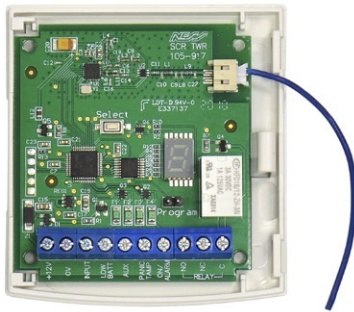


INSTALLATION NOTES



NESS SCR-TWR Two Way Radio Receiver

Product Part No. 106-304

- Receives Two Way Radio ARM / Disarm / PANIC / AUX / Low Batt signals from all Ness TWR devices
- Two Way signals provide positive feedback of the relay state
- Supports up to 20 Ness TWR devices
- Easy programming and operation
- 1 x Relay output with selectable Pulse, Toggle & Latch modes
- 4 x Open Collector outputs for Panic/ Tamper, On/Alarm, Aux, Low Battery

INTRODUCTION

The Ness SCR-TWR Two Way Radio Standalone Receiver is a unique high performance radio receiver designed to operate with Ness TWO WAY RADIO proprietary devices including Ness TWR Radio Keys, TWR Radio PIRs, TWR Radio Reed switches, TWR Radio Smoke Detectors amongst others.

The SCR-TWR is ideal for connecting to alarm panels which do not provide a wireless facility and can be used for connecting wireless devices for zone alarms, Panic buttons or Radio Keys for Arming and Disarming the Panel.

The Inhibit input gives the receiver the unique ability to identify the Armed/Disarmed status of an alarm panel. When used with a Ness TWR radio key it allows the receiver to always correctly Arm or Disarm the Panel.

The SCR-TWR is also ideally suited for applications that require a remotely switched relay output for low voltage switching applications e.g. garage door opening.

The Relay output can be selected to be Pulsing or Latched for alarm signals or a Pulsing output for Panic/Tamper, Aux or Low Batt signals.

The SCR-TWR supports up to twenty individual Ness TWR devices.

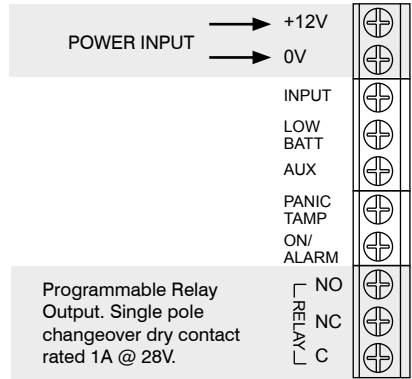
NESS SCR PRODUCT FAMILY

SCR-TWR receiver supports Ness TWR devices (it does not support non TWR devices).

SCR+ Receiver supports only regular Ness radio devices (non Two Way).

POWER INPUT

Power requirement is 12VDC (10-15VDC).



RELAY OUTPUT

RELAY OUTPUT EVENTS - The relay output can be programmed to operate as one of these output types:

- On/Off/Alarm output
- Low battery
- Aux
- Panic/Tamper

RELAY OPERATION - The relay output can be programmed to operate in one of these modes:

- PULSE

In Pulse mode the relay activates for 2 seconds. *Recommended mode for PIRs.*

Also used for Arming/Disarming Ness panels such as D8/D16 and earlier models - requires connection of the Inhibit Input (see page 3).

- TOGGLE

In Toggle mode the relay changes state on each ARM or ALARM signal.

- LATCHING

In Latching mode the relay activates on an ARM or ALARM signal and de-activates on a DISARM or RESTORAL signal.

Recommended mode for Arming/Disarming some third party control panels.

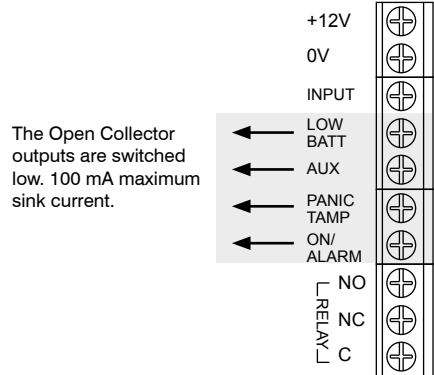
OPEN COLLECTOR OUTPUTS

ON/ALARM - Open collector output pulses for two seconds when a valid ON signal or ALARM signal is received.

PANIC/TAMPER - Open collector pulses for two seconds when a Panic or Tamper alarm is received.

AUX - Open collector pulses for two seconds on a signal from the radio key *i* button.

LOW BATT - Open collector output pulses for two seconds when a Low Battery signal is received from either a Radio Key or any other programmed device. Connect a 12V beeper or optional relay for connection to an alarm zone if required.



NOTE. The Open Collector outputs require no programming. They are always active and always operate in Pulse mode

INHIBIT INPUT

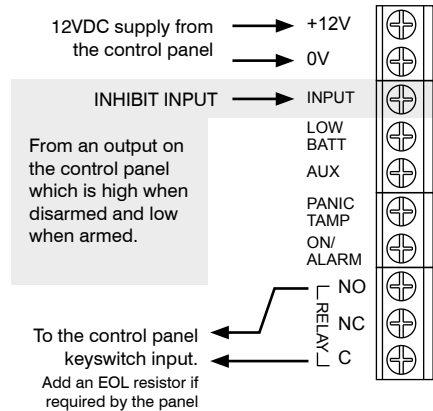
The Inhibit Input can be used with an output from a control panel to synchronise the relay and the On/Off (Arm/Disarm) buttons of a radio key to the state of the control panel.

Suitable for arming/disarming control panels (such as older Ness panels) which:

- Require a Pulse (momentary) activation to arm and disarm.
- Have an output which is low when the panel is armed.

The Inhibit Input is only active when the relay is set for Pulse mode for On/Off signals.

The input should be pulled below 0.5V to be Low and above 1V to be High. The input is high when left open.



HOW IT WORKS

ARMING



Press the ARM button

1. Press the Arm button
2. The Relay Pulses to ARM the panel
3. Inhibit Input goes LOW
4. The Arm button has no further effect



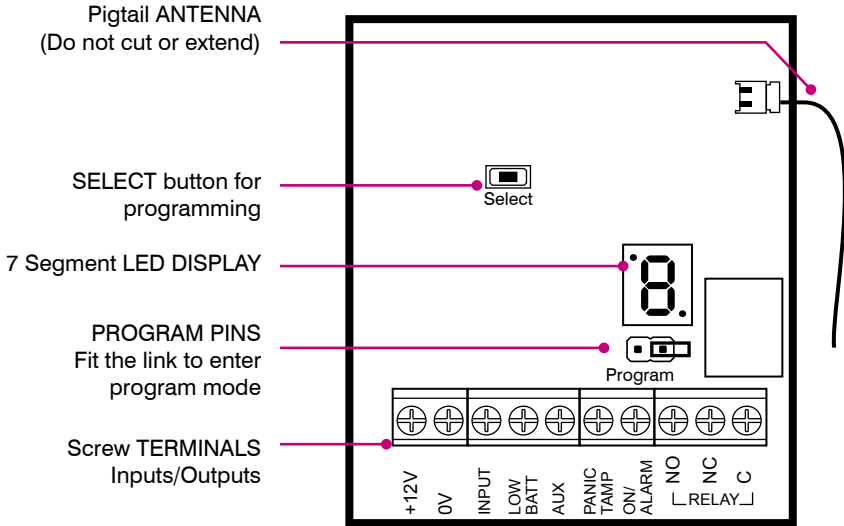
Press the DISARM button

DISARMING

1. Press the Disarm button
2. The Relay Pulses to DISARM the panel
3. Inhibit Input goes HIGH or floating
4. The Disarm button has no further effect

Don't forget to connect the Inhibit Input and program Relay Type as Pulse, Relay Output Control as On/Alarm

COMPONENTS



LED DISPLAY OPERATION – OPERATING MODE

DISPLAY	TOP DOT	BOTTOM DOT	MEANING
	Alternating flashing dots		IN OPERATING MODE No devices are enrolled.
	Flashing	OFF	IN OPERATING MODE One or more devices are enrolled.
	Flashing with a digit displayed	OFF	IN OPERATING MODE Device number of the last received transmission, followed by the signal strength of that device, see below.
	Flashing with a digit displayed	ON	IN OPERATING MODE Signal strength of the last received transmission on a scale of 1 (lowest) to 9 (best signal). e.g, Device 1 with signal strength of 6 <i>See Signal Strength Mode, page 5.</i>
	ON steady	OFF	IN OPERATING MODE Signal Strength HOLD MODE. <i>See Signal Strength Hold Mode, page 5.</i>

SIGNAL STRENGTH MODE

SIGNAL STRENGTH – INSTANTANEOUS

In normal Operating Mode the signal strength of the last received transmission is momentarily displayed immediately after the device number on a scale of 1 (lowest) to 9 (best signal).

See *LED Display Operation, page 4.*

SIGNAL STRENGTH – HOLD MODE

A lone technician can test the signal strength from different parts of a building using Signal Strength HOLD MODE.

In Operating Mode, press and hold the SELECT button. The upper left dot will turn on.

Then send a signal from a programmed device. The device number and signal strength will display repeatedly allowing you time to check the display.

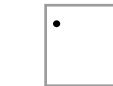
The held signal Strength will continue to cycle until either a new device signal is received or you cancel Hold Mode by a short press of the Select button.

Hold Mode will time out after 30 minutes. Restart by press and hold of the SELECT button.

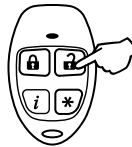
STEP-BY-STEP



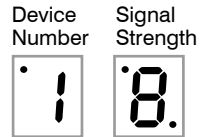
Operating Mode.



Display shows upper left dot.



Send a signal from a programmed device.



The display will show the device number followed by the signal strength - repeating.

OPERATION

TWO WAY RADIO FEEDBACK

Rather than only sending a signal in one direction, Ness Two Way Radio devices are 'transceivers' and receive a feedback signal from the receiver, giving the true state of the receiver's output.

A bi-colour LED on the device provides feedback on the state of the relay on the SCR-TWR receiver after a signal is sent.

Example
106-270 TWR Radio Key



After button press...

RED LED
The relay is energised

GREEN LED
The relay is off

PROGRAMMING

PROGRAM MODE



Link is ON

Program

OPERATING MODE



Program

Link if OFF or
'parked' on one pin

TO ENTER PROGRAM MODE

- To enter program mode place the link on the Program pins.
- To exit program mode remove the link. Park the link on one pin to prevent losing it.
- The relay and the soft outputs are disabled during program mode to prevent unwanted activation.

AUTOMATIC EXIT

- If the program link is left ON, the device automatically returns to normal operating mode after 5 minutes of no activity of the SELECT button. A brief press of the SELECT button will restart program mode.

PROGRAMMING

MENU NAVIGATOR

Programming and setup is easy using the SELECT button and 7 segment LED display.

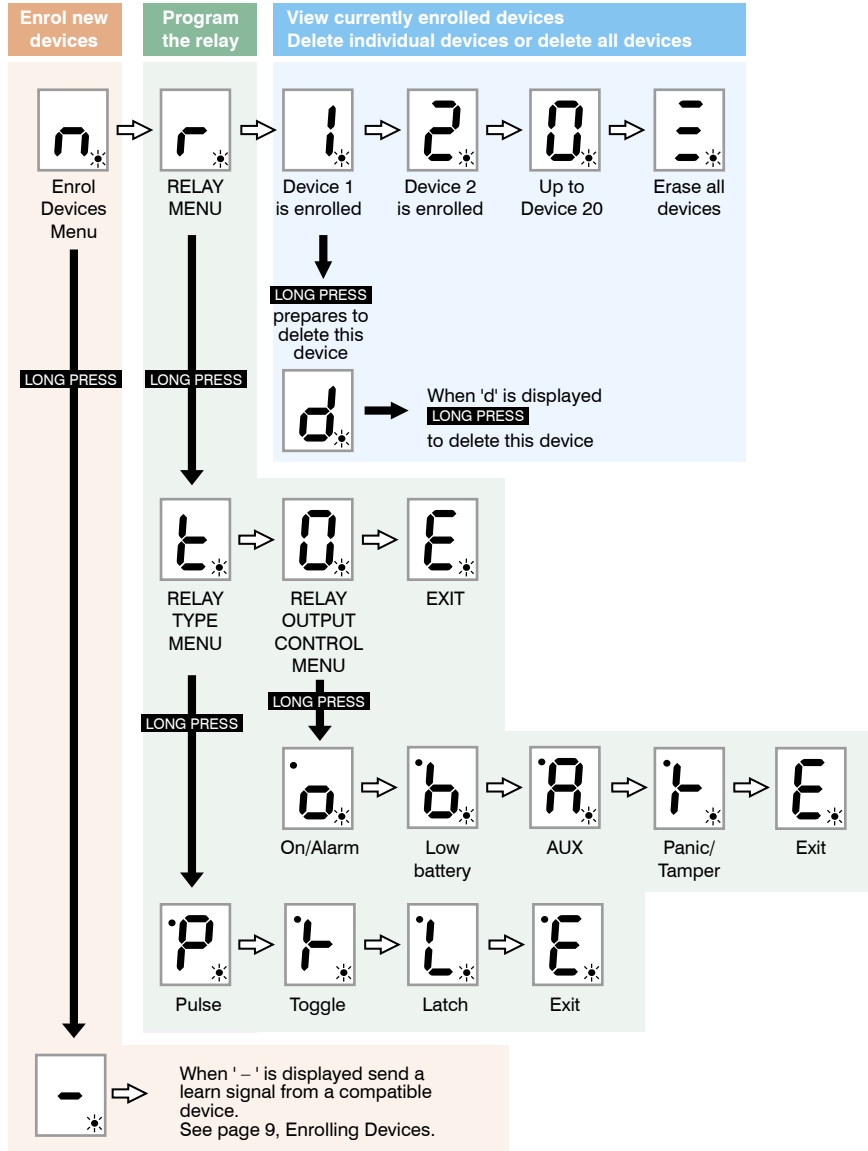
Every action is performed either with a single press or long press (press and hold) of the Select button.



= **PRESS** Single Press



= **LONG PRESS** Press and Hold

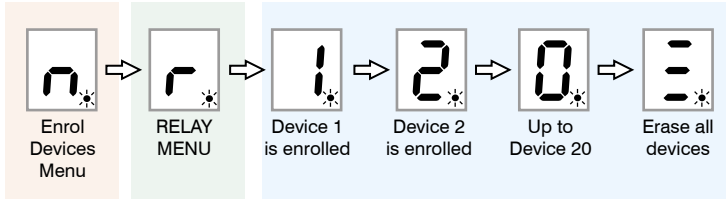


UPPER LEVEL MENU

The upper level programming menu gives access to:

- Enrolling new devices
- Viewing and deleting enrolled devices
- Access to the relay menu

AVAILABLE OPTIONS













STEP-BY-STEP

STEP	DESCRIPTION	ACTION	DISPLAY	NOTE
1	To enter program mode place the link on the Program pins.			When 'n' is displayed press and hold SELECT to enter the device enrolment mode, see step E1.
2	Press SELECT once.			Relay Settings menu, see step R1, also see the Menu Navigator, page 7.
3	Press SELECT once.			The currently enrolled device numbers are shown.
4	Press SELECT once.			The currently enrolled device numbers are shown.
<p>Repeatedly pressing SELECT will cycle through all the enrolled devices ~ up to 20</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> ... <p>Device numbers 1 to 9 are displayed as 1-9</p> </div> <div style="text-align: center;"> <p>Number 10 is displayed as 0</p> </div> <div style="text-align: center;"> <p>11 12</p> etc <p>Numbers 11 to 19 are displayed as 1-9 with the top dot on</p> </div> <div style="text-align: center;"> <p>Number 20 is displayed as 0</p> </div> </div>				
5	Once all the enrolled devices have been shown, the 'E' Erase All option is shown.			To Delete All device see page 11.
6	Press SELECT repeatedly to cycle back to , , etc			Remove the Program Link to exit program mode

PROGRAMMING

E ENROLLING DEVICES

Program up to 20 TWR Radio Keys, Radio PIRs, Radio Reed Switches, Radio Smoke Detectors.

STEP	DESCRIPTION	ACTION	DISPLAY	NOTE
E1	To enter program mode place the link on the Program pins.	 Program		Enrol Devices Menu
E2	Press and hold SELECT.	LONG PRESS  Select		Flashing dash indicates that the next empty slot is ready to enrol a new device
E3	Enrol a new device	TWR Radio Key: Press ARM & DISARM buttons together Other devices: Insert the battery to send a learn signal		
E4	The device has been enrolled			The display shows the slot number of the new device.
E5	To enrol another device, press SELECT twice to return to 	PRESS  Select		'n' is displayed
E6	Repeat from step E2	LONG PRESS  Select		Flashing dash indicates that the next empty slot is ready to enrol a new device

PRODUCT NOTES

106-267 TWR Reed Switch operation with this receiver

The TWR Reed Switch has 2 x hardwired inputs as well as a reed switch onboard.







When used with the SCR-TWR receiver the reed switch will transmit either the reed switch alarm or the hardwired inputs but not both.

- If you are using the hardwired inputs the magnet must be away from the device, therefore only the hardwired inputs are active.
- If you are using the onboard reed switch, the hardwired inputs will be ignored.









PROGRAMMING

R RELAY MENU STEP-BY-STEP

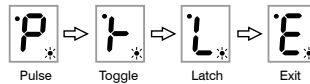
Program the RELAY TYPE and RELAY OUTPUT CONTROL




STEP	DESCRIPTION	ACTION	DISPLAY	NOTE
R1	To enter program mode place the link on the Program pins.	 Program		
R2	Press SELECT to display 	  Select		RELAY MENU

Program the RELAY TYPE













R3	When  is displayed, press and hold SELECT.	  Select		RELAY TYPE MENU
R4	When  is displayed, press and hold SELECT.	  Select		The currently programmed option in the RELAY TYPE MENU is displayed

Repeatedly pressing SELECT will cycle through the available options in the RELAY TYPE MENU, being

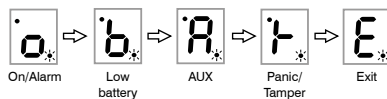





R5	Choose the required option then press and hold SELECT to save.	  Select		The saved option will flash twice then the display returns to the RELAY MENU
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Program the RELAY OUTPUT CONTROL

R3	When  is displayed, press and hold SELECT.	  Select		The first item in the RELAY MENU is displayed, being RELAY TYPE
R4	Press SELECT until  is displayed.	  Select		RELAY OUTPUT CONTROL MENU
R5	When  is displayed press and hold SELECT	  Select		The currently programmed option in the RELAY OUTPUT CONTROL MENU is displayed

Repeatedly pressing SELECT will cycle through the available options in the RELAY OUTPUT CONTROL MENU, being








R6	Choose the required option then press and hold SELECT to save.	  Select		The saved option will flash twice then the display returns to the RELAY MENU
----	--	--	---	--










PROGRAMMING

D DELETING ONE DEVICE or DELETING ALL DEVICES






STEP-BY-STEP

STEP	DESCRIPTION	ACTION	DISPLAY	NOTE
D1	To enter program mode place the link on the Program pins.	 Program		
D2	Press SELECT to skip  *.	PRESS  Select		

DELETING ONE DEVICE

D3	Press SELECT repeatedly to display the enrolled devices in turn.			
D4	For example to delete device 3, press SELECT until  is displayed.	PRESS  Select		
D5	Then press and hold SELECT to display  *.	LONG PRESS  Select		
D6	Then press and hold SELECT to delete the device.	LONG PRESS  Select		Back to the upper level menu.

DELETING ALL DEVICES

D7	Press SELECT to display  *.	PRESS  Select		To abort deleting all devices, just press SELECT once at this stage or just remove the program Link.
D8	Then press and hold SELECT to delete all devices.	LONG PRESS  Select		Back to the upper level menu.

SPECIFICATIONS

OPERATING VOLTAGE	10–15V DC
QUIESCENT CURRENT DRAW	25mA (with relay activated)
RELAY OUTPUT	C.O. contacts rated 1A @ 28V max.
OPEN COLLECTOR OUTPUTS LOW BATT, AUX, PANIC/TAMP, ON/OFF	Open Collector 100mA @ 12V (low on alarm)
RADIO FREQUENCY	902-928 MHz spread spectrum frequency-hopping
COMPATIBILITY	Ness TWR devices
MAX. RADIO DEVICES	20 x TWR devices
DIMENSIONS IN HOUSING	75 x 80 x28mm
WEIGHT	73g

Compatibility (Devices sold separately)

106-270 4 Button Radio Key TWR
 106-271 Lux radio PIR TWR
 106-272 Micro Radio Reed TWR
 K-106-267 3 Zone Sensor TWR
 106-273 Slim Line Radio Reed TWR

Ness Corporation manufacturing processes are accredited to ISO9001 quality standards and all possible care and diligence has been applied during manufacture to ensure the reliable operation of this product. However there are various external factors that may impede or restrict the operation of this product in accordance with the product's specification.

These factors include, but are not limited to:

1. Erratic or reduced radio range. Ness radio products are sophisticated low power devices, however the presence of in-band radio signals, high power transmissions or interference caused by electrical appliances such as wireless routers, cordless phones, computers, TVs and other electronic devices may reduce the range performance. While such occurrences are unusual, they are possible. In this case it may be necessary to either increase the physical separation between the Ness receiver and other devices or if possible change the radio frequency or channel of the other devices.
2. Unauthorised tampering, physical damage, electrical interruptions such as mains failure, electrical spikes or lightning.



CORPORATION

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Ness SCR-TWR TWO WAY RADIO RECEIVER
 Installation Notes Rev 1.0
 June 2020

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 For the products:
 106-304 SCR-TWR Receiver

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 Specifications may change without notice.

