

Inner Range

Weatherproof Terminal PCB Kit.

P/N: 995010PCB&K

INSTALLATION MANUAL

Overview

The Weatherproof Terminal PCB Kit provides an interface for 3rd party Keypad products that output key press data in the Wiegand 4-bit burst format.

This allows 3rd party Keypad or Reader+Keypad products to be used in “PIN Only” and “PIN or Card” modes in addition to the “Card Only” and “Card & PIN” modes in Integrity or legacy Concept 3000/4000/5000 systems.

(Note that Single Door, 2-Door or Intelligent 4-Door Access Modules do not support the “PIN Only” and “PIN or Card” modes for 3rd party keypads.)

The Weatherproof Terminal Module currently provides the following operations:

1. Single Door PIN code or Card Access control including the “auto area off” and REX/REN button options.
2. Control and status indication of a single “Associated Area” assigned to the Module, or a User’s “Extra Area”.
3. “Card & PIN” and “Card Only” operation. (If utilized in Concept systems, Controller Firmware must be V5.7 or later)
4. Dual User operation supported in “Card Only” and “Card & PIN” modes.
5. Support for all Integrity and Concept 3000/4000/5000 1 to 8 digit PIN codes.
6. Support for keypad tamper monitoring.

Note: To provide “PIN or Card” or “Card & PIN” operation, a 12V Wiegand Reader and a Keypad are connected in parallel on the same Module, or a 12V Reader+Keypad product is used.

The Module provides five outputs to control Lamps/Beeppers consisting of the “LOGGED ON” and “ARMED” outputs, plus 3 general purpose outputs. (Note that the ARMED output is only operational while logged on)

COMPATIBLE 3rd PARTY PRODUCTS

For compatibility with this Module, keypad products must be configured to output Wiegand 4-bit burst data for each key press.

The following products have been tested to be compatible when configured in this way:

- HID: HID5355 RK40
- Honeywell: JT-MCR55-32

IMPORTANT NOTES:

- 1) Keypads used with this Module must have * (OK) and # (ON/OFF) keys in addition to the 0 to 9 numeric keys. It is also recommended that at least two lamps (LEDs) are available for status feedback.
- 2) When used in Concept systems, the Control Module Firmware must be V5.60 or later.
- 3) The Weatherproof Terminal Module is enrolled on the LAN and programmed as a Reader Module. (MENU, 7, 2, 4)
When programming; options relating to “2nd Door / 2nd Lift”, “2 Door Mode”, “Reader 2...” and “Backup Cards” should not be programmed.
- 4) Area Arm/Disarm operation is enabled by choosing the appropriate setting in the “Reader Arm Mode” option.
- 5) Separate Inputs are provided for Exit & Entry buttons. Regardless of whether these inputs are used for Exit or Entry buttons, they must be programmed for Exit button operation. i.e. Select the “B”utton option in the “Exit Options” of the Access Group assigned to the Door. Note that Review will therefore always record the direction for the button operation as “Exit”.
- 6) Zones Rnn:Z02 to Z05, Z07 and Z08 do not exist on the Weatherproof Terminal Module and therefore must not be programmed.
- 7) Auxiliaries Rnn:X07 and X08 do not physically exist on the Weatherproof Terminal Module and therefore can only be used as phantom Auxiliaries.

A “Programming summary” and “Operations Summary” is provided on Page 8.

For more details refer to the Integrity Programming Reference Manual or the Concept 4000 Programming & Reference Manual V5.6 or later.

Keypad functions.

KEYS

Numeric keys	PIN code Entry. When logged on, pressing the 0 key will logoff the User.
* (OK) key.	Pressed after PIN code to logon. Door access request while logged on.
# (ON/OFF) key.	Toggle Area state while logged on.

LAMPS/BEEPER

If the Keypad provides at least two different colored lamps (LEDs), it is recommended that the control wires for two of these are connected to the “X2” (LOGGED ON) and “X3” (ARMED) outputs on the Module to provide status feedback.

Any additional lamps and beeper can be connected to the outputs “X4”, “X5” and “X6”. These Auxiliaries can then be programmed to provide other status and/or warning feedback. e.g. Entry/Exit delay warning, Lock status, etc.

The outputs X2 to X6 are Module Auxiliary outputs, Rxx:X02 to Rxx:X06.

TAMPER MONITORING

Three methods of keypad tamper protection are provided:

- An input is provided for connection to a tamper device built-in to the Keypad &/or Reader.
- Presence of the keypad connections is monitored via the data inputs on the PCB.
In addition to this, a Tamper switch input is also provided on the PCB for cabinet tamper monitoring.
- If 3 unsuccessful logon attempts are made in succession, the keypad will be locked out for 60 seconds.
(In Weatherproof Terminal Firmware V1.02 or later, this can be altered to 10 attempts if required by setting DIPswitch 8 to ON.)

Installing the Weatherproof Terminal PCB kit.

Weatherproof Terminal Parts List

- Weatherproof Terminal Module PCB assembly.
- Installation Manual. (This document)
- Installation Kit in Plastic bag containing:

- 1 x 3 Way Plug on Screw Terminal.	- 1 x 6.3mm Quick Connect.
- 3 x 6 Way Plug on Screw Terminals.	- 1 x 500mA Amp Fuse. (Spare)
- 1 x 5 Way Plug on Screw Terminal.	- 2 x Jumper Link 0.1”.
- 5 x 2k2 End-of-line resistors. (red-red-black-brown-brown)	
- 5 x 6k8 End-of-line resistors. (blue-grey-black-brown-brown)	
- 1 x 1N4004 protection diodes. (For connecting across lock strike)	

Installation environment.

Module PCB:	0° to 40° Celsius and 15% to 85% Relative humidity (non-condensing)
Keypad:	Refer to keypad manufacturers information.

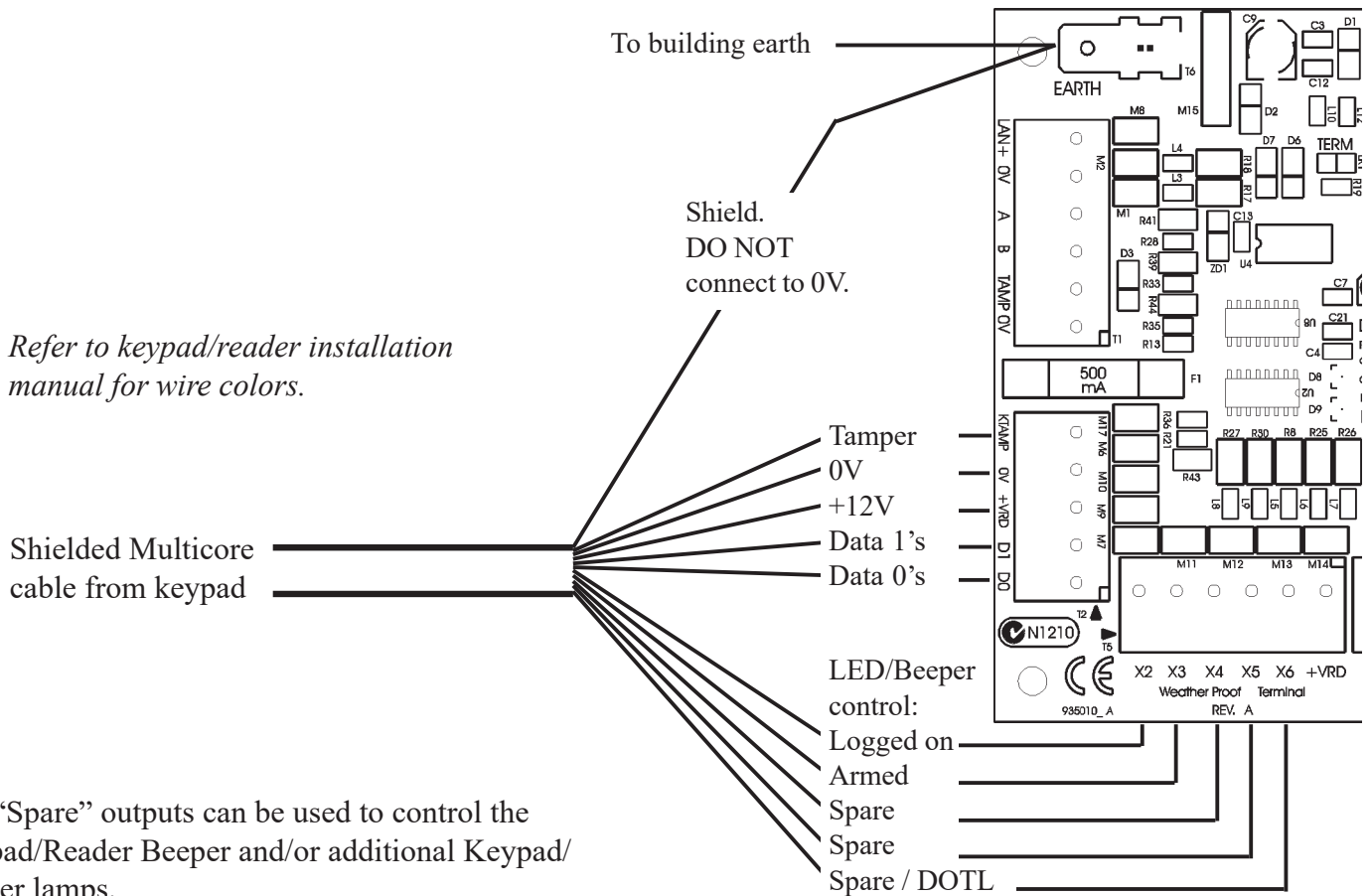
Dimensions.

PCB dimensions:	Length: 96mm	Width: 96mm
Keypad dimensions:	Refer to keypad manufacturers information.	

Installation

Mounting.

1. Choose suitable mounting locations for the keypad and PCB assembly so that:
 - a) The keypad is at a convenient height for viewing the status lamps and for ease of use.
 - b) The keypad cable can be terminated into the PCB connectors securely and without strain.
2.
 - a) The PCB assembly can be mounted in a suitable enclosure using the 4 self adhesive PCB standoffs provided, or other suitable PCB standoffs.
 - b) One or two “Normally Closed” Tamper switches may be fitted to the enclosure before it is mounted, and wired in parallel between the “TAMP” and “0V” terminals on T1. (Switch is Open cct when plunger depressed)
3. Connect the keypad cable to the PCB using the plug-on screw terminal connectors. *See diagram below.*
 The keypad pigtail cable may be extended using Shielded, multicore data cable (NOT twisted pair) up to a length of 30 metres with 7/0.20 cable, or 60 metres with 7/0.30 cable.
4. The Module Number is set using DIPswitches 1 to 7 as required. *See table on page 6.*



The “Spare” outputs can be used to control the Keypad/Reader Beeper and/or additional Keypad/Reader lamps.

Auxiliary output X6 can be used for a DOTL Warning if the “Warn DOTL” option is enabled in Reader Module programming.

Cabling.

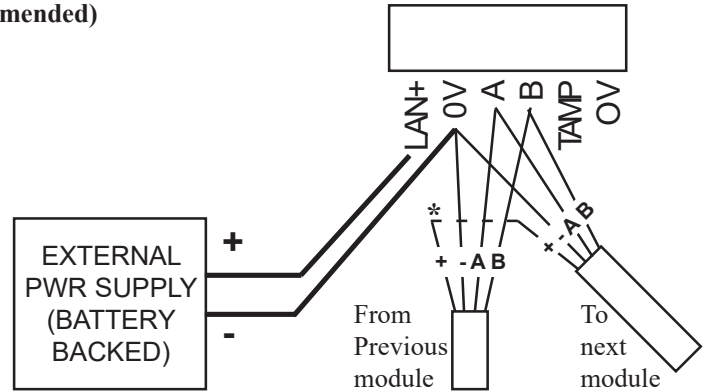
LAN and Power Supply Wiring

MODULE POWERED FROM EXTERNAL SUPPLY (Recommended)

e.g. Inner Range Small Powered Low Profile Enclosure.
P/N: 995200PE

Heavy duty Fig. 8 cable (24/0.20 or 14/0.20) recommended for Ext. Power Supply wiring.

* Note: If required, the LAN to subsequent Modules may derive +12V from “+VE” of the incoming LAN cable.

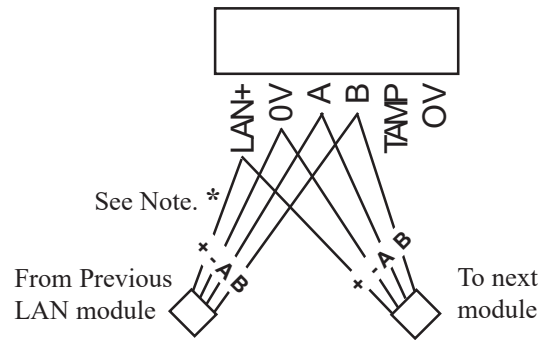


MODULE POWERED FROM THE LAN

(Not recommended if a lock is connected)

* Note: If both “LAN +VE” wires provide a Power supply source, the one that is not required to power the Module MUST NOT be connected to the Module.

i.e. +VE connections from two different power supply sources must never be connected together.



Input Wiring

Door Reed and Tongue Sense Inputs are wired using the End-of-Line (EOL) Resistors.

The “REX/REN” button Inputs are wired to the Normally Open contact of the respective button, while the COMMON contact is connected to 0V. EOL resistors are not required.

ZONE INPUT AND EXIT/ENTRY BUTTON WIRING.

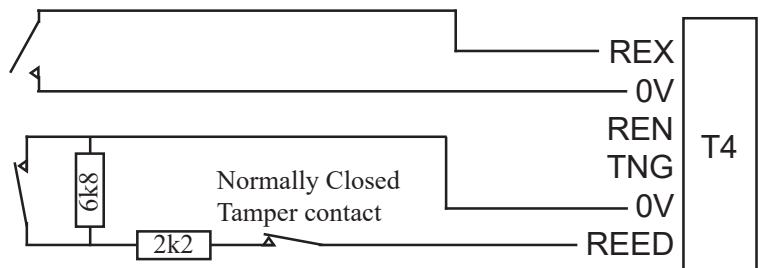
Notes:

“REN” button wired as per “REX”.

Tongue Sense (“TONG”) wired as per “REED”.

Normally Open Button contact. (REX / REN)

Norm. Closed Alarm contact. (REED / TONGUE)



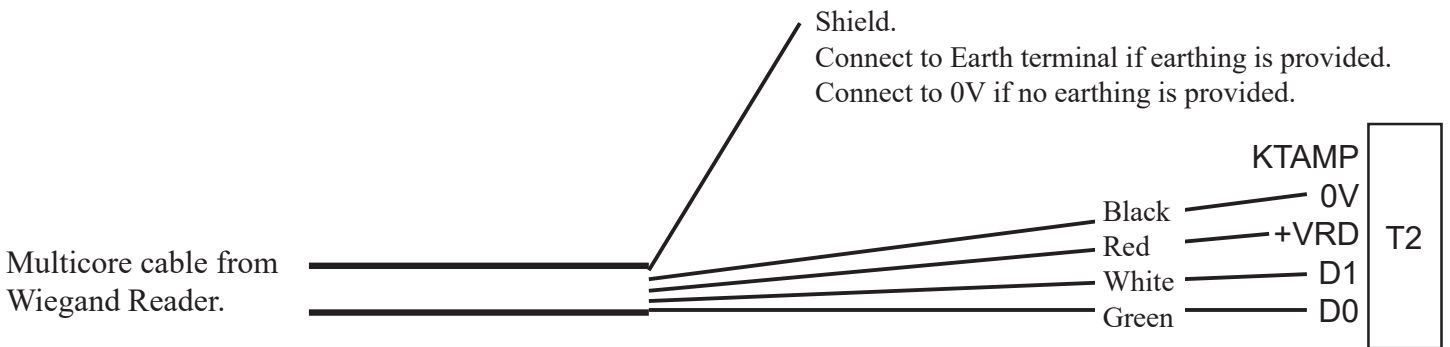
Reader Wiring.

A Wiegand Reader may be wired in parallel with the keypad to provide “Card Only”, “PIN or Card” or “Card & PIN” Door access operation. See the “Overview” on page 1, and “Programming Summary” and “Operations Summary” on page 8 for more details. The Reader supply (+VRD) is fixed at 12V.

i.e. A 5V Reader supply is not available and any Wiegand Reader connected must be able to accept a 12V supply.

Readers with Clock and Data output (e.g. Magnetic Swipe Readers), and Readers that will only operate from a 5V supply are not supported.

LED and/or beeper control wires provided on the Reader can be wired directly to an appropriate Auxiliary output on T5. (No dropping resistor required) See information supplied with Reader for LED control details.



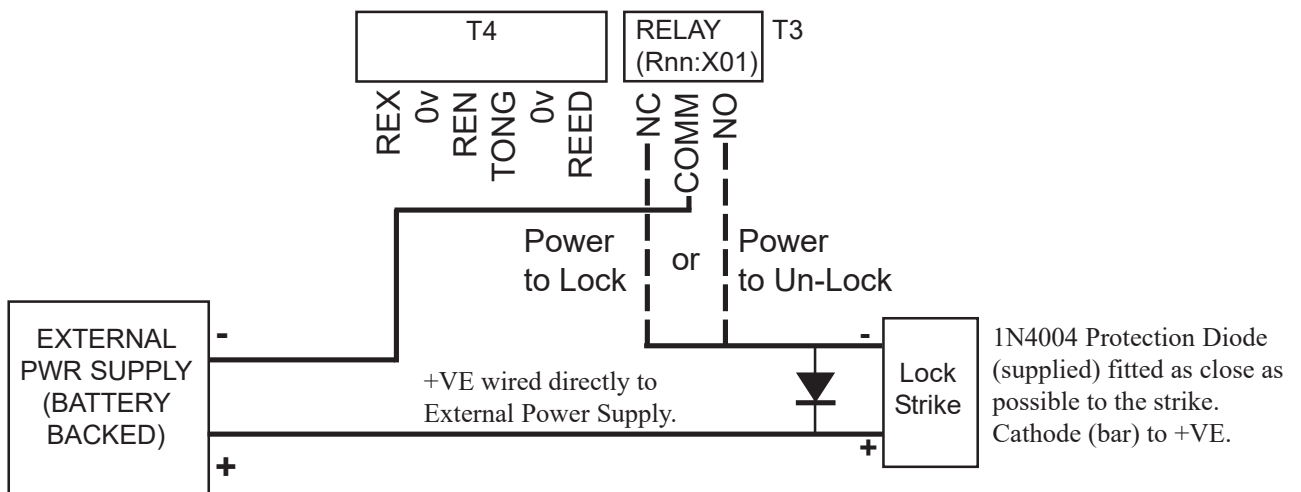
NOTE: Use shielded Data cable. Tycab DMC6702, Garland MC7-6S, etc. DO NOT use twisted pairs!

Lock Wiring.

Heavy duty Fig. 8 cable (24/0.20 or 14/0.20) is recommended for all Power & Lock wiring.

CAUTION: A voltage selection link (LK2) for the Lock relay Common contact is provided, and is located next to connector T3.

Note that this link should only be used when switching low-current non-inductive loads. When controlling locks, always connect the lock as shown below and do not fit link LK2.



DIPswitch Settings

Note that the Module must be powered down when making any DIPswitch setting changes.

MODULE NUMBERING

The Weatherproof Terminal Module is enrolled on the LAN as a Reader Module (R). The Module number is set to a number between 1 and 64 using DIPswitches 1 to 6. **The Module number equals $n + 1$, where n is the binary number set on DIPswitches 1 to 6.**

Module No:	DIPswitch: 1	2	3	4	5	6
	Binary value: 1	2	4	8	16	32
1	off	off	off	off	off	off
2	ON	off	off	off	off	off
3	off	ON	off	off	off	off
4	ON	ON	off	off	off	off
5	off	off	ON	off	off	off
6	ON	off	ON	off	off	off
7	off	ON	ON	off	off	off
8	ON	ON	ON	off	off	off
9	off	off	off	ON	off	off
through to						
64	ON	ON	ON	ON	ON	ON

KEYPAD TAMPER INPUT (If provided). POLARITY SETTING (“KTAMP” on connector T2)

DIPswitch 7.	OFF	Setting for when the “KTAMP” input is not used, or when the keypad’s tamper output is High (or Open collector O/P Off) for Seal, and Low (or Open collector O/P On) for Alarm.
	ON	Setting for when the keypad’s tamper output is Low for Seal, and High for Alarm. (Weatherproof Terminal Firmware V1.60 or later only)

KEYPAD LOCKOUT

If a number of unsuccessful logon attempts are made in succession, the keypad will be locked out for 60 seconds and the CODE lamp will flash continuously during the lockout time. DIPswitch 8 determines the number of attempts required for keypad lockout.

DIPswitch 8.	OFF	3 attempts.
	ON	10 attempts. Weatherproof Terminal Firmware V1.02 or later only.

Note: If an error is made while entering a PIN code, the ON/OFF key can be used to clear the digits entered, so the PIN can be entered again without registering an unsuccessful attempt.

Fault Lamps

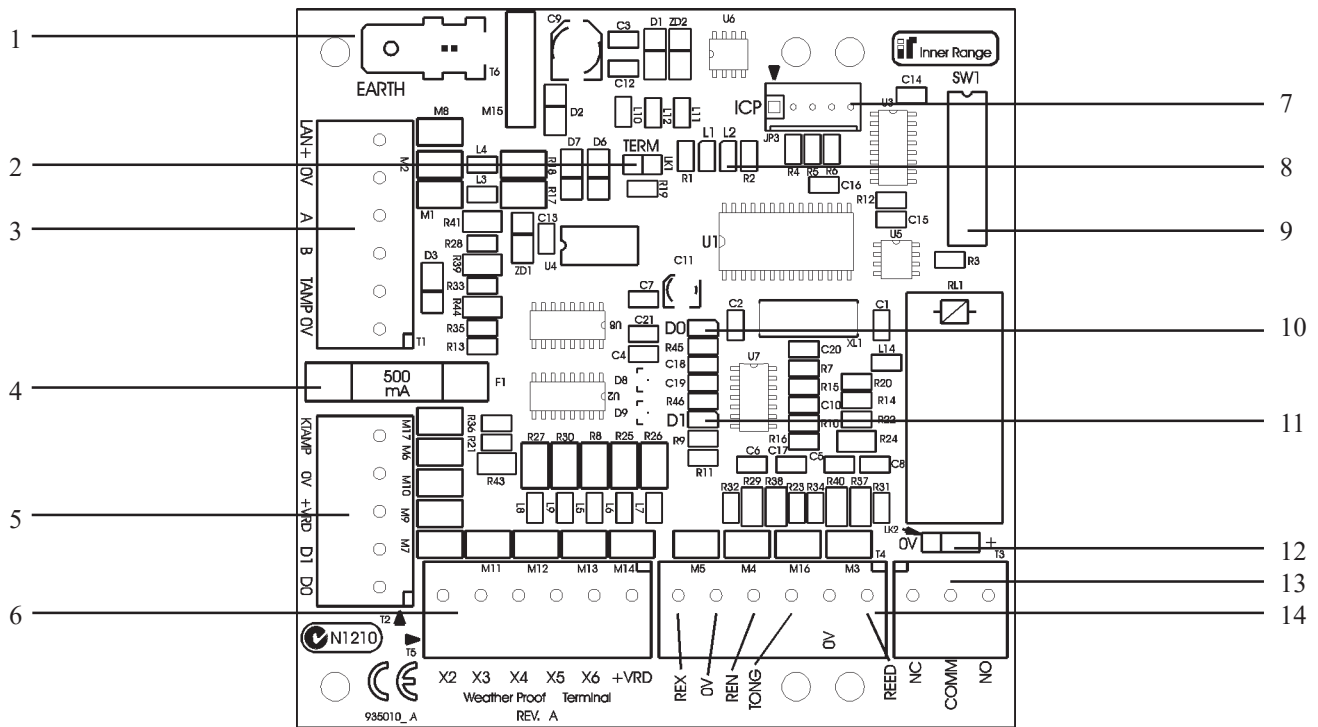
L1 (RX)	L2 (TX)	EXPLANATION / REMEDY
ON	ON	Module is un-addressed.
OFF	ON	Module type unknown. Firmware upgrade required to Control Module.
Flash	ON	Duplicate Module. This module number is already in use by a module of the same type.
Flash	Flash	Module number selected is too big for Control Module RAM size. Select a lower Module number.
ON	OFF	Too many modules on Network for Control Module RAM size.
Alternating Flash		EEPROM fault. Return for service.

Link Settings

LK1	TERM	Off:	Unterminated.
		On:	Terminated. Only fitted if unit is one of the two furthest Modules from the Control Module.

LK2	RELAY COMMON CONNECTION	Not fitted.	Relay common is voltage-free.
		+	Relay common is +12V.
		0V	Relay common is 0V.

CAUTION: Note that this link should only be used when switching low-current non-inductive loads. When controlling locks, always connect the lock as shown on page 5 and do not fit link LK2.

THE WEATHERPROOF TERMINAL MODULE PCB

1. Earth. Connect to building earth or electrical earth.
2. LK1. TERM. Fitted only if this unit is one of the two furthest modules from a Concept Control Module.
3. T1. LAN, External Power & Tamper Switch Connections.
 LAN+ LAN +ve connection.
 0V LAN 0V (-VE) connection.
 A LAN Data A connection.
 B LAN Data B connection.
 TAMP Tamper Switch input.
 0V Ext. Power Supply -VE input.
 & Tamper switch 0V return.
 See "LAN & Power Supply Wiring" on page 4.
4. F1. 500mA FUSE M205. Do not substitute higher value.
5. T2. Keypad & Reader connections.
 KTAMP Keypad tamper connection.
 0V Keypad/Reader 0 Volt (-ve) connection.
 +VRD +12V Keypad/Reader power.
 D1 Keypad/Reader Data 1's input.
 D0 Keypad/Reader Data 0's input.
6. T5. Auxiliary Outputs.
 X2. Keypad Lamp 1 (CODE) control.
 X3 Keypad Lamp 2 (ARMED) control.
 X4 Spare. (e.g. Keypad beeper or additional lamp)
 X5 Spare. (e.g. Keypad beeper or additional lamp)
 X6 DOTL Warning (If enabled. See page 3)
 +VRD +12V Auxiliary power. (Note required for Auxiliaries connected to the keypad)
7. JP3. Factory use only.
8. L1 (RX) LAN Data Transmit & FAULT DIAGNOSIS
 L2 (TX) LAN Data Receive & FAULT DIAGNOSIS
9. DIPswitch SW1: (See table on page 6)
 Switch 1-6. Module number.
 Switch 7. Keypad tamper input polarity.
 Switch 8. Lockout attempts.
10. D0 Data 0's Reader #.
11. D1 Data 1's Reader #.
12. LK2. Lock relay Common contact voltage selection.
 Only use when switching low-current non-inductive loads.
 When controlling locks, connect the lock as shown on page 5 and **do not** fit this link.
 Not fitted. Common contact is voltage-free.
 + Common contact is +12V.
 0V Common contact is 0V.
13. T3. Lock Relay Connections. (Rnn:X01)
 See "Lock Wiring" on page 5.
14. T4. Input connections.
 REX Exit Button Input. *2
 0V 0 Volt return for Input connections.
 REN Entry Button I/P. *2
 TNG 1 Optional Tongue Sense I/P. *1 & 3
 OR Zone 6.
 REED Reed Switch Input. *1 (Zone 1 I/P)

***NOTES:**

1. End-of-line (EOL) Resistors required.
2. EOL's NOT required. See Note 3 on page 1.
3. "Tongue Sense" selected in Reader Module options.

Specifications

Electrical.

Power Supply Input:	11V to 14V DC	
Current Consumption:	Standby:	25mA.
	Logged on:	35 to 40mA.
	X01 (Lock relay) active only.	60mA.
	All Auxiliaries active: (Lock relay, keypad lamps and beeper all on)	105mA.

(These figures do NOT include current drawn by any Reader connected, or by any device connected to the Auxiliary outputs other than the weatherproof keypad connections)

NOTE: Allow 50 to 120mA for small Prox Reader (~10cm range)
 Allow 120 to 180mA for standard Prox Reader (~15cm range)

These values are general approximations. *See information supplied with Reader for actual current consumption.*

Lock Relay Contacts:

Voltage: 30V DC maximum.

Current: 750mA maximum.

Fuse Protection: 500mA Reader Power Fuse. Reader current must not exceed 400mA.

ALWAYS REPLACE WITH SAME FUSE TYPE AND VALUE!

Keypad Cable Length: The keypad pigtail cable may be extended using Shielded, multicore data cable (NOT twisted pair) up to a length of 30 metres with 7/0.20 cable, or 60 metres with 7/0.30 cable.

Physical.

Installation Environment.

Module PCB: 0° to 40° Celsius and 15% to 85% Relative humidity (non-condensing)

Keypad: Refer to keypad manufacturers information.

PCB dimensions:

Length: 96mm Width: 96mm

Programming Summary

The Module is programmed similar to a Single Door Access Module with the following variations:

- Reader Purpose must be set to "Door Control"
- Reader Format must be a Wiegand format.
- Reader Keys must be set to "IR Weather" which configures correct Auxiliary operation for the CODE and ARMED lamps, and enables support for special operations such as Card & PIN mode.
- Reader Arm Mode determines the Weatherproof Terminal Area Arm/Disarm Control operations.
 - None. No Arming/Disarming.
 - Extra Area if PB. User's Extra Area can be Armed/Disarmed.
 - Entry Area if PB. Weatherproof Terminal's "Associated Area" can be Armed/Disarmed.
- Reader "Associated Area" is an option introduced specifically for the Weatherproof Terminal, that defines the Area to be controlled by this Weatherproof Terminal if the "Entry Area if PB" option is selected.
- Access Group Entry Mode or Exit Mode can be set to any option in Control Module Firmware V5.7 or later. "Card Only" and "Card & PIN" are not supported in V5.6 Firmware.
- Backup Cards and a Card Cache are not supported.

Operations Summary

Operational Modes.

This table shows the operation modes available with different Entry/Exit mode and Single/Dual User options in Access Group programming.

	Card Only	PIN only	Card & PIN
Single User	Yes	Yes	Yes
Dual User	Yes	NO	Yes
Note: PIN or Card. Refer to "Card Only" & "PIN Only" columns.			

Keypad Operations.

Logon: PIN, then OK(*)

Door Access: Logon, then OK(*) e.g. If PIN is 1234; Door access operation is 1, 2, 3, 4, *, *.

Toggle Area state: Logon, then ON/OFF(#) e.g. If PIN is 1234; Area control operation is 1, 2, 3, 4, *, #.

Due to on-going product development this manual is subject to change without notice.