Temperature controller SMX-T80 - User manual

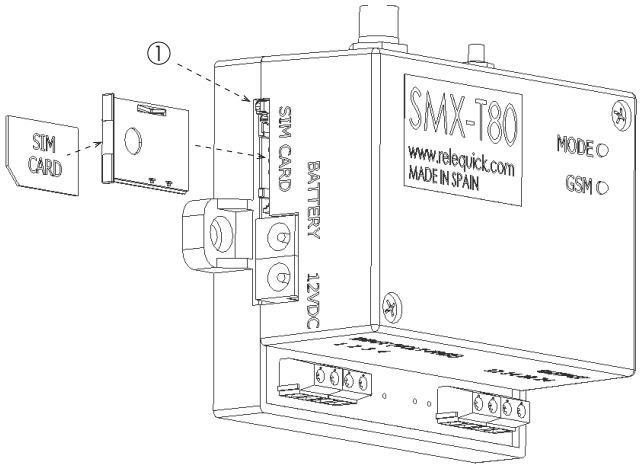
Technical features

Supply (battery not charging)	10 - 28 V
Supply (when battery charging)	17 - 28 V
Max. consumption (when battery charging)	5 W
Maximum current between GND and the 12 V output (terminals 1 and 4)	70 mA (not protected against short-circuits)
GSM modem	Cinterion MC55i
GSM bands	800 / 900 / 1,800 / 1,900 MHz
GSM antenna provided	900 / 1,800 MHz
Temperature sampling interval	5 seconds
Thermostat sampling interval	15 seconds
Modem reboot delay in case of signal failure	10 seconds
Relays maximum current (R1 and R2)	5 A (250 VAC)
Input type for the external switches	Digital, voltage free
Operation temperature (device)	-5º C to 50º C
Operation temperature (probe)	-25º C to 85º C
Maximum measurement error	± 1º C
Maximum humidity	70 %
Dimensions	146 x 105 x 45 mm

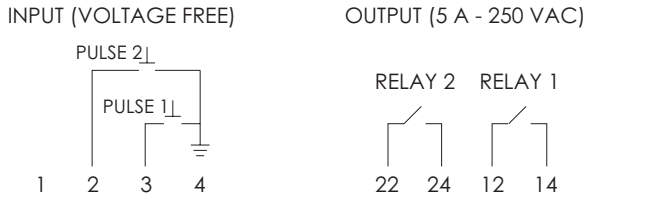
First steps

1. Plug in the external alarm.
2. Insert the SIM card into the module by pushing the side yellow button (1).
3. Connect the device to its power supply and this to the main power supply.

NOTE: the PIN code request must be disabled on the SIM card for it to work. Check your mobile phone manual for instructions on how to disable it. A backup battery may be used optionally. In case you would like to use it charge the battery completely before connecting it to the BATTERY connector.



Connection diagram



Default configuration

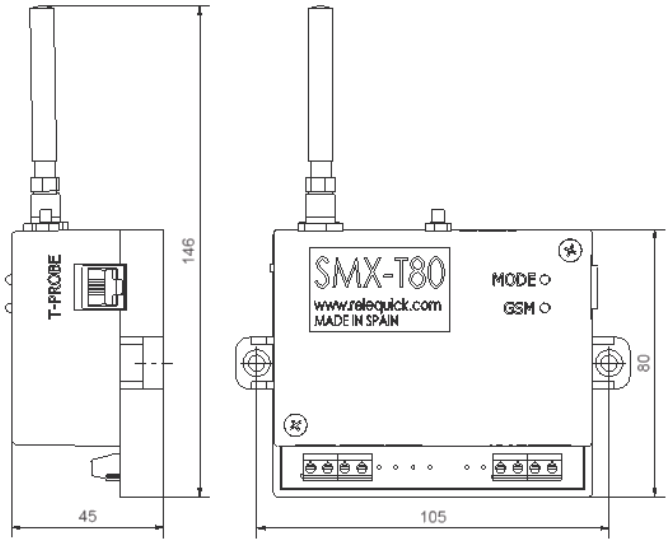
1. The default password is 1.
2. All alarm destination phone numbers are erased.
3. Power supply failure alarms are deactivated.
4*. The alarm reset button and the external control inputs are enabled.
5. The automatic alarm reset mode is set.

(*) The module has a reset button on its top side that allows to reload the alarms. In addition, if terminals 2-4 are short-circuited by a pulse the state of the second relay is inverted (outputs 22-24). If it is terminals 3-4 that are short-circuited, then the state of the first relay is inverted (outputs 12-14). See command *I.

System reset

1. Unplug the device from the power supply and the battery.
2. Push the internal reset button on top of the device and keep it down while you supply the module again. Keep the button pressed for 5 seconds.

Dimensions (mm)



Alarm reset modes

AUTOMATIC: an alarm message is sent every time the activation conditions are fulfilled. This mode is not recommended for environments where temperature fluctuates a lot around the limit values.

TIMED: the alarm is activated immediately when the activation conditions are fulfilled. It will then keep blocked for the specified time interval, after which it will be reloaded and ready to be fired again.

MANUAL: the alarm is activated once whenever the activation conditions are fulfilled. It will then keep blocked until manually reset, and so it will not send any messages again unless it is reloaded.

Commands to request information

Com.	Answer	Description
V	Request for information about the state of the device	
	T: [Value]	Current temperature measured by the probe
	TERMO: [ ]	State of the first relay (ON, OFF, ON(t): timed, [Value]C: its activation depends on the thermostat, [Value]C(F): cold mode)
	SIRENA: [ON/OFF]	State of the second relay
	ENVIO: [ON/OFF]	If the alarm SMS sending system is active or not
	RED: [ON/OFF]	State of the main power supply
	ALM: [TMAX/TMIN]	If the maximum temperature alarm has been fired it will show TMAX. If the minimum temperature one was, it will show TMIN
Q	Request for information about the modem and GSM signal	
	TL: [Value]	Switch on time (measured in tenths of a second)
	CSQ: [Value,Value]	Signal level (0 to 31) and noise level
	Est: S[ ]R[ ]T[ ]	Relays and supply state, and temperature
J1	Request for the list of recipients of alarm messages	
	TA: [Tlf. number] ... TF: [Tlf. number]	List of the phone numbers of up to 6 alarm recipients
J	Request for a configuration summary message	
	STR: [Value]	Delay of the temperature alarm (in minutes)
	M: [A/B/C/D/E/F]	Configuration of the periodical verification SMS
	E: [ ]/[ ]/[ ]	State of activation of the control inputs and the alarm reset button
	H: [Value]	Thermostat hysteresis (in steps of 0.5 degrees)
	AF: [ ]	Power supply failure and recovery alarms
	AS: [ ]	Activation state of the probe failure alarm
	TMAX: [Value]	Highest temperature for the TMAX alarm
	TMIN: [Value]	Lowest temperature for the TMIN alarm
	FT: [Value]	Delay of the power supply alarms
	AU: [N/A/Value]	Configuration of the siren (N: disabled; A: active until alarm is reloaded; Value: timed siren)
	R: [ ]	Code of the reset mode of the alarms

EXAMPLE: if 999 has been set as the password and `999 V Q J1 J is sent`, 4 SMS with all data about the device state and configuration will be received.

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SMS configuration commands

Command	Description (programming functions)	Example (999 is used as password)
*P[Password]	Changes the **password** for a new one (the default password is 1)	To change the password from the default (1) to 999 send 1 *P999
*I[A/N][A/N][A/N/B]	**Enables / disables** the control pulses for the relays and the reset switch: 1st char.: A enables the control pulse for the 1st relay. N disables this input. 2nd char.: A enables the control pulse for the 2nd relay. N disables it. 3rd char.: A enables the reset button. N disables it. B sets it so that only the siren is deactivated by the reset button.	To enable the alarm reset button and the external control pulses send 999 *IAAA
*T[A-F][Phone number]	Sets the **phone numbers** that will be notified when an alarm is fired. The 2nd character specifies the recipient (A = 1st recipient, B = 2nd recipient, etc.). If the phone number is left blank the corresponding recipient is deactivated.	To set phone number 635469583 as the first alarm message recipient send 999 *TA635469583
*NX[Text]	Sets the **alarm text** for the **maximum** temperature alarm. All blank spaces contained in the desired text must be replaced by points in the command.	If you send 999 *NXALM.HEAT, the text *ALM HEAT* will be sent when the TMAX alarm is fired
*NM[Text]	Sets the **alarm text** for the **minimum** temperature alarm. All blank spaces contained in the desired text must be replaced by points in the command.	If you send 999 *NMTEMP.COLD, the text *TEMP COLD* will be sent when the TMIN alarm is fired
*NA[Name]	Sets the **name of the first relay**, usually associated to the thermostat (*TERMO*).	To rename the first relay to *R1* (its default name is *TERMO*) send 999 *NAR1
*NB[Name]	Sets the **name of the second** relay usually associated to the siren (*SIRENA*).	To rename the second relay to *R2* (its default name is *SIRENA*) send 999 *NBR2
*TV[Phone number]	When the device receives an information request it sends its reply to the sender of the request. This may not be possible if the request is sent from a web platform or any other system that is not able to receive messages. This command allows to specify a **third recipient** so that the requested data are sent to the specified number.	If you send the command 999 V the response SMS will be sent to your number. If you use 999 V *TV635469583 instead, the information message will be sent to the specified number 635469583
*TM[Value/N]	**Sets** the lowest valid temperature for the **minimum temperature** alarm. N deactivates the alarm. If a value is used it is set as the lowest temperature limit. The temperature must be expressed in centigrade degrees and it can also be negative (-25 to 85º C).	To disable the alarm send 999 *TMN. To set -5º C as the minimum temperature limit send the command 999 *TM-5
*TX[Value/N]	**Sets** the highest valid temperature for the **maximum temperature** alarm. N disables the alarm. If a value is specified it is used as the highest temperature limit. The temperature must be expressed in centigrade degrees and it can be negative (-25 to 85º C).	To disable the alarm send 999 *TXN. To set 30º C as the maximum temperature limit send the command 999 *TX30
*SA[Value]	Sets the **delay** for the power supply failure and recovery alarms. The value must be specified in seconds.	If the supply failure alarm must be fired two minutes after the failure, send 999 *SA120
*SB[Value]	Sets the **hysteresis** margin **of the thermostat**. Every step corresponds to half a degree.	To set a hysteresis of 2 degrees send the command 999 *SB4
*SC[A/N]	Enables or disables the **failure** alarm **of the temperature probe**. A enables the alarm; N disables it.	In order to deactivate the alarm send 999 *SCN
*SD[A/B/N]	Configures the **alarm of power supply** failure and recovery. A enables only the failure one. B enables both. N deactivates all power supply alarms.	To deactivate both the supply failure alarm and the supply recovery alarm send 999 *SDN
*SM[A/B/C/D/E/F]	Configures the **periodical sending** of a verification message to the first alarm recipient. A disables it; the rest of the options enable it for a sending every 24 hours (B), every week (C), every 20 days (D), every 60 days (E) or every 120 days (F). Time intervals are only calculated approximately, especially the longest ones.	If a periodical verification message is to be sent every week to the phone number 635469583, send 999 *TA635469583 *SMC
*SR[A/N/Value]	Sets the reset **mode for the temperature alarms**. A activates the automatic reset mode. N sets the manual mode. If a value is provided, the timed reset mode is activated and the reset will occur after the given delay. The value is expressed as 10-minute intervals and the minimum value is 1 (corresponds to a 10-minute delay).	For the alarms to be reset every hour send 999 *SR6
*SH[A/N/Value]	Configures **how the siren works** whenever a temperature alarm is fired. N disables the siren and A enables it so that it will stay turned on until the temperature alarm is reset. If a value is used instead, the siren will keep switched on for that many seconds or until it is otherwise reset (either manually or automatically).	If the siren is to keep switched on for 2 minutes when the maximum temperature alarm is fired, send 999 *SH120
*ST[Value]	Sets a **delay for the temperature alarms** before they are fired. It is especially useful for environments where temperature fluctuates around the set limits. The value is expressed in minutes.	To delay 10 minutes the temperature alarms send 999 *ST10
Command	**Description (telecontrol functions)**	**Example**
ENVIO [ON/OFF]	Enables / disables the alarm **message sending**.	To enable the message sending send 999 ENVIO ON
[Relay] [ON/OFF]	**Switches on / off** a given **relay**.	To activate the first relay send 999 TERMO ON (*TERMO* is the default name of the relay; use its real name if you have changed it)
[Relay] [Value][S/M/H]	Sets a **timing for a** given **relay**. In additon to the time value a code for the time units must be specified (S for seconds, M for minutes and H for hours) and it must be within [1 - 1440] for minutes and seconds, or [1 - 48] for the hours.	To activate the second relay for 35 minutes send the command 999 SIRENA 35M (*SIRENA* is the default name of the second relay)
TERMO [Value][C/Z]	**Programs the first relay** so that it works according to the measured **temperature**. C will switch on the relay when the temperature is under the lower limit. Z will turn it on when the temperature is over the higher limit.	For the first relay to be activated when the temperature is over 23º C, send 999 TERMO 23C

(*) Both upper and lower case can be used, the system is case insensitive.

(**) Several commands may be sent together separating them by a blank space

EXAMPLE: for a warning to be sent to the phone number 666666666 when the temperature is over 20º C, send:
999 ENVIO ON *TA666666666 *TX20 (the alarm will fire again every time that value is exceeded)

EXAMPLE: to activate heating whenever the probe temperature is over 21º C, and also get an SMS regarding the status of the device send:
999 ENVIO ON *TERMO 21C V

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