



cod.XXXXXXXXX GB
rev.01 (software VER. 1.22)



USER
INSTRUCTIONS

RAIN STAR 260 GSM

(ELECTRONIC IRRIGATION CONTROL SYSTEM with GSM)



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INDEX:

INDEX:	1
1. OVERVIEW	2
2. SAFETY and SECURITY	3
3. EVENTS AND CONTROLS	4
3.1 Programmable EVENTS for SMS text message notification	4
3.2 List of CONTROLS executable via PHONE RINGS or SMS TEXT MESSAGES	5
3.2.1 CONTROLS	5
3.2.2 MODIFYING IRRIGATION PARAMETERS	5
4 PROGRAMMING	6
4.1 Programming the SIM card	6
4.1.1 Programming the SIM card with a mobile phone	6
4.1.2 Programming the SIM card by SMS message	7
EVENTS	7
IRRIGATOR NAME (optional)	7
4-figure numerical PASSWORD (optional)	7
5 OTHER FUNCTIONS	8
5.1 Display GSM signal strength	8
5.2 Displaying numbers and events in the PHONEBOOK	8
5.3 Deleting 1 number from the PHONEBOOK	8
6 FUNCTIONS	9
7 SUMMARY TABLES	10

1. OVERVIEW

The Rain Star 260 unit may be equipped with an add-on GSM module for data exchange and to enable control functions while operating via SMS text messages or via simple telephone ring signals.

The module requires a SIM card issued by a mobile telephone service provider that ensures reliable coverage in the location where the unit will be used.

The RAIN STAR 260 with GSM enables the following functions:

1. send SMS text messages to up to 10 programmable phone numbers in the event of specific events programmed for each number.
2. irrigation START and STOP control functions either by SMS text message or by voice call by the number of rings.
3. send SMS text messages to confirm reception of control message
4. send SMS text message showing screen contents of the RAIN STAR 260 display
5. send SMS text message with all irrigation and programming parameters and other data.
6. modify programmed parameters by SMS text message even during irrigation.
Remaining irrigation hours, Metres of tube to be rewound, Initial pause, Restart speed, End pause.
7. SMS text messages may include a programmable header for the immediate identification of the irrigator in question.
8. access to GSM controls may be unrestricted, limited to the numbers contained in the phonebook or (programmable) password restricted.
9. programming and modification can also be simply performed by SMS text message.

With weak reception, an amplified or direction aerial may be installed to improve operation.

2. SAFETY and SECURITY

The RAIN STAR 260 GSM enables a number of remote control functions. Ensure that the functions controlled cannot cause injury to persons or damage to property.

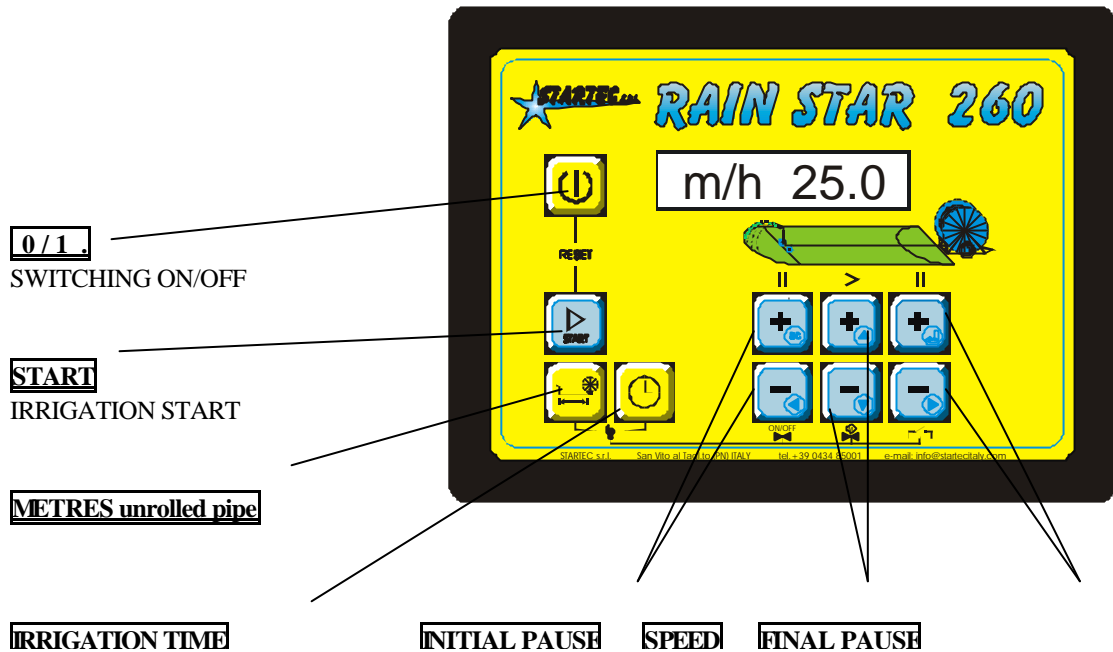
Control function SECURITY.

If no PASSWORD is saved in position 21 in the phonebook, all controls may be executed by calling or sending a text message from any phone.

If a PASSWORD is saved in position 21 in the phonebook, controls may be executed only from numbers in the phonebook or from numbers not in the phonebook if the control message is preceded by the 4 numbers of the PASSWORD.

3. EVENTS AND CONTROLS

Rain Star 260 GSM unit.



3.1 Programmable **EVENTS** for SMS text message notification

The RAIN STAR 260 GSM can be programmed to automatically send SMS text message notification of certain events to up to 10 phone numbers.

Each single event is associated with an UPPER CASE letter and groups of events are associated with numbers.

EVENTS

Let.	Event	Active	Notes
B	END IRRIGATION	YES	The programmed cycle has been completed
C	ERROR: END	no	The 'end' sensor is activated upon START
D	ALARM m/h=0	YES	Irrigator inactive alarm
E	PRESSURE =0	YES	Insufficient pressure
H	GUN CART RESTART IN PROGRESS	YES	Speed increase procedure started
I	END REWINDING	YES	Rewind end sensor activated or programmed rewind cycle is complete
J	START or RE-START	YES	Irrigation has started or resumed after interruption
K	ERROR: START	no	
L	STOP	YES	Irrigation has been arrested
M	ERROR: STOP	no	
N	ERROR: BATTERY	no	Power supply voltage less than 11 Volts (warning given once per cycle)
O	WIND SPEED CYCLE ARREST	no	Wind speed has exceeded set parameters
T	UNSCHEDULED POWER OFF	no	The RAIN STAR has been switched off during irrigation.

EVENT GROUPS

No.	Type of event	Event list	Active	Notes
9	All	BCDEHIJKLM	YES	ALL EVENTS ACTIVE
1	End, Stop	BCLM	YES	END IRRIGATION STOP
2	Interrupted operation	DE	YES	ALARM m/h=0 PRESSURE =0
8	Errors	CKM ?	no	ERROR: END ERROR: START ERROR: STOP ERROR: BATTERY
0	No event		YES	

3.2 List of CONTROLS executable via PHONE RINGS or SMS TEXT MESSAGES

The RAIN STAR 260 GSM receives and executes controls given by phone RINGS or SMS text message.

3.2.1 CONTROLS

CONTROL functions by SMS text message (with UPPER and lower case letters) or phone RINGS

Control	SMS	No. of rings	Active	Notes
LCD	L or LCD	1 (one ring)	YES	Returns an SMS message with the contents of the display
STATUS	S or STATO	2 (two rings)	YES	Returns an SMS message with the current STATUS
STOP	STOP	4 (four rings)	YES	Arrests irrigation
START	START	7 (seven rings)	YES	Starts or resumes irrigation

3.2.2 MODIFYING IRRIGATION PARAMETERS

MODIFYING parameters by SMS text message (with UPPER or lower case letters)

Parameter	SMS	Control	Active	Notes
Metres unwound	M xxx	M-space-value	YES	Modifies value for metres of tube unwound
irrigation time in hours	H.xx:xx	H-space-hour value- colon-minutes value	YES	Modifies value for hours and minutes of irrigation remaining. Recalculates speed.
Initial pause	I XX	I-space-value	YES	Modifies value for initial pause in minutes
Rewind speed	V XX	V-space-value	YES	Modifies value for tube rewinding speed in metres/hour. Recalculates irrigation time.
Final pause	F XX	F-space-value	YES	Modifies value for final pause in minutes

send 1 SMS message at a time to alter ONLY 1 irrigation parameter

A STATUS SMS is returned with the modified parameters.

4 PROGRAMMING

The recipient phone numbers for SMS messages, positions, irrigator name and the password, if used, must be saved on the SIM card.

The data on the SIM card is entered or modified by either programming the SIM in a mobile telephone or by sending SMS messages immediately after inserting the SIM and switching on the RAIN STAR 260 GSM.

Use a SIM card with sufficient credit and disable the PIN code or any other security features before use, as these may prevent correct operation. Deactivate the voice mail function, if applicable.

Ensure that the work area has sufficient coverage.

SMS message delivery may be subject to some delay which, however, is usually very brief. If in doubt, check possible delay times with the service provider before installing.

4.1 Programming the SIM card

Delete all numbers stored on the SIM card.

Programme the SIM card by inserting in a mobile phone or via SMS message

- Use positions 1 to 10 on the SIM card to store the recipient phone numbers for event notification SMS messages. At the beginning of the name, list the events and/or groups of events for which notification SMS messages will be sent, followed by a blank space and, if desired, the name of the recipient.
- Use position 20 to store the NAME of the irrigator, which will be included at the beginning of all SMS messages.
- Use position 21 to store the 4-figure numerical PASSWORD.

4.1.1 Programming the SIM card with a mobile phone

Insert the SIM card in a mobile phone to programme.

EVENTS

Save 1 or more phone numbers in positions 1 to 10 on the SIM card you wish SMS notification messages to be sent to.

Position	Phone No.	Events	Space	Name (optional)	Notes
1	334567890	BDE		ANTONIO	Send SMS messages for events B, D and E.
2	335678901	9		LUIGI	Send SMS events for all active events
3	336789012	0		MARCO	Do not send SMS messages but enable direct control
etc.					
10					

At the beginning of the name, list the events (with upper case letters) and/or groups of events (numbers) for which notification SMS messages will be sent, followed by a blank space and, if desired, the name of the recipient.

IRRIGATOR NAME (optional)

Position 20 on the SIM can be used to store a number from the list of recipients and a name, identifying the irrigator. This name is indicated at the beginning of the SMS messages to identify where the message was sent from.

Position	Phone No.	Name (IRRIGATOR name)	Notes
20	1234567	IRRIGATOR 1	

The phone number may be a real number, permitting direct access to the control functions, or may be just a sequence of numbers, e.g. 1234567. The name may contain both letters and numerals.

4-figure numerical PASSWORD (optional)

If a PASSWORD is saved in position 21 in the phonebook, controls may be executed only from numbers in the phonebook or from numbers not in the phonebook if the control message is preceded by the 4 numbers of the PASSWORD.

If no PASSWORD is saved in position 21 in the phonebook, all controls may be executed by calling or sending a text message from any phone.

Position	Phone No.	Name (4 figure password)	Notes
21	1234567	1234	

The phone number may be a real number, permitting direct access to the control functions, or may be just a sequence of numbers, e.g. 1234567. The name must only consist of 4 numerals.

4.1.2 Programming the SIM card by SMS message

To programme the SIM card by SMS message, insert SIM in the RAIN STAR, switch on the unit and wait approximately 1 minute to establish a connection.

SMS messages may be used to programme empty positions or modify existing positions.

Send one SMS message per position as follows:

EVENTS

Save 1 or more phone numbers in positions 1 to 10 on the SIM card you wish SMS notification messages to be sent to.

T idx,<Phone No.>,<Events> <Name>

T- space- position number-comma-telephone number-comma-single events or event groups-space-name

Fixed	Pos.	Phone No.	Events	Name (optional)	Notes
T	1	334567890	BDE	ANTONIO	Send SMS messages for events B, D and E.
T	2	335678901	9	LUIGI	Send SMS events for all active events
T	3	336789012	0	MARCO	Do not send SMS messages but enable direct control
	etc.				
T	10				

At the beginning of the name, list the events (with upper case letters) and/or groups of events (numbers) for which notification SMS messages will be sent, followed by a blank space and, if desired, the name of the recipient.

IRRIGATOR NAME (optional)

Position 20 on the SIM can be used to store a number from the list of recipients and a name, identifying the irrigator. This name is indicated at the beginning of the SMS messages to identify where the message was sent from.

T 20,<Phone No.>,<Irrigator name>

T- space-20-comma-telephone no.- comma – irrigator name

Position	Phone No.	Name (IRRIGATOR name)	Notes
20	1234567	IRRIGATOR 1	

The phone number may be a real number, permitting direct access to the control functions, or may be just a sequence of numbers, e.g. 1234567. The name may contain both letters and numerals.

4-figure numerical PASSWORD (optional)

If a PASSWORD is saved in position 21 in the phonebook, controls may be executed only from numbers in the phonebook or from numbers not in the phonebook if the control message is preceded by the 4 numbers of the PASSWORD.

If no PASSWORD is saved in position 21 in the phonebook, all controls may be executed by calling or sending a text message from any phone.

T 21,<Phone No.>,<Password>

T- space-21-comma-telephone no.- comma – 4 figures of numerical password

Sets or modifies password. The telephone number specified has direct access to control functions.

Position	Phone No.	Name (4 figure password)	Notes
21	1234567	1234	

The phone number may be a real number, permitting direct access to the control functions, or may be just a sequence of numbers, e.g. 1234567. The name must only consist of 4 numerals.

5 OTHER FUNCTIONS

5.1 Display GSM signal strength

To show the signal strength on the display of the Rain Star, proceed as follows:

Press "M" and "h" simultaneously to enter MANUAL mode. Press "h" to enter [MENU GSM].

After a few moments the message [CAMPO nn]; (sign nn) is displayed, where nn is a number from 0 to 31.

The significance of this value is as follows:

- 15 to 31, excellent signal
- 10 to 14, good signal
- 6 to 9, adequate signal
- 1 to 5, weak signal

If 0 is shown, the signal is almost absent.

If the message [CAMPO ??] (sign??) is shown, the unit still has not acquired a signal.

The signal strength value is updated once per minute.

Press START to return to standard display mode.

If the display still shows [MENU GSM] and not the message [CAMPO nn] (sign nn), turn the RAIN STAR off and on again to reboot the GSM function

To receive an SMS message indicating GSM signal strength, send an SMS containing:

G or GSM (UPPER or lower case)

5.2 Displaying numbers and events in the PHONEBOOK.

To receive an SMS message indicating the numbers stored in the SIM phonebook, send a message for each position containing:

R (idx)

R-space-position

An SMS message is returned containing the telephone number stored in the relative position, in the following format:

T idx,<Phone No.>,<Events> <Name>

T- 1 space- position number-comma-telephone number-single events or event groups-space-name

The message VUOTO (empty) is returned for empty positions.

To receive an SMS message indicating the events and positions programmed in the phonebook, send an SMS message containing:

R *

R-space-asterisk

An SMS is returned containing the series of events followed by the associated phonebook positions.

5.3 Deleting 1 number from the PHONEBOOK.

To cancel a phone number and the associated events and name, send an SMS message containing:

D idx

D-space-position

delete Phone No./name + events in specified position.

6 FUNCTIONS

The Rain Star 260 unit, which features an additional GSM compatible card, can exchange data and receive control messages. The functions of the Rain Star 260 unit are not influenced by or dependent on whether or not the additional GSM compatible card is working.

The GSM unit is operational approximately 2 minutes after switching on.

The following functions are available:

- send SMS messages to stored phone numbers to notify of specific events programmed for each number.
- irrigation START and STOP control functions either by SMS text message or by voice call by the number of rings.
- send SMS text messages to confirm reception of control message
- send SMS text message in response to the request 'LCD' showing screen contents of the RAIN STAR 260 display
- send SMS text message, in response to the request STATO (status) with all irrigation and programming parameters and other data.
- modify programmed parameters by SMS text message even during irrigation.
Remaining irrigation hours, Metres of tube to be rewound, Initial pause, Restart speed, End pause.
An SMS message is returned with the modified STATUS.

With weak reception, an amplified or direction aerial may be installed to improve operation.

7 SUMMARY TABLES

CONTROL functions by SMS message (with UPPER and lower case letters) or phone RINGS

Control	SMS	No. of rings	Active	Notes
LCD	L or LCD	1 (one ring)	YES	Returns an SMS message with the contents of the display
STATUS	S or STATO	2 (two rings)	YES	Returns an SMS message with the current STATUS
STOP	STOP	4 (four rings)	YES	Arrests irrigation
START	START	7 (seven rings)	YES	Starts or resumes irrigation

MODIFYING parameters by SMS text message (with UPPER or lower case letters)

Parameter	SMS	Control	Active	Notes
Metres unwound	M xxx	M-space-value	YES	Modifies value for metres of tube unwound
irrigation time in hours	H:xx:xx	H-space-hour value- colon-minutes value	YES	Modifies value for hours and minutes of irrigation remaining. Recalculates speed.
Initial pause	I XX	I-space-value	YES	Modifies value for initial pause in minutes
Rewind speed	V XX	V-space-value	YES	Modifies value for tube rewinding speed in metres/hour. Recalculates irrigation time.
Final pause	F XX	F-space-value	YES	Modifies value for final pause in minutes

Programming EVENTS by SMS message

T idx,<Phone No.>,<Events> <Name>

T- space- position number-comma-telephone number-comma-single events or event groups-space-name

Fixed	Pos.	Phone No.	Events	Name (optional)	Notes
T	1				
T	2				
T	3				
T	4				
T	5				
T	6				
T	7				
T	8				
T	9				
T	10				

IRRIGATOR NAME (optional)

T 20,<Phone No.>,<Irrigator name>

T- space-20-comma-telephone no.- comma – irrigator name

Position	Phone No.	Name (IRRIGATOR name)	Notes
20			

4-figure numerical PASSWORD (optional)

T 21,<Phone No.>,<Password>

T- space-21-comma-telephone no.- comma – 4 figures of numerical password

Sets or modifies password. The telephone number specified has direct access to control functions.

Position	Phone No.	Name (4 figure password)	Notes
21			

OTHER CONTROLS accessible by SMS text message (with UPPER or lower case letters)

Control	SMS	Active	Notes
GSM	G or GSM	YES	Returns an SMS message indicating GSM signal strength
PHONEBOOK	R (idx)	YES	R-space-position Returns an SMS message containing T idx,<Phone No.>,<Events> <Name>
EVENTS BOOK	R *	YES	R-space-asterisk Returns SMS message indicating events followed by associated positions.
DELETE	D (idx)	YES	R-space-position delete Phone No./name + events in specified position.

EVENTS

Let.	Event	Active	Notes
B	END IRRIGATION	YES	The programmed cycle has been completed
D	ALARM m/h=0	YES	Irrigator inactive alarm
E	PRESSURE =0	YES	Insufficient pressure
I	END REWINDING	YES	Rewind end sensor activated or programmed rewind cycle is complete
J	START or RE-START	YES	Irrigation has started or resumed after interruption
L	STOP	YES	Irrigation has been arrested

EVENT GROUPS

No.	Type of event	Event list	Active	Notes
9	All	BDEIJL	YES	ALL EVENTS ACTIVE
1	End, Stop	BL	YES	END IRRIGATION STOP
2	Interrupted operation	DE	YES	ALARM m/h=0 PRESSURE =0
0	No event		YES	