Challenger10 Installation and Quick Programming Manual

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Agency compliance N4131

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Content

Important information

Agency compliance

This product conforms to the standards set by Standards Australia on behalf of the Australian Communications and Media Authority (ACMA). UTC Fire & Security recommend enclosure covers remain fitted to maintain C-Tick compliance.

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Regulatory requirements for New Zealand

Some parameters required for compliance with Telecom's Telepermit requirements are dependent on the equipment (PC) associated with this device. In order to operate within the limits for compliance with Telecom's Specifications, the associated equipment shall be set to ensure that:

- There shall be no more than 10 call attempts to the same number within any 30 minute period for any single manual call initiation.
- The equipment shall go on-hook for a period of not less than 30 seconds between the end of one attempt and the beginning of the next attempt.
- Automatic calls to different numbers are spaced such that there is no less than 5 seconds between the end of one call attempt and the beginning of another.
- This equipment shall not be set up to make automatic calls to the Telecom '111' Emergency Service.
- The associated equipment shall be set to ensure that calls are answered between 3 and 30 seconds of receipt of ringing.

Refer to the *Challenger10 Programming Manual* for details about programming these parameters.

Preface

This is the *Challenger10 Installation and Quick Programming Manual*. It is part of the following suite of manuals for the Challenger10 intrusion detection and access control panel.

- The *Challenger10 Installation and Quick Programming Manual* is for installation technicians to install a Challenger panel.
- The *Challenger10 Users Manual* is suitable for most users of the Challenger10 system to perform everyday tasks.
- The *Challenger10 Administrators Manual* is for users and system administrators who need to manage the Challenger10 system via its text-based user interface.
- The *Challenger10 Programmers Manual* is for system administrators and installers who need to manage the Challenger10 system via its text-based user interface (in particular the “Install” menu”).

This manual describes:

- How to install a Challenger panel
- How to connect other equipment to the Challenger panel
- Challenger programming required for basic system setup

This manual is intended for use only by trained Challenger installation and configuration technicians.

Notes

- The permissions assigned to you may not allow you to do everything described in this manual. You may not be able to see all menu items described in this manual.
- A qualified service person, complying with all applicable codes, should perform all required hardware installation.

Product overview

Challenger is a scalable intrusion detection and access control system. Challenger panels use one, and optionally a second, RS-485 data bus (LAN) to provide continuous polling of remote arming stations (RAS) and data gathering panels (DGP). These devices extend the system's intrusion detection and access control functions.

Refer to the *Challenger10 Programming Manual* for details.

Product contents

Table 1 below lists the items that are shipped with TS1016 Challenger10.

Table 1: Challenger panel shipping list

Quantity	Item
1	Metal enclosure (with four spring standoffs fitted)
1	Challenger panel board
1	604 to RJ12 lead line, 1.5 m
1	Challenger10 Administrators Manual
1	Challenger10 User Manual
1	Challenger10 Installation and Quick Programming Manual
1	16 Volt AC plug pack
1	Tamper switch
1	Tamper switch metal bracket
1	Ring terminal
5	M3 x 14 pan head screws
15	3-way plug-on screw terminal connectors
10	2-way plug-on screw terminal connectors
1	Red battery lead with QC terminal
1	Black battery lead with QC terminal
1	1K 1/4 watt resistor
40	10K 1/4 watt resistors

Inspect the package and contents for visible damage. If any components are damaged or missing, do not use the unit; contact the supplier immediately. If you need to return the unit, you must ship it in the original box.

Before you begin

This section contains items that govern the installation of many different Challenger system devices (including but not limited to the Challenger panel).

When installing a Challenger panel, or any other parts of the system, you need to be aware of requirements for cabling and earthing, and plan accordingly.

NOTICE! A qualified service person, complying with all applicable codes, should perform all required hardware installation.

Disclaimer: This manual contains recommendations based on Australia and New Zealand codes. It is not an authoritative reference regarding codes and has not been reviewed by the responsible authorities. The codes may change and may not be reflected in this document.

Cabling requirements

This section contains recommendations for installers and electricians for the application and wiring of Challenger equipment with respect to:

- System earthing
- RS-485 data cable (LAN) cabling
- Power supply from LAN or from external 12 V supply

System earthing

The following recommendations are based upon Australian wiring regulations AS/NZS 3000:2000 Section 5.

- Each device's GND link (if applicable) must be removed.
- Connect the 230/16 VAC plug pack earth conductor to the Challenger panel's earth terminal (Figure 5 on page 11, item 3). Do not extend this wire to any device outside of the enclosure.
- Some Challenger devices have an earth lug (or stud) on the PCB and are fitted with a link labelled "GND" or "EARTH". In such cases, the device's GND or EARTH link must be removed. When configured correctly, there will be a resistance value greater than 100 kΩ between the device's earth lug (or stud), or power earth terminal (similar to Figure 5 on page 11, item 3), and any "C" or "0V" terminal on the device.
- Install LAN isolation devices between multiple buildings and maintain independent earthing systems. For example, use TS0893, TS0894, or TS0896 Isolation Interface modules to provide electrical isolation and/or to extend distance.

Earthing of one cabinet containing several devices. All devices designed for the system have earth connections via metal studs to the metal housing. Take care that these metal studs have a good connection to bare metal (no paint).

Earthing of panels in a single building. In a single building several cabinets or devices are earthed. A licensed electrician should check the integrity of the building earth system.

Earthing of panels in more than one building. If the wiring extends to separate buildings, use more than one common earth system. Install LAN isolation devices, such as TS0893, to isolate the system LAN between buildings to protect the system against differences in earth potential. See Figure 3 on page 7.

Guidelines for retrofitting a Challenger V8 system

When replacing a Challenger V8 panel with a Challenger10 panel in an existing installation:

- Where used, a device's GND or EARTH link must be removed (if fitted). **Note:** Challenger10 panels do not have a GND link.
- Where 230/16 VAC plug packs are used, connect the earth conductor to the device's power earth terminal (similar to Figure 5 on page 11, item 3).
- Connect one end only of the RS-485 data cable shield to a device's LAN earth terminal or earth lug (similar to Figure 5 on page 11, item 1).
- All other wiring compliant with Challenger V8 earthing recommendations via Communications Earth Terminal (CET) may remain unchanged.

Guidelines for new Challenger10 installations

When installing a Challenger10 panel in a new installation, follow the wiring requirements of this manual including:

- Where used, a device's GND or EARTH link must be removed (if fitted). **Note:** Challenger10 panels do not have a GND link.
- Where 230/16 VAC plug packs are used, connect the earth conductor to the device's power earth terminal (similar to Figure 5 on page 11, item 3).
- Connect one end only of the RS-485 data cable shield to a device's LAN earth terminal or earth lug (similar to Figure 5 on page 11, item 1).
- Connections to building earth via CET are no longer required.

Note: For new installations the earthing and configuration instructions in this manual supersede all previously-released installation instructions supplied with other devices (unless otherwise noted).

RS-485 LAN cabling

The cabling recommendations for the two RS-485 system LANs are:

- Use 2-pair twisted shielded data cable such as Belden 8723.
- In each segment of LAN cabling, connect one end only of the data cable shield to a device's LAN earth terminal. Join data cable shields where cable extends past a device that doesn't have a LAN earth connection.
- The length of the LAN cable run should not exceed 1.5 km, unless LAN isolation devices are used to extend the distance.

Power supply to RS-485 LAN devices

Devices on the LANs may be supplied from the panel's or DGP's + and – LAN power terminals. Use an external 12 V power supply (such as TS0073 2 A Power Supply) when:

- the device is more than 100 m (data cable length) from the panel
- electrical isolation is required
- more power is needed than can be provided by the LANs

When powering a LAN device from an external 12 V power supply:

- Connect the external power supply's '+' terminal to the device's '+' terminal. Do not connect the power supply + to the LAN +.
- Connect the external power supply's '-' terminal to the device '-' terminal.
- Connect the LAN cable black wire '-' to the device '-' terminal.

Figure 1: RS-485 LAN 1 or LAN 2 and earth system block diagram

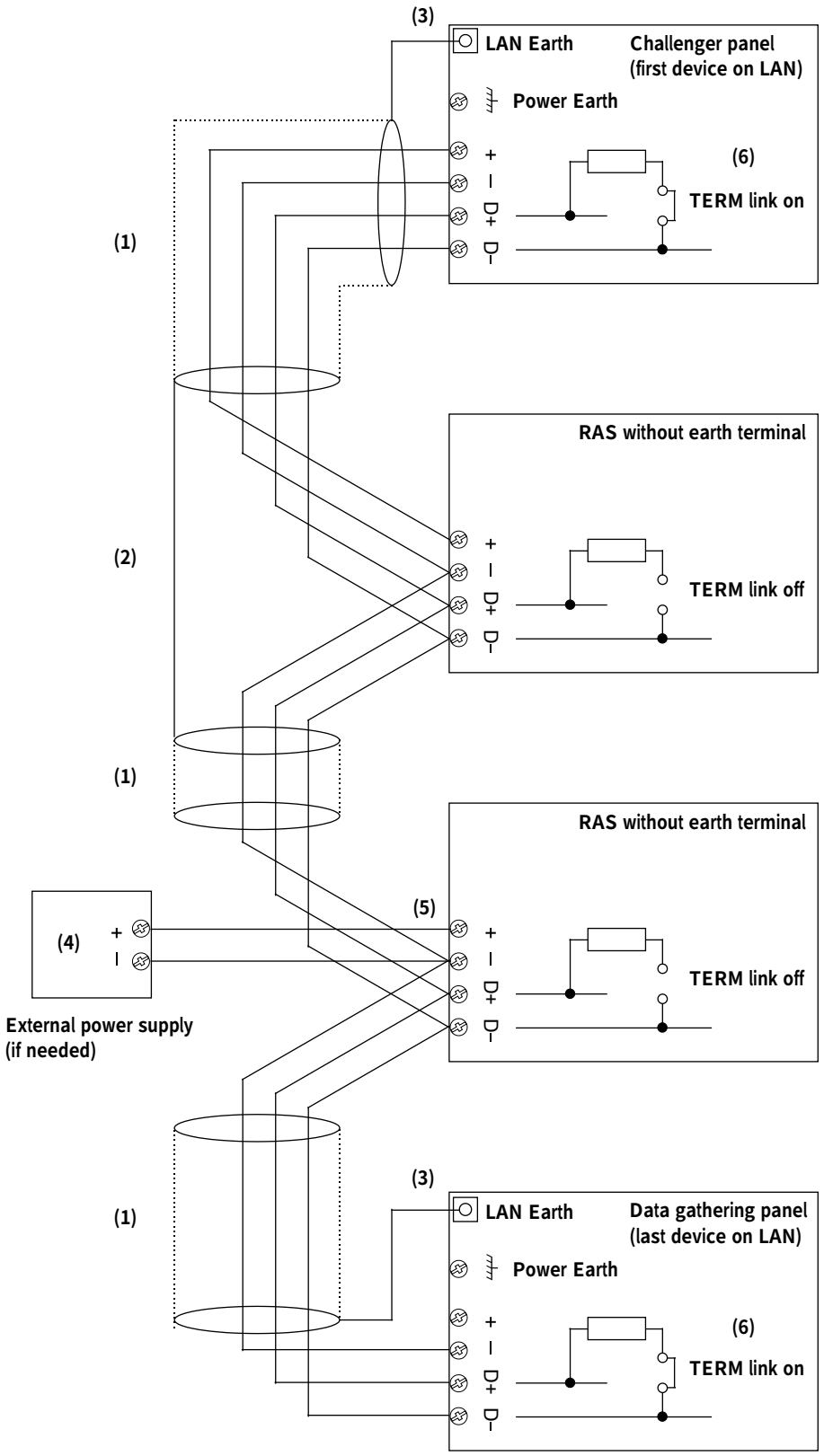


Figure 1 legend

Item	Description
1.	RS-485 LAN cable. We recommend the use of 2-pair twisted shielded data cable such as Belden 8723 for optimal performance.
2.	Join data cable shields where cable extends past a device that doesn't have a LAN earth connection.
3.	In each segment of LAN cabling, connect one end only of the data cable shield to a device's LAN earth terminal.
4.	External 12 VDC power supply (if needed).
5.	Do not connect the + from the external 12 VDC power supply to the + of the LAN.
6.	Terminate the control panel and the most distant device, or the devices at the ends of the two longest LAN cable runs, as applicable.

System configurations

A Challenger system's RS-485 LANs (LAN 1 or LAN 2) may be configured in a variety of ways:

- Straight LAN, where the Challenger panel is at one end of a LAN cable run
- Star LAN, where multiple LAN cable runs are used in a branched configuration
- Multi-building, where the LAN extends to more than one building

LAN 1 is required and LAN 2 is optional. Each LAN must be independently configured and terminated.

Straight LAN

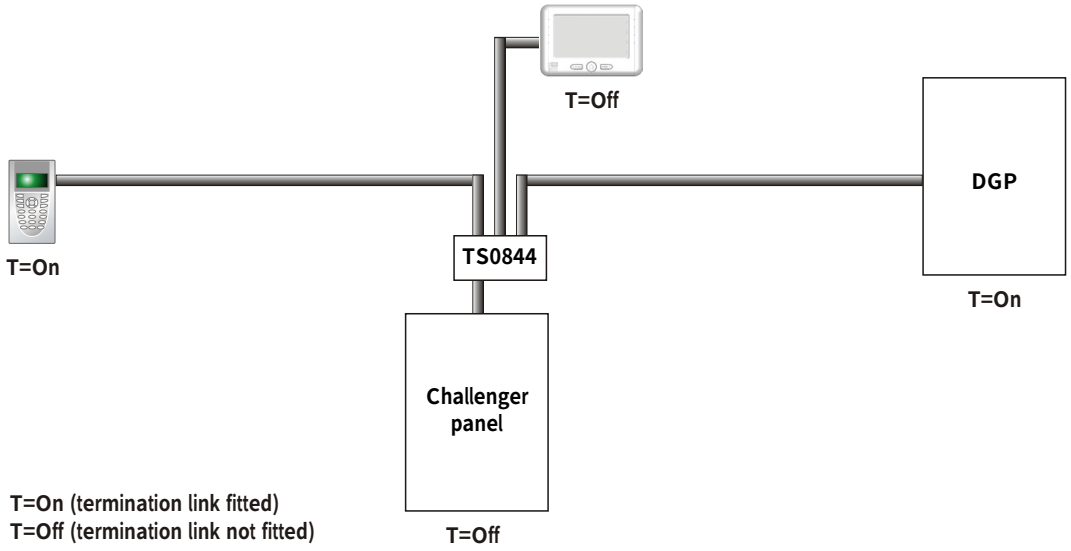
In a straight configuration (Figure 1 on page 5), the Challenger panel is at one end of the LAN cable run and all other devices are connected to the LAN cable. The TERM links would be on for the Challenger panel and for the last device on the LAN.

Star LAN

In a star configuration, the LAN has at least two branches (Figure 2 on page 7) optionally connected via a TS0844 Power Distribution Board (see "TS0844 Power Distribution Board" on page 8). The TERM links would be on for the two devices at the ends of the two longest cable runs.

Note: A star LAN configuration may consist of a number of cable runs (branches). LAN termination should be set to ON only at the devices at the far ends of the two longest branches. A star LAN that has multiple branches in excess of 100 m may need to use LAN isolation devices such as TS0893 LAN Isolation Interface modules to isolate the LAN segments that do not have LAN termination set to ON.

Figure 2: Star LAN configuration



Multi-building or long-distance LAN cabling

If the RS-485 LAN extends to more than one building, each building must have its own earth system. LAN isolation devices, such as TS0893 LAN Isolation Interface modules, are used to isolate the system LAN between buildings to protect the system against differences in earth potential.

Figure 3 below shows the use of two TS0893 modules to extend the RS-485 LAN across two electrical installations. Each TS0893 module has a pair of termination links, used to terminate (if applicable) the LAN segment on each side of the module's isolation barrier.

Figure 3: RS-485 LAN cabling between two buildings

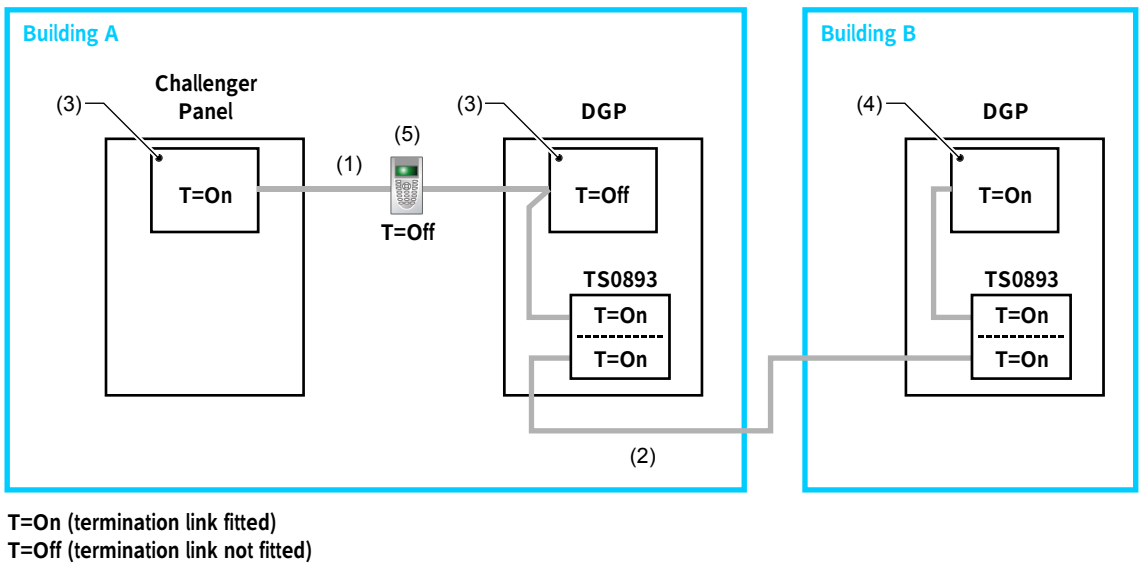


Figure 3 legend

Item	Description
1.	LAN segment 1 extends from the Challenger panel to one side of the TS0893 LAN Isolation Interface. Termination is ON at the panel and the panel's side of the TS0893. Maximum cabling distance for segment 1 is 1500 metres.
2.	LAN segment 2 extends from the TS0893 in building A to the TS0893 in building B. Termination is ON at both TS0893 modules. Maximum cabling distance for segment 2 is 1500 metres.
3.	Earth point on Challenger panel connected to building earth via plug pack earth wire (green).
4.	Earth point on remote device connected to building earth via plug pack earth wire (green), or earth wire from local power supply.
5.	Plastic-body LAN device. Join data cable shields where cable extends past a device that doesn't have a LAN earth connection.

Using LAN devices to facilitate cabling

Various LAN devices may be used to provide electrical isolation and to reduce cabling costs. LAN isolation devices can also be used to extend the distance of LAN cabling beyond what can be achieved by a single cable run of 1.5 km. LAN devices include the following:

- **TS0844 Power Distribution Board.** The TS0844 module can be used in either data or power mode, as set by a pair of onboard links. The TS0844 module expands the number of physical connections that can be made to the panel's power or data output terminals.
  - In data mode, each TS0844 module provides five sets of LAN out connections and five sets of + and – auxiliary power output terminals.
  - In power mode, each TS0844 module provides 10 sets of + and – auxiliary power output terminals.

  A TS0844 module is shown in Figure 2 on page 7.
- **TS0893 LAN Isolation Interface.** Provides an optical isolation barrier between components on a Challenger (or Intelligent Access Controller) LAN. The TS0893 can be also used as a LAN repeater, with up to three stages cascaded together to increase the maximum LAN cabling run from 1.5 km to 6 km. TS0893 modules are shown in Figure 3 on page 7.
- **TS0896 RS-485 to Fibre Optic Interface.** A pair of TS0896 modules, with suitable optical fibre cable, may be used to extend the LAN to remote buildings or locations within a building (for example where unused optical fibre cable already exists).
- **TS0098 Challenger IP LAN Adaptor:** Multiple IP LAN Adaptor modules enable Challenger LAN data to be carried over an IP network and to be converted back to RS-485 communications for connection to LAN devices.

Refer to the Interlogix Web site at www.interlogix.com.au for details and images of LAN devices.

Installing the control panel

See Figure 4 below for overall details of a TS1016 Challenger panel installed in a TS0307 Universal Enclosure.

Figure 4: Challenger panel board mounted in enclosure

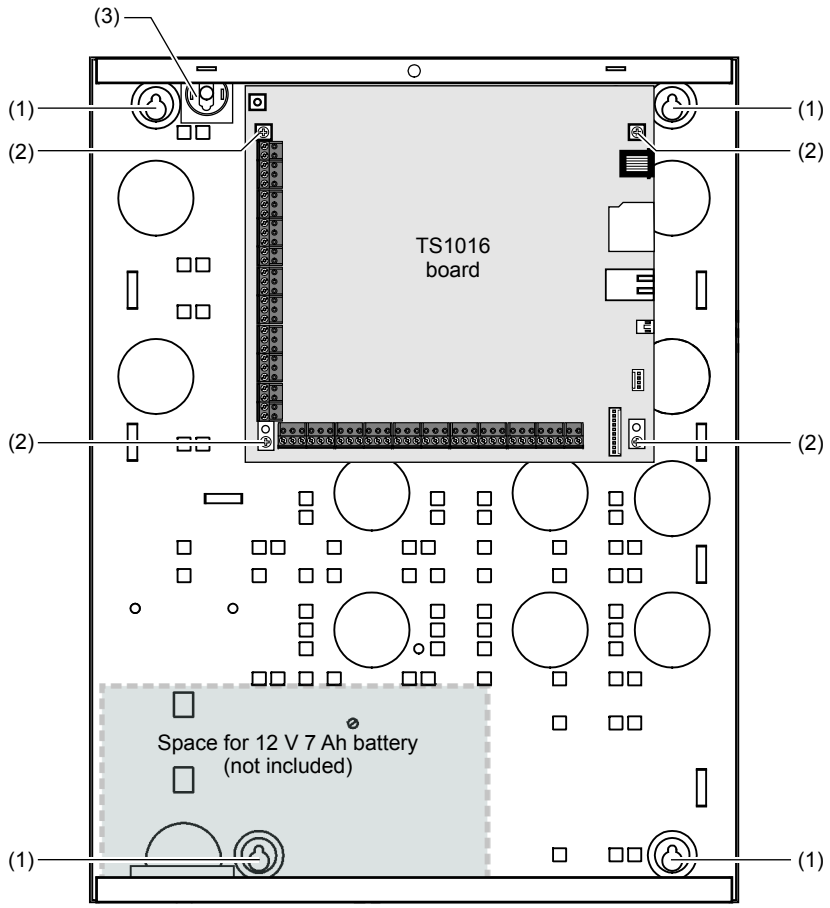


Figure 4 legend

Item	Description
1.	Enclosure mounting points
2.	Board mounting points
3.	Location of tamper switch

Installation guidelines

Challenger panels are designed, assembled and tested to meet the requirements related to safety, emission and immunity with respect to environmental electrical and electromagnetic interference, as of current relevant standards.

In addition to the general installation guidelines, installers must adhere to any country dependent requirements of local applicable standards. Only a qualified electrician or other suitably trained and qualified person should attempt to wire this system to mains power (if applicable) or to the public telephone network.

The general installation guidelines are as follows:

- Mount the unit using screws or bolts through the four mounting holes in the base. Ensure that the unit is mounted on a flat, solid, vertical surface so that the base will not flex or warp when the mounting screws or bolts are tightened.
- Allow 50 mm clearance between the equipment enclosures mounted side by side, and 25 mm between the enclosure and any side wall or ceiling.
- The Challenger panel is powered and earthed via a 16 Volt AC plug pack (supplied). A power outlet (GPO) must be in proximity to the panel. Only qualified Electricians should provide a GPO.
- The Challenger panel has an onboard dialler. Telephone connections must be in proximity to the panel. Only ACMA Cablers should provide telephone cabling.
- If the upper and/or lower cabinet entry cable holes are used to route wiring into the control panel, always use a proper pipe fitting system by means of an appropriate conduit and junction box. For this purpose, use only materials of suitable flammability class.
- Avoid loops of wire inside the control panel cabinet and route cables so that they do not lie on top or underneath the printed circuit board. The use of cable ties is recommended and improves neatness of the wiring within the box.
- The battery used with this unit must be made of materials of suitable flammability class (HB or better).
- Install equipment in a clean environment and where environmental conditions are within the range specified in the product data sheet.

Installation procedures

A Challenger panel may need to be fitted with various add-on modules and interfaces. See each product's installation instructions for details.

Note: Expander modules must not be fitted to a powered Challenger panel. Remove power before plugging an expander module onto the Challenger PCB.

To mount the Challenger enclosure:

1. Fix the enclosure to the wall via the enclosure's four mounting holes (Figure 4 on page 9, item 1).

   Make sure the enclosure is level, and the tamper switch (item 3) location isn't sitting over a line of mortar if you're installing the enclosure on a brick wall.

To mount the tamper switch:

The two-way tamper switch detects removal of the cover from the enclosure, and removal of the enclosure from the wall.

1. Insert the tamper switch into its metal bracket.

2. Insert the bracket with tamper switch into the 1 cm slot on top left-hand side of the enclosure (Figure 4 on page 9, item 3).

To mount the Challenger board to the enclosure:

1. Remove the Challenger board from its antistatic bag.
2. Use four M3 x 14 pan head screws to fix the Challenger board to the enclosure's standoffs (Figure 4 on page 9, item 2).
3. Slide the board's terminal connectors together and mount them to the board.

Connections

See Figure 5 below for the locations of connectors and other items. See "Cabling requirements" on page 2 for recommendations for the application and wiring of Challenger equipment.

Figure 5: Challenger10 board details

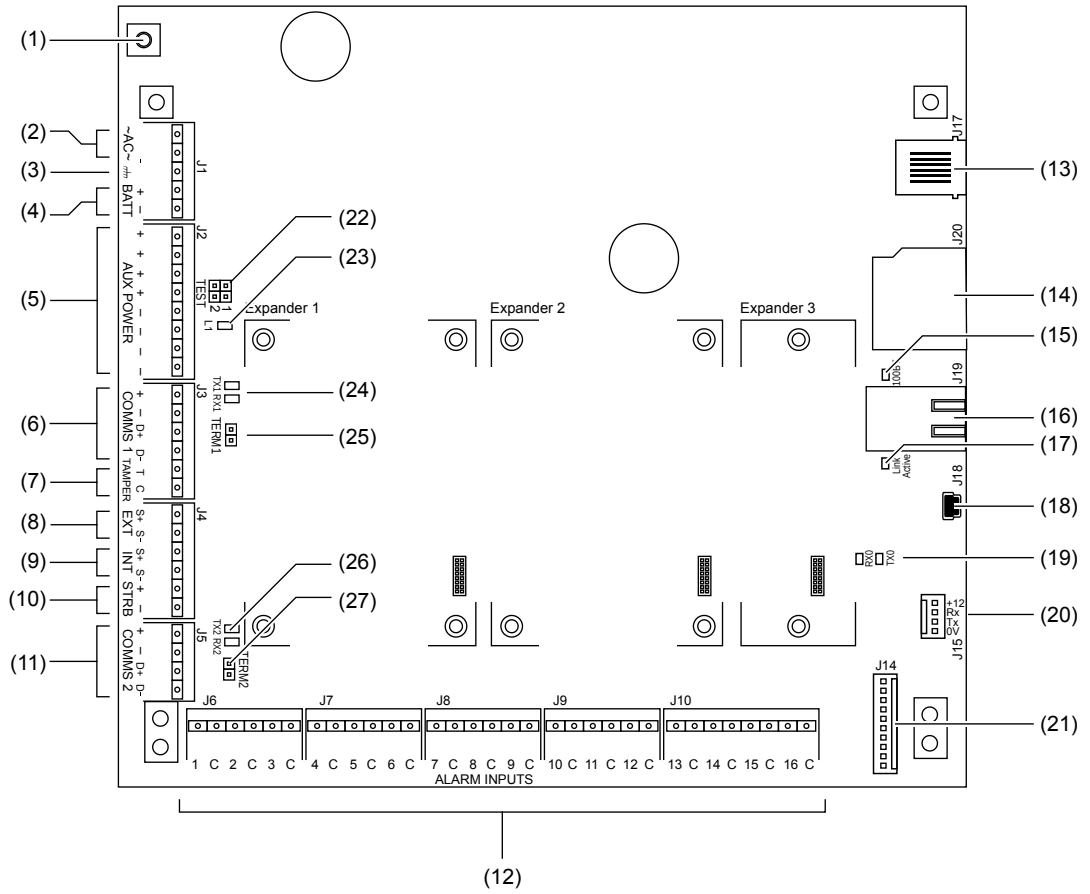


Figure 5 legend

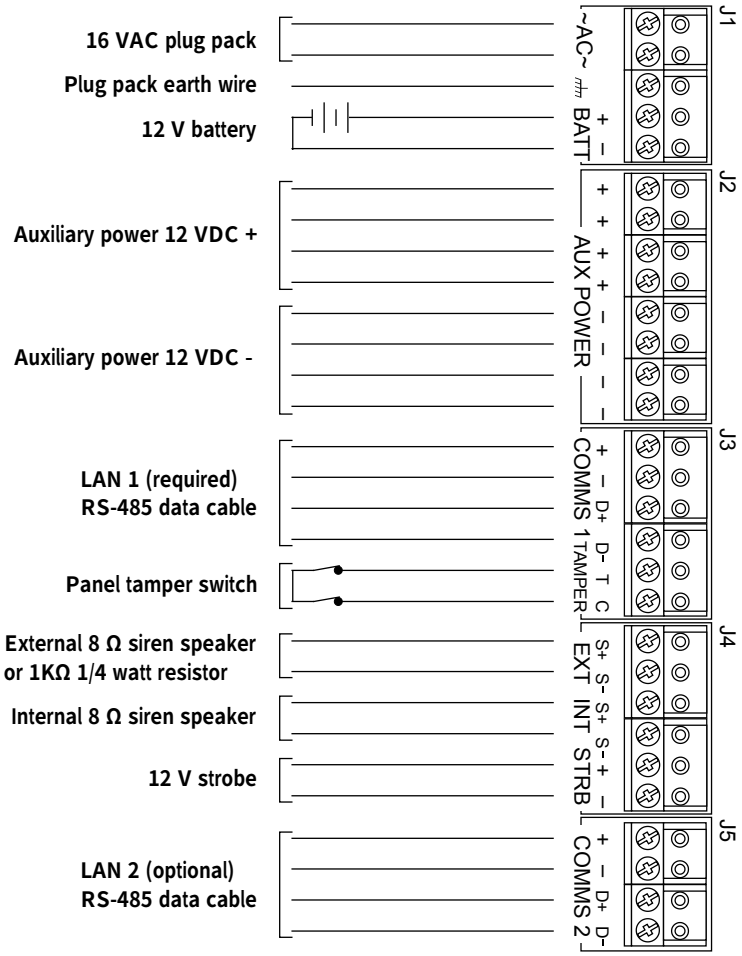
Item	Description
1.	Connect one end of each LAN cable shield to the ring terminal and fasten with M3 screw to the Challenger panel board's LAN earth terminal.
2.	Connect the power terminals to a 16 Volt AC plug pack. Maximum current drawn by the panel with no peripheral devices connected is approximately 200 mA.

Item	Description
3.	Connect the plug pack earth wire (green) to the power earth terminal.
4.	Connect the + and – terminals to a 12 V sealed lead acid battery (7.0 Ah maximum), not supplied.
5.	Connect the + and – auxiliary power output terminals to devices that require 12 Volt DC power, such as detectors. See “Auxiliary power terminals” on page 14.
6.	Connect the D+ and D– terminals to the RS-485 data cable for LAN 1. If the + and – terminals are used, consider the current draw as part of the auxiliary power output. See “Auxiliary power terminals” on page 14.
7.	Input and common terminals for panel tamper switch (supplied). Short circuit for sealed, open circuit for unsealed. Must be sealed if not used. Can only be used with normally closed contacts such as the panel tamper switches.
8.	Connect the S+ and S– terminals to an external 8 Ω siren speaker. If an external siren is not used, connect the S+ and S– terminals to a 1K 1/4 watt resistor (supplied). The maximum current draw for the external 8 Ω siren and the strobe is 700 mA. The internal and external siren speaker outputs are relay 16 and are mapped to event flag 1.
9.	Connect the S+ and S– terminals to an internal 8 Ω siren speaker. If an internal siren is used, consider the current draw as part of the auxiliary power output. See “Auxiliary power terminals” on page 14.
10.	Connect the + and – terminals to the strobe. The maximum current draw for the external 8 Ω siren and the strobe is 700 mA. The strobe output is relay 2 and is mapped to event flag 2.
11.	Connect the D+ and D– terminals to the RS-485 data cable for LAN 2 (if required). If the + and – terminals are used, consider the current draw as part of the auxiliary power output. See “Auxiliary power terminals” on page 14.
12.	Zone input terminals. See “Zone inputs” on page 15.
13.	RJ-12 socket to telephone system (dialler). See “Telephone connection” on page 18.
14.	Slot for SD card.
15.	100BT LED on when Ethernet speed is 100 Mbps. See “LED indications” on page 18.
16.	Ethernet port.
17.	Link Active LED flashes to indicate Ethernet activity. See “LED indications” on page 18.
18.	USB port.
19.	Transmit and receive LEDs to indicate data transfer over J15 (serial port). See “LED indications” on page 18.
20.	J15 terminals (also called STU port) for RS-232 serial connection to computer. See “J15 serial port” on page 18.
21.	J14 10-way cable socket for TS0840, TS0841, or TS0842 relay or output expansion modules. **Note:** The J14 connector can provide power to one relay controller. If connected to a device that will be powered from an auxiliary power supply (not powered by the Challenger panel), then you must ensure that the +12V wire is not connected.
22.	Test links 1 and 2. Both links are used when updating firmware (see “Firmware upgrade process” on page 32). Link 1 is used when resetting the master installer code (“Restoring the default installer PIN” on page 27) and for defaulting the panel (“Clearing the memory via the Challenger panel PCB” on page 24).

Item	Description
23.	LED 1 flashes slowly to indicate panel operation, and flashes quickly during firmware update or panel default.
24.	Transmit and receive LEDs to indicate activity on LAN 1. See “LED indications” on page 18.
25.	TERM link for LAN 1. See “Terminating the RS-485 LAN” on page 14.
26.	Transmit and receive LEDs to indicate activity on LAN 2. See “LED indications” on page 18.
27.	TERM link for LAN 2. See “Terminating the RS-485 LAN” on page 14.

See Figure 6 below for connection details for terminal blocks J1 to J5.

Figure 6: Connection details for terminal blocks J1 to J5



16 VAC plug pack

Notes

- Use the 16 VAC plug pack supplied with the Challenger panel.
- When installing plug packs, do not power the unit until you have terminated all necessary wires and checked that you do not have a short circuit. Fused plug packs cannot be replaced under warranty as the fuse operation can only be caused by a direct short circuit.

Auxiliary power terminals

Connect the + and – auxiliary power output terminals to devices that require 12 VDC power, such as detectors. Four sets of auxiliary power output terminals are provided: if you need more than four connections you can use a TS0844 board to increase the number of terminals (see “TS0844 Power Distribution Board” on page 8).

RS-485 LANs

Use 2-pair twisted shielded data cable such as Belden 8723 to connect the Challenger panel to system devices such as RASs and DGPs.

- Connect the + terminal to the red wire. The + terminal provides +12 V to LAN devices such as RASs (within 100 m cabling distance).
- Connect the – terminal to the black wire. The – terminal provides -ve DC to LAN devices such as RASs, and common 0 V for the RS-485 LAN.
- Connect the D+ terminal to the white wire. The D+ terminal is data positive.
- Connect the D– terminal to the green wire. The D– terminal is data negative.
- Connect the data cable shield to the LAN earth connection (Figure 5 on page 11, item 1).

The RS-485 LAN may be used to power devices up to 100 m cabling distance from the Challenger panel. See “Power supply to RS-485 LAN devices” on page 4 for details.

One set of terminals is provided for each LAN, if you need more than one connection you can use a TS0844 board to increase the number of terminals (see “TS0844 Power Distribution Board” on page 8).

Terminating the RS-485 LANs

All Challenger LAN devices (including the panel) use a 470 Ω LAN termination resistor where required. LAN termination resistors are used to set the impedance of the LAN to around 220 Ω in order to minimise noise. The termination resistor may be external or onboard (devices with an onboard resistor use a link or a DIP switch to set the LAN termination to ON).

A Challenger LAN should have only two devices with the LAN termination set to ON (or the LAN termination resistor fitted):

- In a straight LAN configuration (Figure 1 on page 5) the TERM links are ON at the Challenger panel and the most distant device.
- In a star LAN configuration (Figure 2 on page 7) the TERM links are ON at the two devices that are the furthest apart (and OFF at the Challenger panel, if it’s not at the end of one of the longest cable runs). See also “Star LAN” on page 6.

In a completely-connected (but powered down) system, you can check for correct LAN termination by measuring the resistance across the Challenger panel’s D+ and D- terminals:

- 0 Ω indicates a short circuit in the cabling

- 160 Ω or less indicates that three or more devices are terminated
- 220 Ω is good (two devices are terminated)
- 470 Ω or more indicates that less than two devices are terminated

Checking LAN performance

Use Install menu option 23 Poll Errors to check for poll errors on the LANs. If the rate of poll errors seems excessive, check the LAN cabling and termination.

Zone inputs

Zone inputs are also known as alarm inputs. A Challenger10 system can receive alarm signals from:

- The Challenger panel's onboard inputs numbered 1 to 16
- Inputs numbered 17 to 496 via Data Gathering Panels (DGPs) on LAN 1
- Inputs numbered 497 to 1008 via DGPs on LAN 2

Note: Input numbers in the range 1000 to 1008 will not report CID alarms.

Each pair of zone input terminals may be connected to an alarm system device, such as a detector or reed switch.

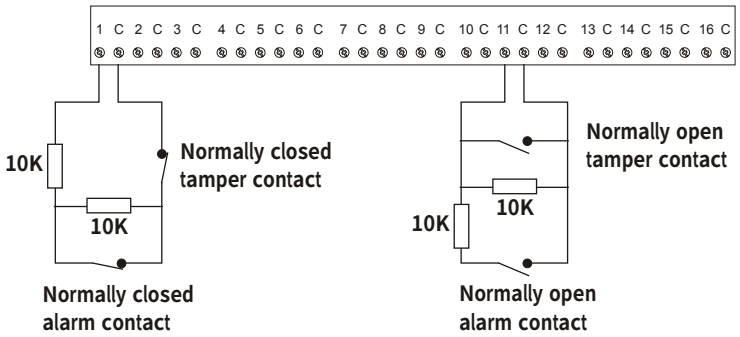
By default, the Challenger system can monitor zone inputs for four states (sealed, unsealed, open circuit, and short circuit). This is accomplished by using two end-of-line (EOL) resistors in each zone input circuit, as shown in Figure 7 below.

Note: The Challenger system's EOL resistor value is configurable in system options. The default value is 10K, and all examples in this manual are based on the default value.

Install EOL resistors in zone input circuits at the end of the circuit. If an alarm device is connected, place the EOL resistors at the device's connections. If a zone input is not used, you don't need to connect an EOL resistor if you program the corresponding input number as type 10 (spare).

Tip: Use sleeves on the resistor leads to prevent accidental shorting.

Figure 7: Four-state monitored zone input circuits

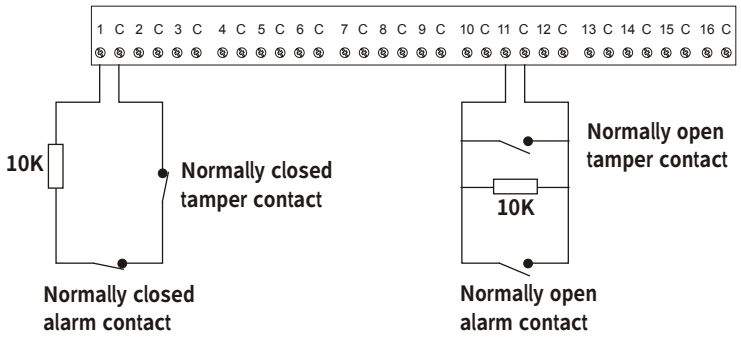


When four-state monitoring is used, the panel uses the circuit's resistance to determine the state of the zone input:

- 10 kΩ indicates sealed
- 5 kΩ or 20 kΩ indicates unsealed
- Open circuit indicates input tamper
- Short circuit indicates input tamper

Alternatively, the Challenger system can be configured to monitor zone inputs for two states (sealed and unsealed). This is accomplished by using one 10 kΩ resistor in each circuit, as shown in Figure 8 below.

Figure 8: Two state monitored zone input circuits



The panel uses the circuit's resistance to determine the state of the zone input:

- 10 kΩ indicates sealed
- Open circuit or short circuit indicates unsealed

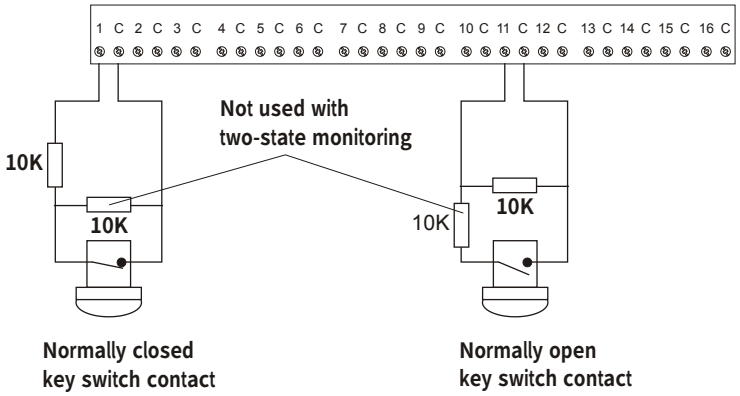
To use two-state monitoring for all zone inputs, Input Tamper Monitoring must be set to No (Install menu option 7 System Options).

Note: When the system is used in 2-state configuration, inputs can only report sealed and unsealed states. This prohibits the use of input types that need to detect short or open states. See the *Challenger10 Programming Manual* for details.

Special zone input types

Zone inputs programmed as area control type inputs can also be used to turn areas on and off (as opposed to entering a PIN on a keypad). These inputs do not have areas assigned to them: their functions are determined by assigning an alarm group to them.

Figure 9: Wiring of key switches for input types 6 and 31



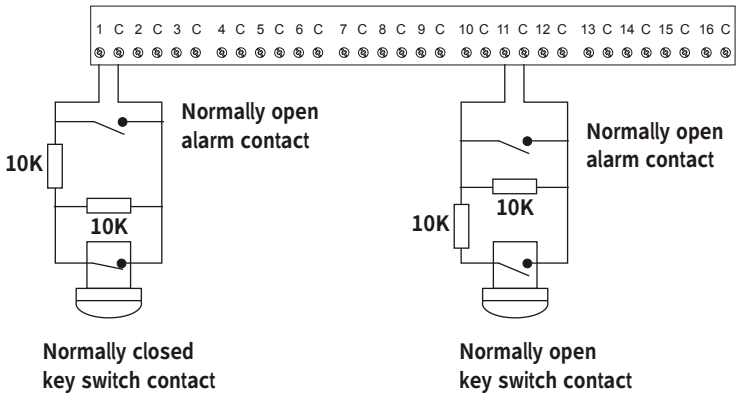
Input type 6 is used for momentary area control.

- 10 kΩ (normal state of key switch) indicates sealed.
- 5 kΩ or 20 kΩ indicates unsealed (the programmed alarm group functions are performed).

Input type 31 is used for toggling area control. When the input switches to unsealed, the areas secure. When the input seals, the areas are in access.

- 10 kΩ (normal state of key switch) indicates sealed (turn areas off).
- 5 kΩ or 20 kΩ indicates unsealed (turn areas on).

Figure 10: Wiring of key switch and alarm contact for input type 33



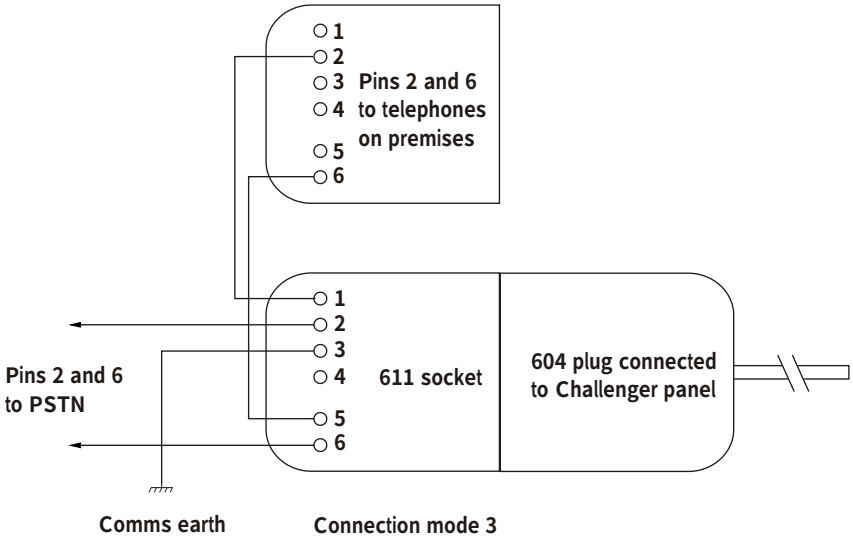
Input type 33 (24-hour alarm & isolate input) is used to wire a key switch and an alarm contact to the same input. For example, a key switch used to isolate a shop's input in a shopping centre where only one input is available for each shop. Alarm is generated when input changes from sealed to open or short.

- 10 kΩ (normal state of key switch) indicates sealed
- 5 kΩ or 20 kΩ indicates unsealed (isolated, no alarm generated)
- Open circuit generates a tamper alarm
- Short circuit generates an alarm

Telephone connection

See Figure 5 on page 11, item 13. The Challenger panel is supplied with a pre-wired 604 plug for connection to a 611 socket for PSTN in connection mode 3 for dialler reporting formats (see Figure 11 below).

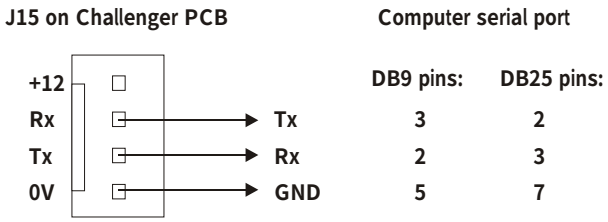
Figure 11: Line connections for 611 socket for dialler reporting formats



J15 serial port

See Figure 5 on page 11, item 20. The J15 port (also called STU port) may be used for connection to a management software computer or to a printer. Figure 12 below details the required connections from the J15 terminals to either a DB9 or a DB25 serial connector (to a management software computer).

Figure 12: Wiring details for computer connection



LED indications

Refer to Figure 5 on page 11:

- L1 (item 23) flashes slowly to indicate normal panel operation, and flashes quickly during reset mode (“Clearing the memory via the Challenger panel PCB” on page 24) or firmware update (“Firmware upgrade process” on page 32).
- Tx0 (item 19) flashes to indicate data being sent from the Challenger to a device connected to J15 (serial port). On solid when J15 is ready (inactive).

- Rx0 (item 19) flashes to indicate data being received from device connected to J15 (serial port).
- Tx1 (item 24) flashes to indicate the Challenger panel is polling remote units (RASs and DGPs) on LAN 1. The Tx1 LED should always be active.
- Rx1 (item 24) flashes to indicate remote units on LAN 1 are replying to polling.
- Tx2 (item 26) flashes to indicate the Challenger panel is polling remote units (RASs and DGPs) on LAN 2. Tx2 flashes quickly for 1 second each minute when nothing is polled on LAN 2.
- Rx2 (item 26) flashes to indicate remote units on LAN 2 are replying to polling.
- Link active (item 17) flashes when Ethernet is active.
- 100BT (item 15) on when Ethernet speed is 100 Mbps.

Initial programming

This section describes basic initial programming via a RAS. Advanced programming is typically performed via management software such as Titan, Security Commander, or Forcefield, so basic programming also includes the items required to connect with a management software computer. Refer to the documentation provided with the management software for additional details.

Challenger panel programming is described in detail in *Challenger10 Programming Manual*. This section describes the following programming steps that are part of the installation process:

- "Disarming the system" below
- "Accessing the Challenger menu" below
- "Clearing the memory" on page 24
- "Working with multi-area systems" on page 26
- "Changing the default installer PIN" on page 26
- "Enabling communications" on page 27

An LCD RAS configured as RAS 1 must be connected to LAN 1.

Disarming the system

A new (or defaulted) Challenger10 panel is armed, and the RAS LED for area 1 illuminates. Previous Challenger versions armed all areas.

The system must be completely disarmed before you can access the Install menu on a system keypad (LCD RAS).

To disarm the system:

1. The default message displays on the top line of the RAS. This line may display "There Are No Alarms In This Area", the time and date, or a custom message.

2. Press 4346 (the default Installer code), press [OFF] [0] (to select all areas), and then press [ENTER].

Tip: When using the system keypad, numbers are entered in sequence. For example "press 4346" means press the 4 button, the 3 button, the 4 button, and then the 6 button.

Accessing the Challenger menu

The Challenger menu system, as displayed on an LCD RAS, has a first-level User menu and a second-level Install menu (the Install menu is option 19 of the User menu). Access to the Install menu is typically limited to installers or administrators.

This manual describes the Challenger programming that you may need for basic system setup. Refer also to:

- *Challenger10 Programming Manual* for details of Challenger system programming via the Install menu.
- *Challenger10 Administrators Manual* for details of Challenger programming and operation via the User menu.

User menu options

As part of the basic system setup you may need to use the following User menu options:

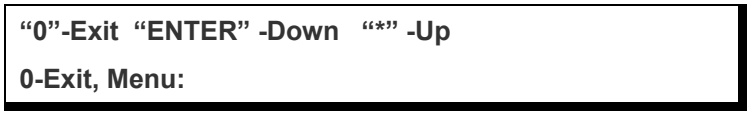
- Option 12, Test Input
- Option 14, Program Users
- Option 15, Program Time & Date
- Option 20, Door & Floor Groups
- Option 21, Holidays

To access the User menu:

Use the following steps to access the Challenger User menu when the Code prompt is displayed on the bottom line of the RAS.

1. Press [MENU*].

2. Enter 4346 (default Installer code), and then press [ENTER].



3. You can now select the programming option you need from the User menu. To access the Install menu, enter 19 (Install menu option number), and then press [ENTER].

You can now select the programming option you need from the Install menu (see Table 2 on page 22).

Install menu options

The Install menu options and the default settings of particular importance to installers are listed in Table 2 on page 22.

Table 2: Install menu options and selected default values

Install menu option	Description
1. Input Database	Program all physical inputs on the control panel, DGP, or plug-in expander, and inputs that are activated by macros. The default values for inputs 1 to 16 are: • Input type is set to type 2 Secure Alarm • Report ID type is set to 25-140, General Alarm • Siren event flag is selected • Event flag 2 Secure Alarm is selected, and is mapped to relay 2 Strobe Output
2. Area Database	Program up to 99 areas. Areas determine how the system is partitioned, and therefore provides the ability to limit users to performing functions only in the areas relevant to their role. The default values for areas are: • Exit time is set to 60 seconds • Entry time is set to 30 seconds • Siren event flag is set to 1
3. RAS Database	Program the system's remote arming stations (RASs). RASs provide alarm system control, such as area arming or disarming; and provide access control, such as unlocking a door for a user. You may need to change the RAS's default area LED assignments. RAS 1 is programmed as an LCD RAS, to be polled, and is assigned Alarm Group 2 (Master RAS).
4. DGP Database	Program any data gathering panels (DGPs) used to send information to the control panel and to provide added access control functionality.
5. Alarm Groups	Program alarm groups to enable users, inputs, and arming stations to control the system's alarm control functionality.
6. Timers	Program the system's timers if the default values are not suitable. The default values for timers are: • Each user category time is set to 0 minutes • Access test time is set to 15 minutes • Secure test time is set to 15 minutes • Warning time is set to 5 minutes • Delay holdup time is set to 60 seconds • Suspicion time is set to 15 seconds • Service time is set to 30 minutes • Local alarm reminder time is set to 0 minutes • Individual testmode time is set to 5 minutes • Door unlock time is set to 5 seconds • Tester event flag time is set to 15 seconds • Siren time is set to 8 minutes • Mains fail time is set to 0 minutes • Card to code time is set to 8 seconds

Install menu option	Description
7. System Options	Program the system options if the default values are not suitable. The default values for system options are: • Film Low is set to 800 • Film Out is set to 1100 • Input tamper monitoring is selected • Display one input at a time is selected • User name file is selected • EOL resistor is 10K
8. Auto Reset	Program the Challenger to automatically reset alarms.
9. Communications	Program the communications devices and paths for reporting to a remote monitoring company, connecting to management software computers, and so on.
10. Text Words	If your system requires text words not found in the standard text word library, you can program up to 400 custom (site-specific) text words.
11. Version	Display the system's device types and firmware version numbers.
12. Lamp Test	Toggle the on/off state of all RAS LEDs in the system so that they may be checked.
13. Time Zones	Define time slots (hard time zones) in which certain events can take place.
14. Defaults	Reset the panel to default settings.
15. User Category	User categories provide timing for areas that are configured for timed disarming or for delayed arming (via vault programming).
16. Map Relays	Link relays (outputs) to event flags and/or time zones. The default values for relay mapping are: • Relay 2 (panel strobe output) is mapped to event flag 2. • Relays 16, 32, 48, 64, and so on (panel siren driver) are mapped to event flag 1. The sixteenth relay assigned to each DGP (DGP siren drivers) is mapped to event flag 1.
17. Arm/Disarm via Tz	Define arm/disarm timer programs. Areas being armed or disarmed automatically (by time zone) do not require any user action.
18. Vaults	Define areas that, when armed, will automatically arm other areas after a specified time.
19. Area Linking	Define a common area that is armed only when the last shared area is armed.
21. Input Shunts	Define shunt timers to inhibit inputs from generating alarms during a specified interval.
22. TZ to Follow Relays	Define soft time zones. Time zones 26 to 41 can be programmed to be valid when a relay is active, and invalid at other times.
23. Poll Errors	Display the number of errors detected in communications between the control panel and the devices connected to the control panel.
24. Download	Download access control data for Intelligent Access Controllers (4-door or 4-lift DGPs) that may not have been downloaded automatically.
25. Display Last Card	Display the site number and ID number of the last card read by a reader connected directly to the control panel (doors 1 to 16 on LAN 1 and doors 65 to 80 on LAN 2).

Install menu option	Description
26. Diagnostics	Skip this option. It is reserved for factory use.
28. Remote Controllers	Use this option to access additional programming menus for remote devices such as a RAS, an Intelligent Access Controller DGP, or a TS0862 Smart Door Controller (which is addressed and polled as a RAS).
29. Panel Volts & Currents	Display the values of the panel's voltage and current consumption.
31. Battery Testing	Program automatic battery testing or perform manual battery testing.
32. Custom Message	Create a custom message (or use the panel's time and date) for the top line of the RAS's initial LCD screen.
33. Program Next Service	Program the date of the next service call, and a custom message on the LCD to call the installer.
34. Program Summary Event Flags	Program event flags to be triggered on system-wide events such as mains failures or DGPs going offline.
35. Program Macro Logic	Program macro logic equations for activating inputs or event flags based on the conditions of one to four macro inputs (event flags or relays).
36. Area Groups	Area groups include one or more areas that can be more easily managed, for example armed or disarmed simultaneously. Each area in an area group must be configured to allow certain users (as specified by the user's alarm group) to have permissions for arming, disarming, alarm reset, and for timing.

Clearing the memory

When installing a new panel, or upgrading the firmware on an existing panel, we recommend that you default the panel before programming it.

Note: All custom programming will be erased. Back up any data you need before using these procedures.

The panel can be defaulted in two ways, see:

- "Clearing the memory via RAS" below, or
- "Clearing the memory via the Challenger panel PCB" below

Clearing the memory via RAS

Users with access to Install menu option 14 Defaults can clear the memory via RAS.

To clear the panel's memory via RAS:

1. From the Install menu option 14 Defaults, press 99 [ENTER] to reset all custom programming.

Clearing the memory via the Challenger panel PCB

You may want to perform a "panel default" to reset the panel to its factory default state and erase all programming.

To clear the panel's memory without Install menu access:

1. Remove power to the Challenger panel.
2. Fit test link 1 (Figure 5 on page 11, item 22) and repower the system. L1 (item 23) illuminates for about 20 seconds, flashes quickly for about 20 seconds to indicate reset mode, and then flashes slowly to indicate normal mode.

   Note: The panel can only be defaulted in the 20-second interval when L1 is flashing quickly (in reset mode). The panel returns to normal mode automatically to help protect against accidental reset.
3. Remove test link 1 when L1 is flashing quickly to default the panel.

Basic programming sequence

This section provides an overview of how to use an LCD RAS to set up a basic alarm system that uses PINs for access control.

To initially program a Challenger system:

1. Plan the system and fill out the programming sheets.
2. Disarm the system. See "Disarming the system" on page 20.
3. Access the Install menu. See "Accessing the Challenger menu" on page 20.
4. Default the system. See "Clearing the memory" on page 24.
4. Disarm the system and access the Install menu again, as described above.
5. Program the date and time via User menu option 15 Time and Date.
6. Change the default installer PIN. See "Changing the default installer PIN" on page 26.
5. If the system will contain more than areas 1 to 16, then modify Area Group 1 using Install menu option 36. Area Groups. See "Working with multi-area systems" on page 26 for details.
7. Program the required system options via Install menu option 7 System Options, if the default values are not suitable (see Table 2 on page 22).
8. Program custom (site-specific) words, if needed, via Install menu option 10 Text Words.
9. Program holidays in User menu option 21 Holidays.

   Holidays must also be assigned one or more holiday types (1 to 8). Decide what each holiday type will be used for, and record the purpose in the Holidays and Holidays Types worksheets (see the *Challenger10 Administrators Manual*).
10. Program time zones via Install menu option 13 Time Zones.
11. Program areas via Install menu option 2 Area Database.
12. Program area groups via Install menu option 36 Area Groups to help manage areas. See also "Working with multi-area systems" on page 26.

13. Program alarm groups via Install menu option 5 Alarm Groups.
14. If your system requires more than 16 inputs, or requires advanced access control functionality, then you will need to program DGPs (data gathering panels) into the system. Program DGPs via Install menu option 4 DGP Database.
15. Program inputs via Install menu option 1 Input Database.
16. If your system requires more than 1 arming station, then you will need to program RASs via Install menu option 3 RAS Database.
17. Program the system's timers via Install menu option 6 Timers, if the default values are not suitable (see Table 2 on page 22).
18. Program the communication options to enable the Challenger system to report alarms to the remote monitoring station, via Install menu option 9 Communications.
19. Program the behaviour of relays via Install menu option 16 Map Relays.
20. Program (at least) the first user. See "Programming users" on page 31.

Working with multi-area systems

Challenger10 can have up to 99 areas. New or defaulted Challenger panels can arm and disarm only areas 1 to 16. This functionality is accomplished via Area Group 1, which contains areas 1 to 16. Area Group 1 is used in the following Alarm Groups:

- Alarm Group 2-Master RAS or Door
- Alarm Group 3-Master Code (Installer)
- Alarm Group 11-High Level User Master
- Alarm Group 12-Low Level User Master
- Alarm Group 13-All Area User Code

The default installer user 50 (PIN 4346) is assigned Alarm Group 3, which controls only the areas contained in Area Group 1. Alarm Group 3 cannot be edited, but Area Group 1 can have areas added to it.

Note: If an installer needs to program a system with more than areas 1 to 16, then they should first modify Area Group 1 so that it contains all the required areas.

Default installer PIN

Changing the default installer PIN

The default panel programming includes PIN 4346 for user 50. The default PIN must be changed to keep unauthorised persons from modifying your programming or using the system without authorisation.

Restoring the default installer PIN

If the installer PIN for user 50 has been changed and lost, you may need to reset the PIN to default (4346). This is easily accomplished via management software. However, if necessary, it can be done from the Challenger panel PCB.

Note: This also defaults area group 1 back to areas 1 to 16 only, and defaults RAS 1 on LAN 1.

To restore the default installer PIN:

1. Access the Challenger panel PCB.
2. Fit test link 1 (Figure 5 on page 11, item 22) momentarily, and then remove the link.

Enabling communications

Although basic programming and administration of the Challenger system can be done via a LCD RAS on the RS-485 LAN, most systems use management software such as Titan, Security Commander, or Forcefield after installation. The Challenger panel may communicate with a management software computer by an alternative path to provide backup reporting of alarms.

This section describes the RAS programming required to prepare for communications between the Challenger panel and a Titan management software computer. Refer to the documentation provided with the management software for additional details, if required.

Notes for New Zealand application:

- Refer to “Regulatory requirements for New Zealand” on page iii.
- If reporting via the Challenger panel’s onboard modem, the Communications option “New Zealand Dialling” must be enabled.

Challenger10 programming

Challenger10 panels have a range of communications options, configured via Install menu 9 Communications. The first two options in the Communications menu are:

- 1. Setup H/W. This option is used to configure the communications ports on the panel (onboard) and on expander modules (pending).
- 2. Setup Paths. This option is used to configure up to 10 communication paths for connecting to various devices such as a management software computer or a local printer.

Ten communication paths are available for simultaneous management software connections, reporting via onboard dialler, printing events, and so on. The status of each path can be quickly displayed via RAS to facilitate installation and troubleshooting.

A communication path can be assigned a priority number in the range 1 to 10 (the highest priority being 1), or 0 for no priority assignment. Also, a communication path can be designated as a backup to another communication path.

A Challenger10 panel has default values programmed for the following communications paths:

- Path 1. CID Dialler—For reporting to a remote monitoring company via a telephone connection.
- Path 2. USB Installer— For USB (serial) connection to a computer running management software such as Titan.
- Path 3. Management Software—For IP connection to a computer running management software such as Titan.
- Path 10. Service—Enabled for management software connection via User menu 7 Service.

Each of the 10 communications paths can be edited. The default paths are provided as a shortcut to setting up the panel.

Each communications path must be assigned a format. Table 3 below lists the relationship between formats and hardware.

Table 3: Communications formats by device type

Formats/Devices	Dialler	STU (RS-232)	IP	USB
CID Modem	Yes	No	No	No
Computer Polled	Yes	Yes	Yes	Yes
Computer Event	No	No	Yes	No
SecureSteam IP Receiver	No	No	Yes	No
Securitel STU	No	Yes	No	No
Printer	No	Yes	No	No

After you select a format, many of the subsequent options are pre-programmed with values appropriate to that format.

Note: If you need to change the format of a path that has been previously programmed (or one of the default paths), first set the format to “0-None” to clear the previous format’s programming.

Refer to Figure 5 on page 11 for the locations of the panel’s onboard ports.

The following default values are typically sufficient to establish communications with the management software computer:

- Security password 0000000000
- Security attempts 255

Note: It is advisable to change the settings for the password and security attempts once the management software is communicating with the Challenger panel.

Example 1: Programming a polled USB connection to a Titan computer

You may use a USB cable (Type A Male to Type B Mini Male) to connect the Challenger panel to a Titan computer. This process requires Titan 3.0 (or later).

Note: Do not connect the USB cable until instructed to.

To establish a polled USB connection:

1. On an LCD RAS, access the Install menu. See “Accessing the Challenger menu” on page 20.
2. Press 9 [ENTER] to access the Communications menu, select option 2–Setup Paths, and then press 2 [ENTER] to select path 2–USB INSTALLER.
3. Press [ENTER] to display the first item, and then select option 1–Path Main. The first option displays.
4. Press [ENTER] to step through the options, and change the default settings if required (in particular, change Enabled to Yes).

   You might also need to change the account code and the computer password (default is 0000000000).
5. Press 0 [ENTER] as needed to exit from the Communications menu.
6. In Titan, select Ports from the Admin menu.
7. In the port record select USB, and then enter a port number and description. Save the record.
8. Connect the Challenger panel’s USB port at J18 (Figure 5 on page 11, item 18) to a USB port on the computer via a USB cable.

   The first time you connect a Challenger panel to the computer’s USB port, the Found New Hardware Wizard may display. Do not use the Wizard.
9. Select Challenger from the Admin menu.
10. In the Challenger record, ensure the Challenger No. and Security Password are the same as programmed via RAS, type the port number in the Port field, and select USB as the communications mode. Save the record.
11. Select Open/System from the File menu, select Active System, and then save the record. The connection indicator at the bottom of the Titan window displays green to indicate a successful connection.

Example 2: Programming an event-driven IP connection to a Titan computer

You may use a Cat 5 cable to connect the Challenger panel to a Titan computer (either directly or via LAN).

To establish an event-driven IP connection:

1. On an LCD RAS, access the Install menu. See “Accessing the Challenger menu” on page 20.
2. Press 9 [ENTER] to access the Communications menu, and then select option 1–Setup H/W, to access the Setup menu.
3. Select option 1–Onboard, and then press [ENTER] to step through the options. Change the default settings, if required (in particular, change Ethernet to Yes).

   Use the values advised by the site’s network administrator for the IP address, subnet mask, and gateway address.
4. When returned to the Setup menu, press [0] [ENTER] to exit to the Communications menu.
5. At the Communications menu, select option 2–Setup Paths, and then press [3] [ENTER] to select path 3–MANAGEMENT SOFT.
6. Press [ENTER] to display the first item for path 3, and then select option 1–Main.
7. Press [ENTER] to step through the options, and change the default settings if required (in particular, change Enabled to Yes).

   You might also need to change the account code and the computer password (default is 0000000000).
8. When returned to the Path menu select option 6–Path IP Address.
9. Press [ENTER] to step through the options, and program the following settings (in particular, program the Titan computer’s IP address).

   Use the default values (if applicable) for the Send and Listen IP Port numbers (default is 3001) and UDP/IP.
10. Press 0 [ENTER] as needed to exit from the Communications menu.
11. In Titan, select Ports from the Admin menu.
12. In the port record select UDP/IP, enter a port number, description, Challenger panel’s IP address, and IP Port number (for example 3001). Save the record.
13. Connect the Challenger panel’s Ethernet port at J19 (Figure 5 on page 11, item 16) to the LAN or directly to the Titan computer via a Cat 5 cable.
14. Select Challenger from the Admin menu.
15. In the Challenger record, ensure the Challenger No. and Security Password are the same as programmed via RAS, type the port number in the Port field, and select UDP/IP as the communications mode. Save the record.
16. Select Open/System from the File menu, select Active System, and then save the record. The connection indicator at the bottom of the Titan window displays green to indicate a successful connection.

Programming users

Unless you will be programming (adding) the system's users yourself, you will need to program at least one administrator who will be able to program additional users. See *Challenger10 Administrators Manual* for details.

The default values for User 50, the master code, are:

- Name TECOM Master
- PIN 4346
- Alarm Group 3 (contains areas 1 to 16, as defined by Area Group 1)
- Door Group 1
- Floor Group 1

Note: You may need to add areas to Area Group 1. See "Working with multi-area systems" on page 26.

Firmware upgrade process

This section describes how to upgrade Challenger10 panel firmware. It is provided here as an interim guide only, and is subject to change.

Note: During the upgrade process, the Challenger panel will not be able to receive or report alarm signals. We recommend that you follow the general instructions listed in the *Challenger10 Programming Manual*, “Recommended routine maintenance procedures”, in particular, to notify the alarm monitoring company and personnel on the premises (if applicable).

Requirements

To upgrade the firmware you need the following:

- A powered and functioning Challenger10 panel
- A Windows PC with a USB 2.0 port
- Tecom Firmware Loader application
- Access to the Challenger10 panel’s printed circuit board (PCB)
- A USB cable (Type A Male to Type B Mini Male) to connect the Windows computer to the Challenger panel’s PCB
- Firmware upgrade file

Getting ready

You will need to backup or record any custom programming that you want to use after upgrading the firmware.

Upload the Challenger panel’s database to the management software computer. After updating the firmware you will need to reprogram the connection details before you can download the Challenger panel’s database.

Upgrade process

To upgrade the Challenger panel firmware:

1. Disconnect the panel’s power supply.
2. We recommend that you disconnect the panel’s existing Ethernet and/or serial connections to the management software computer for the duration of this process.
3. Fit test links 1 and 2 (Figure 5 on page 11, item 22).
4. Reconnect power to the panel. LED L1 will blink rapidly (Figure 5 on page 11, item 23).
5. Use the USB cable to connect the computer to the Challenger panel’s USB port at J18 (Figure 5 on page 11, item 18).

The first time you connect a Challenger panel to the computer's USB port, the Found New Hardware Wizard may display. If the Found New Hardware Wizard does not display, go directly to step 9.

6. If the wizard asks "Can Windows connect to Windows Update to search for software?", click to select the "No, not this time" radio button, and then click Next.
7. If the wizard asks "What do you want the wizard to do?", click to select the "Install from a list or specific location" radio button, and then click Next.
8. Click to select the "Search for the best driver in these locations" radio button, and then browse to include the location of the Tecom Firmware Loader application in the search (for example, C:\Program Files\Tecom Firmware Loader\inf_driver).
9. Run Tecom Firmware Loader (for example, double-click the file C:\Program Files\Tecom Firmware Loader\tecom-fw-loader_v1.04.exe).

   When you run it will tell you if the device is ready, otherwise you can't select a file.
10. Click Select File… and then browse to the location of the firmware upgrade file on your computer. Select the file and then click Open.
11. Click Program File… to update the panel firmware. The process will take several minutes. The percentage completion displays at the bottom of the window. When finished, a "Programming is complete" message displays.
12. Remove the USB cable from the Challenger panel.
13. Disconnect the panel's power supply.
14. Remove test links 1 and 2 (Figure 5 on page 11, item 22).
15. If applicable, reconnect the panel's Ethernet and/or serial connections to the management software computer.
16. Reconnect power to the panel. The panel should reboot and connect with RAS 1 on LAN 1. If the panel does not reboot, repeat the process from step 9.
17. Use Install menu option 11 Version, option 1, to display the Challenger version number. It should display the new version number.
18. We recommend that you also default the panel's programming. From the Install menu option 14 Defaults, press 99 [ENTER] to reset all custom programming.