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Genesis Electronics Australia Pty Ltd

www.genesiselectronics.com.au

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This manual assumes installers of this product are professionals within the electronic security, access control and automation industry. As such, knowledge of these industries on the part of the installer is assumed.

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Remote Access Station
GEN-030

TECHNICAL MANUAL

genesis
...The very latest innovation in security and access

Revision 2.06 September 2002
Genesis Electronics Australia Pty Ltd
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Notes

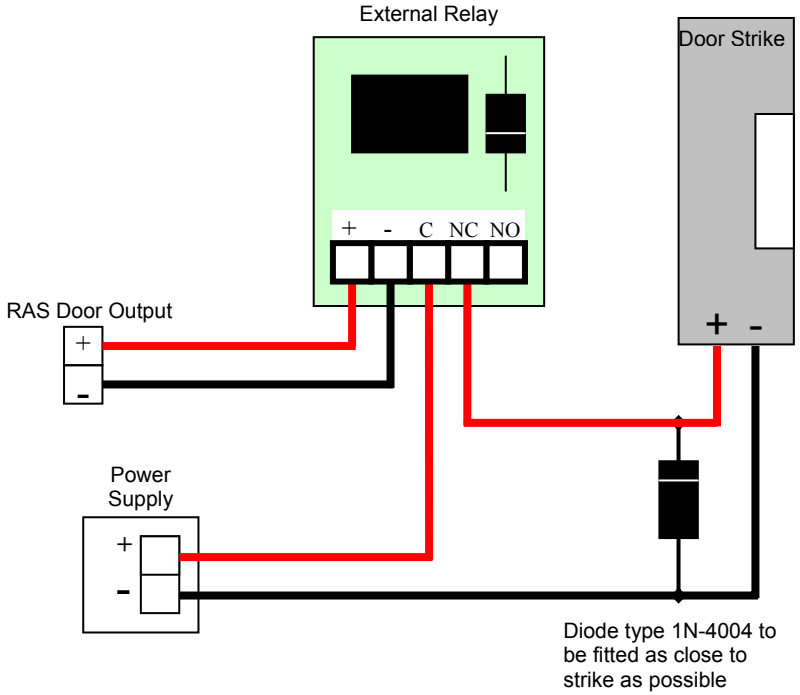
Points to Note:

- When connecting the RAS to the Genesis LAN, at a distance in excess of 100 metres, it is recommended to use a separate power supply, to be located near the RAS. DO NOT common the 0V DC , or +12V DC, of power supplies and Genesis devices.

- When using the RAS to control an electric strike or magnetic lock, it is recommended to use separate power supplies for both the RAS power and for the locking device power.

- Removal of the Serial Number from any Genesis device will immediately void any warranty applicable to it, or any interconnected Genesis device.

- **Caution:** When connecting an electric strike, relay or other inductive load to a power source, it is important to insert a protection diode in parallel with the load. This is to prevent any back EMF generated by the inductive load, from effecting or damaging any equipment connected to the same power supply.



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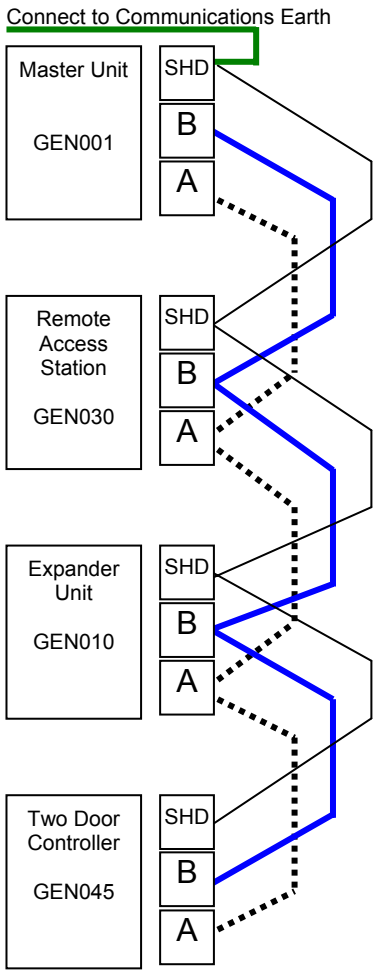
Genesis LAN (cont.):



The Master Unit *must* always be the first device on the LAN. This device is factory fitted with a *180Ω* LAN Termination Resistor.

The shield from the LAN cable should run the length of the LAN, and should be connected to a *communications earth*, at the *Master Unit only*.

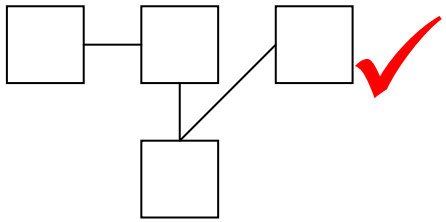
The shield terminals on each device are for connection of shield cables, and do not connect to the device proper in any way

Up to 127 additional Genesis devices in total can be connected to the Genesis LAN, across a total LAN length of *up to* 1500 meters.

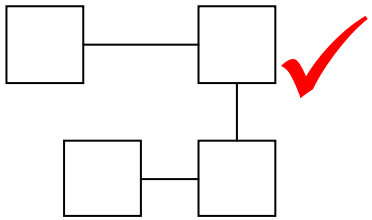
The *last* device on the Genesis LAN *must* be fitted with its termination link. This link fits a *180Ω* resistor to the last device on the LAN.

No other devices should have a termination link fitted. If connected as described above, the LAN should have an impedance of approximately *90Ω*, plus the resistance of the LAN cable. **Don't test LAN impedance with any devices powered up.*

Ensure the cable shield is *not* connected to any ground or to any voltage on any device and that the cable shield is only connected to a communications earth at the Master .



Correct LAN configuration



Correct LAN Configuration

Genesis LAN:

Genesis uses industry standard *RS-485 LAN* communication to ensure fast efficient network communication between devices. The Genesis LAN operates at a communication speed of *19,200 baud* between up to *128 devices* over a total LAN distance of up to 1500 meters.

In order to ensure that a high level of performance is achieved, it is necessary to connect the Genesis LAN in the recommended method.

To this end, it must be twisted pair data cable that is used for the Genesis LAN. Belden 8723 (RS-485) cable, *or equivalent* is recommended.

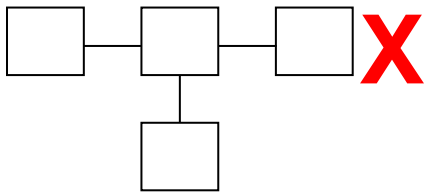
A standard must be applied when wiring from one LAN leg to another. For example, the A leg on a Master Unit must always be connected to the A legs on other Genesis devices, while the B leg must always be connected to the B legs on other Genesis devices.

A very common communication problem is where the A and B lines are reversed.
If this occurs, then some devices may appear on-line, while others are off-line.

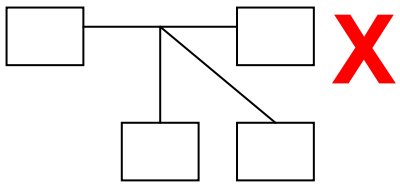
The Genesis LAN is an industry standard multi-drop RS-485 configuration.

Do Not Tee Off, or **Star** configure your LAN.

While the LAN may function in these configurations, Genesis cannot guarantee proper LAN performance.



Improper Star Configuration



Improper Tee Off Configuration

Parts Checklist:

1 x Remote Access Station (GEN-030) with keypad cover	☐
1 x Plastic screw cover plate	☐
2 x Terminal jumpers	☐
2 x 4 pin headers	☐
2 x 2 pin headers	☐
1 x Remote Access Station – Technical Manual (this manual)	☐

Specifications:

Dimensions (H x W x D):	145 x 96x 23 mm
Input Voltage:	11-16V DC
Standby Current Draw:	100mA
Processor:	16 bit microprocessor
Memory:	256k ROM and 20k RAM
Door Controller:	2 x Wiegand Readers
Inputs	
Egress:	Normally Open
Door Monitoring:	Normally Closed
Outputs	
Door Output:	12V, Open Collector (100mA), to drive an external relay
LEDs:	4 x technician programmable LEDs
Buzzer:	Programmable Piezo Buzzer

Caution: *All Genesis devices are electrostatic sensitive devices. As such, all care must be taken to ensure appropriate procedures are in place when handling and installing Genesis devices. This may include, but is not limited to wearing an appropriately earthed, conductive wrist strap – to limit electrostatic discharge into Genesis devices.*

Features and Benefits:

The Genesis Remote Access Station (RAS) incorporates features normally only provided by control modules. It comes in a stylish discrete housing. The Genesis RAS utilises a high contrast, two row LCD display that is used to indicate system information.

Four *technician programmable* LED indicators are incorporated into the front panel, and can be used to display area status, input status, output status or *any* other system information.

The RAS LCD features built in *backlit display*, enabling the RAS to view the LCD in all lighting conditions. The LCD display also *utilises super twist technology*, allowing wide-angle viewing by the end user.

It is possible to broadcast up to *128 text messages* to the RAS LCD display. These messages can be tagged to events, Card users, Pin users, Home / Building Automation functions or *any* other system events.

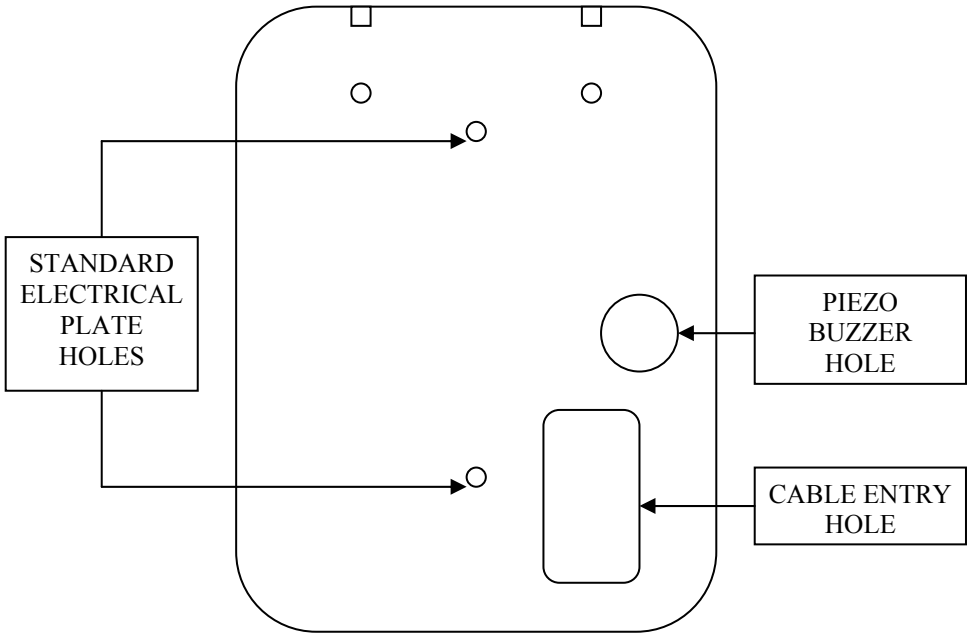
A feature of the RAS is the *incorporated* ***single door controller***. Two *Wiegand inputs* are provided, enabling Wiegand readers to be connected directly to the RAS for read in/out operation. There is an egress input on board, for connection of an exit button to trigger the built in open collector door output. Also included is a door monitor input, which is utilised for door open too long and door forced monitoring.

In case of communication failure with the master unit, the RAS retains the last 100 card users through the door in *cache* memory, allowing continued operation of the door until the LAN is fully restored. This function is technician selectable at the time of programming.

Mounting:

When mounting the RAS, it is important to note the following;

- Any cabling should be brought through the rectangular hole in the bottom right hand corner of the mounting plate (Cable Entry Hole).
- The small round holes in the mounting plate have been provided to secure the RAS to the wall, or to a standard electrical mounting plate.
- Do not use the larger round hole in the RAS for cabling. This hole is provided for the keypad piezo buzzer when mounting.
- Avoid installing the RAS in direct sunlight.
- Avoid installing the RAS where it may be exposed to moisture, either directly (Rain, Sprinklers, Hoses), or by condensation.



Tamper switch: The Genesis RAS has also been fitted with a *tamper switch* to allow appropriate response, should the RAS be removed from its mounting.

Door output terminal: The door output terminal on the Genesis RAS is supplied to allow switching of an external relay for door control. It is important to note that while it can supply 12V DC, the door output can only sink 100mA. It is also recommended that a separate power supply be used to drive electric strikes and magnetic locks. Also note that protection diodes should be fitted at the locking device, to prevent back EMF from entering the power supply or Genesis equipment.

Serial number: Each Genesis device is fitted with it's own unique serial number. This number will need to be entered into the Genesis Master Unit, via the technician software, before the RAS will come on line. *Removal of serial number will void warranty.*

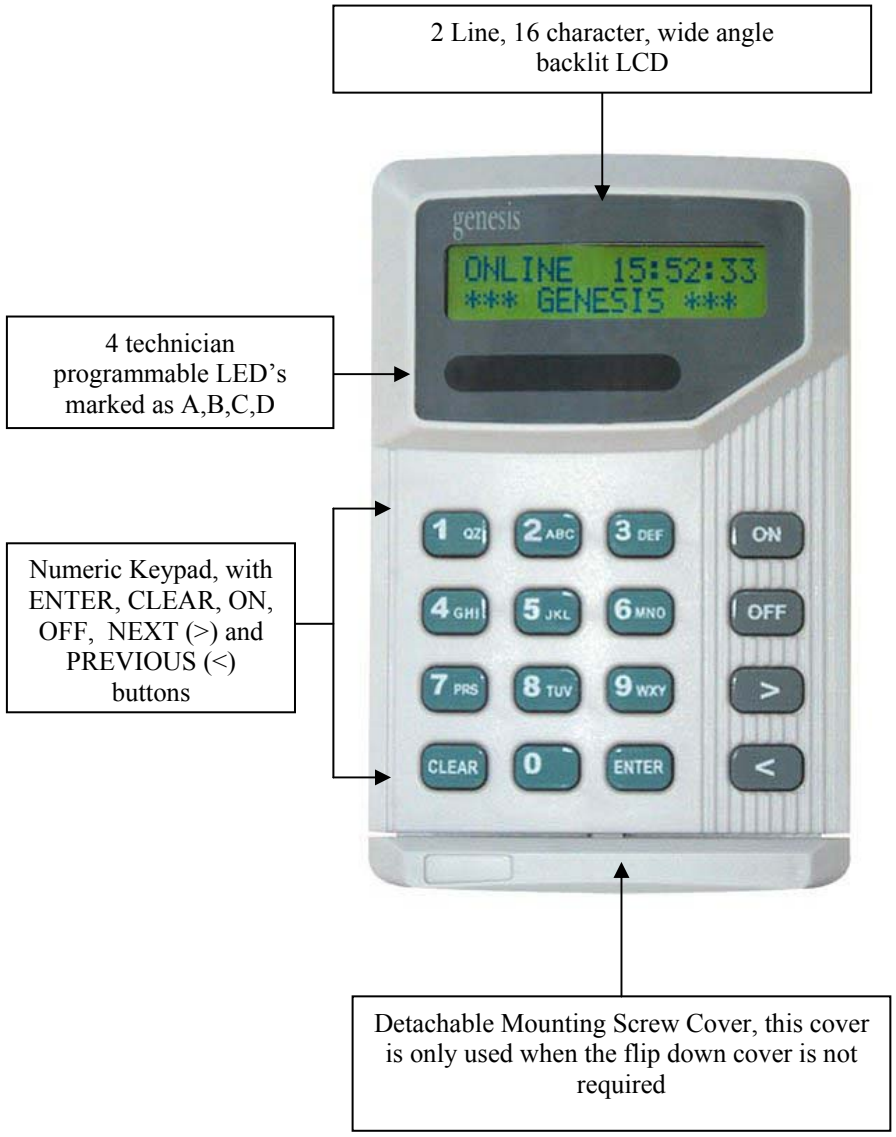
Power in terminals: The power in terminals are for the connection of 12v DC from an external power supply, to power both the RAS, and the Wiegand readers if they are connected.

Wiegand input #2: Wiegand input #2 has been supplied to provide connection for a Wiegand reader to allow In/Out reader functionality. Please note that this is ***not*** an additional door, and that it is only supplied for In/Out control.

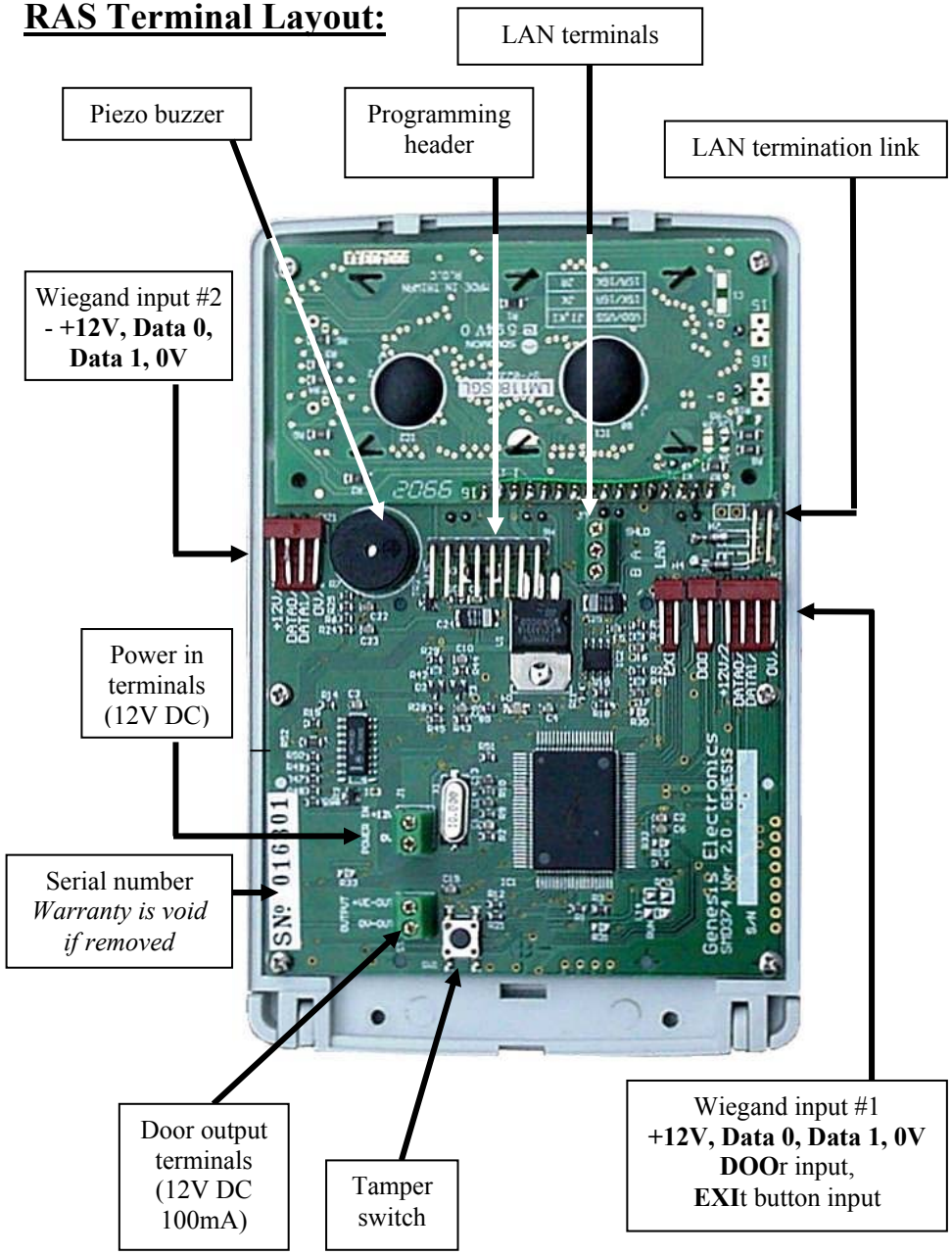
Piezo buzzer: The built in piezo buzzer is fully technician programmable, to allow for multiple functionality.

Programming Header: The programming header is supplied to allow easy *flash* upgrading to any future Genesis features. Please contact your distributor for more details.

Keypad Layout:



RAS Terminal Layout:



RAS Terminal Descriptions:

LAN terminals: The **A** and **B** LAN terminals are designed for the Genesis LAN to be terminated into. The **A** and **B** lines must *always* be connected to the **A** and **B** terminals on other Genesis devices. The shield (**SHLD**) terminal has been supplied to secure the cable shield only. Please refer to page 12 for further information on the Genesis LAN.

LAN termination link: The LAN termination link (**H1**) should only be fitted on the last device on the Genesis LAN. Please refer to page 12 for further information on the Genesis LAN.

Wiegand input #1: Wiegand input #1 has been supplied to provide a single door controller, via the Genesis RAS. The Wiegand output reader should be connected to the 4 pin header by the supplied header connection. From left to right, the terminals should be wired in the following order: **+12V** (red)**, Data 0**(green)**, Data 1**(white)**, 0V**(black).

DOOr input: This door monitoring input is intended to allow normal door controller functions. These include Door Open To Long (DOTL) and Door Forced. It is possible to fit dual end of line resistors to the DOOr input, allowing for door *tamper* monitoring.

EXIt button tnput: This EXIt button input is provided to allow connection of a door egress button. This button should be fitted with the same dual end of line resistor values as the door input, OEL must be programmed. If required, it is possible to use the egress input as a system input, through the Genesis Technician Software.