the Signalling SMS Messages

Each signalling input is assigned an SMS message that is sent when a particular event takes place. To facilitate the procedure for changing and entering the signalling SMS messages, the EL35.005 device has a special command, whose format is as follows:

*	Password	#	M	Pos	“	Text	“	Recipient
---	----------	---	---	-----	---	------	---	-----------

dove:

- *: is a marker;
- Password: is the system password;
- #: is a marker;
- M : the command that is used to change a signalling SMS message; (you can use either upper case or lower case characters);
- Pos : the number of the input whose SMS message you intend to change;
- “ : is a marker;
- Text: the text of the signalling SMS message you intend to enter (maximum 20 letters or numbers);
- “ : is a marker;
- Recipient : the mobile telephone number to which the signalling SMS entered is to be sent.

For example, if you send the command SMS message to the EL35.005 device:

*1234#M5”test 5”+39347XXXXXXX

the EL35.005 device will modify the SMS associated with signalling input n°5.

Having checked that the change command is correct, the EL35.005 device sends a notification SMS message to the sender's mobile telephone number. Considering the previous example, the notification SMS message will have the following format:

GSM Remote Control: pos5 "test 5" +39347XXXXXXX

the number displayed after "pos" corresponds to the input with which the new signalling SMS message has been associated, while "test 5" is the signalling SMS message associated with signalling input 5.

If the change command is not correct, the message sent will be as follows:

GSM Remote Control: ERROR!

N.B. The "Text" parameter may only contain letters without accents and numbers.

N.B. To be able to use the M command correctly, you must have entered all the signalling SMS messages during the programming procedure.

Requesting the Status

During normal operation of the EL35.005, you can request the current status of the outputs and inputs at any time. To request the current status, the format of the command to be sent is as follows:

*	Password	#	S
---	----------	---	---

dove:

- *: is a marker;
- Password: is the password;
- #: is a marker;
- S: is the status request command (you can use either upper case or lower case characters).

Having checked that the request status command is correct, the EL35.005 device sends a notification SMS message with the same format as the one sent when changing the status of one or more outputs to the sender's mobile telephone number.

If the request command is not correct, the message sent will be as follows:

GSM Remote Control: ERROR!

Nameplate data and Technical Characteristics

GSM section

- EGSM 900 and GSM 1800 Dual Band
- Certified for GSM Phase 2/2+
- Output power:
 - Class 4 (2W) per EGSM 900
 - Class 1 (1W) per GSM 1800
- SMS: MO, MT

Power supply

- Power supply voltage: 9V÷30V DC
- Current: I_{max} = 500mA
- Power supply terminals: maximum wire cross section 2.5mm²
- Power supply protected against short-circuiting by an internal fuse

General characteristics

- Container for EN-50022 guide, 6 modules
- Fire rated UL94 V-0
- Degree of protection: IP40 (if installed correctly)
- Standard working temperature: from -5°C to +45°C
- Approximate weight: 200g
- 2 monostable relay outputs
- 4 clean-contact inputs
- 2 optoisolated 0-5V DC digital inputs
- Signalling LED
- relay releasing button
- SMA antenna connector
- maximum cross section of the wires that can be inserted in the terminals:2.5mm²
- RS232 serial port on RJ45 connector
- expansions bus on RJ45 connector

Configuration

- device protected by password entered in the phone book of the SIM card
- possibility of customizing the signalling SMS messages to be sent (also remotely)
- possibility of defining the type of event for requesting the signalling SMS to be sent

Protection

The device is protected by a system password set by the end user.

Commands

Possibility of sending command SMS messages to the device to:

- change the status of the outputs
- request the status
- change the signalling SMS message

Expansions

- container for EN-50022 guide;
- Fire rated UL94V-0.

Power consumption (typical values)

EL35.005:

	Alim=12V	Alim=24V
Standby (Outputs Off)	50mA	30mA
Standby (Outputs ON)	90mA	50mA
Send \ Receive Sms (Outputs Off)	60mA	50mA
Send \ Receive Sms (Outputs On)	120mA	65mA

EL35.005 with all the expansions connected:

	Alim=12V	Alim=24V
Standby (Outputs Off)	65mA	40mA
Standby (Outputs ON)	200mA	110mA
Send\Receive Sms (Outputs Off)	100mA	60mA
Send\Recieve Sms (Outputs On)	250mA	140mA

Traceability and Guarantee

ElettroTERM Srl offers a two-year (2) guarantee on its products, starting from the date of shipment. The guarantee will not be valid if the device is tampered with or used improperly.

The guarantee does not apply to any accessories connected to the device unless manufactured directly by ElettroTERM Srl. ElettroTERM Srl decline all liability for any damage caused by the use of its devices.

Each device manufactured by ElettroTERM Srl is identified by a unique number stored in a non-volatile memory. This unique code, together with others, enables ElettroTERM Srl to register all its devices sold. The guarantee provided by ElettroTERM applies exclusively to registered devices.

Declaration of Conformity

Hereby, **ElettroTERM Srl**, declares that the device **EL35.005** is in compliance with the essential requirements and other relevant provision of Directive 199/5/EC; as having been designed in conformity with the requirements of following Reference Standards:

- EN 301 489-7 V1.1.1 (2000-09)
- EN 301 511 V7.0.1 (2000-12)
- EN 60950 (2000)

WEEE Eco-contribution paid where due – WEEE register no.: IT08020000003625