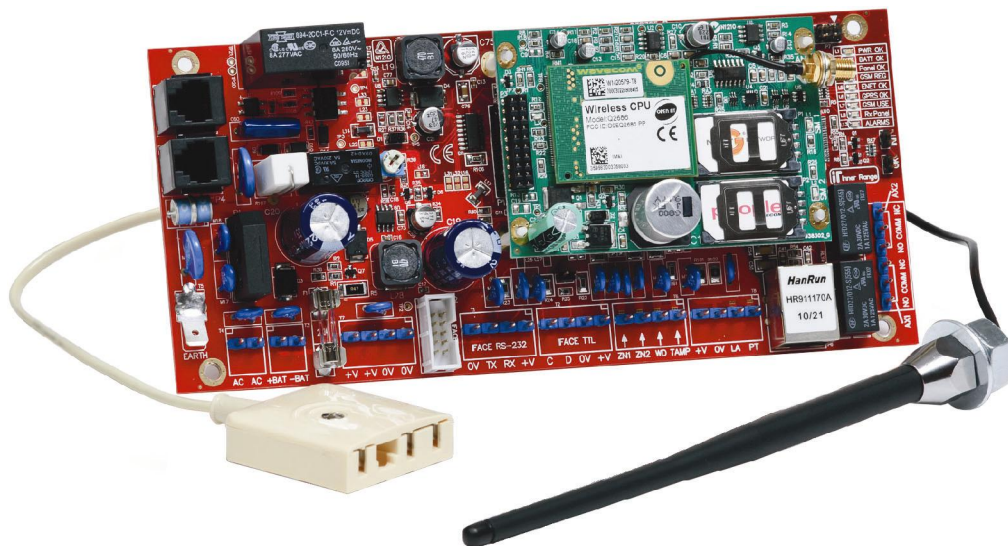


Fratch Multipath-IP Omni-link STU

Current Part Numbers:

SIM	PCB & Accessory Kit only	In Metal Enclosure with PS
Single SIM	998325A2T#-PK	998325A2T#-XS
Dual SIM	998325A2TV-PK	998325A2TV-XS
NZ Vodafone	998325N2V#-PK	

Installer Manual



This document contains a product overview, specifications and hardware installation information.

The commissioning procedure is found in the:

Installation Guide: Ethernet and the
Installation Guide: GPRS that are also included in the box.

PLEASE READ THE PRE-INSTALLATION STEPS IN THE INSTALLATION GUIDES (ETHERNET AND GPRS) BEFORE GOING ON SITE TO INSTALL THE MULTIPATH-IP STU.

IMPORTANT NOTES

1. The SIM cards supplied with the Omni-link STU will only work in the Omni-link STU. They will not work in any other device, such as a mobile phone. Attempting to use these SIM cards in a mobile phone can result in the SIM becoming locked. A locked SIM will not work in any device, even the Omni-link STU. If the SIM becomes locked, charges for the SIM card still apply, even though the SIM card cannot be used.
2. In the same way that new mobile phones are not always compatible with an old SIM card, the modem used in this product may not be compatible with older SIM cards.

Contents

Overview.....	3
Polled IP Paths.....	3
Types of Plans.....	4
Polling Path Priority.....	4
Standard Monitoring Plans.....	4
Installation.....	5
Indicator Lamps.....	5
Troubleshooting.....	5
Defaulting the Omni-link STU.....	6
Appendix 1 – Specifications & Parts List.....	7
Specifications.....	7
Parts List.....	8
Appendix 2 – Hardware Installation.....	9
Pre-installation checks.....	9
Mounting the Omni-link STU.....	9
Mounting the antenna.....	9
Connecting a Omni-link STU to any Contact ID Alarm Panel.....	10
Programming the dialer alarm panel:.....	10
Connecting an Omni-link STU to a Securitel Enabled Alarm Panel.....	10
Link Settings.....	11
Connecting a Omni-link STU to a Concept 3000/4000 (Type 1) Alarm Panel.....	11
Connecting a Omni-link STU to a Concept 3000/4000 (Type 2) Alarm Panel.....	11
Alarm Panel monitoring options.....	12
Panel Watchdog:.....	12
PABX Cable Tamper Monitoring:.....	12
Remote Arming / Disarming via Alarm Panel Keypad Zone:.....	12
Appendix 3 - Wiring Diagram.....	13

Safety Warnings

Only Qualified service personnel should install the MultipathIP Omni-link STU.

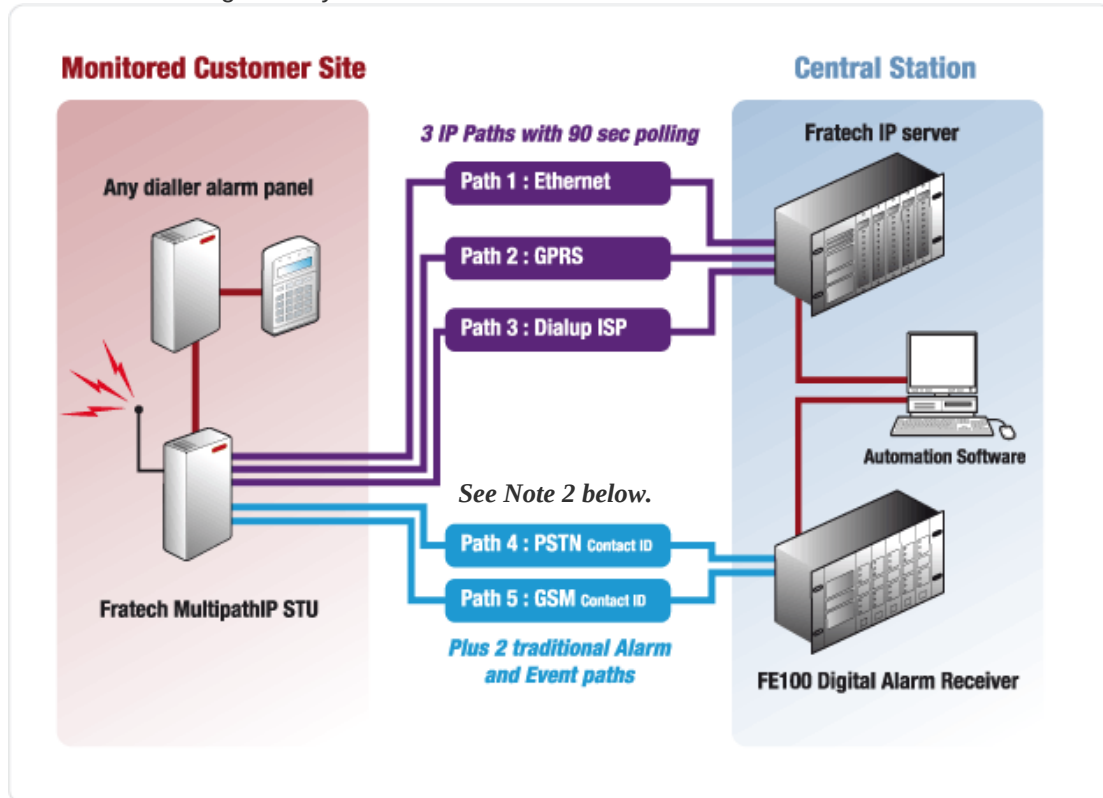
- 1) Position the GSM antenna so that humans or animals cannot approach closer than 10 cm during normal operation and so that it is protected from lightning. Do not locate the GSM antenna within 1 metre of any other electronic equipment.
- 2) Do not use the Omni-link STU in any environment where RF emissions may cause a hazard, such as re-fuelling points, blasting areas, airports, aircraft, medical facilities etc. The unit may present a hazard to medical electronic devices such as pacemakers and hearing aids. If in doubt seek advice.
- 3) Take care not to short the battery (not supplied) as it can deliver large currents that could create serious burns or a fire hazard.
- 4) The Omni-link STU should be mounted on a flat vertical fire resistant surface. Cable entry hole diameters should be kept to a minimum.
- 5) The plug pack provided must be plugged into a switched GPO (General Purpose Outlet). I.e. A mains outlet socket with a switch to isolate power. Only use the supplied plug-pack. The “tinned” Leads should be re-terminated with “un-tinned” leads to conform to AS3260.

Disclaimer:

1. The manufacturer and/or its agents take no responsibility for any damage, financial loss or injury caused to any equipment, property or persons resulting from the correct or incorrect use of the system or its peripherals. The purchaser assumes all responsibility in the use of the system and its peripherals.
2. While every effort has been made to ensure the accuracy of this manual, the manufacturer assumes no responsibility or liability for any errors or omissions. Due to ongoing development, this manual is subject to change without notice.

Overview

Multipath-IP is an alarm communications system that can be fitted to any Contact ID (CID) enabled alarm panel. Multipath-IP provides polled, redundant alarm communications providing the highest levels of alarm monitoring security.



The Omni-link STU can provide the following polled communication paths:

- Ethernet (primary)
- GPRS1 (primary)
- GPRS2 (secondary)

PLEASE NOTE:

1. The particular paths available will depend on the plan that is chosen at the Central Monitoring Station.
2. The Omni-link STU cannot use PSTN as a backup reporting path. PSTN is provided as an incoming connection to allow the remote programming of the connected alarm panel.

Polled IP Paths

Ethernet, GPRS1 and GPRS2 are polled Internet Protocol (IP) paths. This polling tests the integrity of the transmission path between the Omni-link STU and the Central Monitoring Station. The type of plan chosen determines the polling rate.

A poll involves a test information packet being sent from the Omni-link STU to a Multipath-IP Server in the Central Monitoring Station. The server in the Central Monitoring Station subsequently sends an acknowledgement back to the Omni-link STU. If the primary transmission path is faulty or unavailable, then the Omni-link STU will continue polling on the alternate secondary IP path. Once the connection is re-established on the primary path, communications will continue for several minutes on both paths. This is to ensure that the primary path is reliable and then communications on the secondary path will be stopped. Similarly if both the primary and secondary IP paths fail then polling will commence on the tertiary IP path. Polling will be ceased on the tertiary path once communications have been re-established on the primary or secondary paths.

Types of Plans

There are several types of plans available on Multipath-IP.

Multipath-IP provides polled monitoring that test the integrity of the connection from the Omni-link STU through to the Central Monitoring Station. The plan chosen determines the active paths and polling rates, ranging from 10 seconds through to 5 minutes.

Fratech Multipath-IP is encrypted with 128-bit AES encryption, which means that alarms and polls are treated as high security over any IP communication path.

The Omni-link STU will poll on the highest priority path, if the primary path fails, then depending on the plan selected, an alternate path can be used, thereby preserving the polling integrity.

Polling Path Priority

1	Ethernet
2	GPRS 1
3	GPRS 2

Standard Monitoring Plans

Plan Code	Plan	Supervision Time
C2SE	Class 2 - Ethernet & Single GPRS	1 hour
C2DE	Class 2 - Ethernet & Dual GPRS	1 hour
C2S	Class 2 - Single GPRS Only	1 hour
C2D	Class 2 – Dual GPRS Only	1 hour
C3SE	Class 3 - Ethernet & Single GPRS	120 seconds
C3DE	Class 3 - Ethernet & Dual GPRS	120 seconds
C3S	Class 3 - Single GPRS Only	120 seconds
C3D	Class 3 – Dual GPRS Only	120 seconds
C4SE	Class 4 - Ethernet & Single GPRS	60 seconds
C4DE	Class 4 - Ethernet & Dual GPRS	60 seconds
C5SE	Class 5 - Ethernet & Single GPRS	20 seconds
C5DE	Class 5 - Ethernet & Dual GPRS	20 seconds

The Standard Multipath-IP plans are aligned with the Alarm Transmission system supervision timing requirements in the Standards Australia, Alarm transmission system standard AS/NZS 2201.5—2008. Please note the supervision timing is only one of the requirements of the standard. Please consult the standard for further details.

Installation

To install the Omni-link STU, refer to the following documents that were included with your Omni-link STU:

- 638325ETH: Installation Guide: Ethernet
- 638325GPRS: Installation Guide: GPRS
- Hardware installation: See Appendix 1 to 3 of this guide.

Indicator Lamps

The meaning of each indicator lamp is described below.

Lamp Name	Lamp ON	Lamp OFF	Lamp FLASHING
PWR OK	AC power OK	<i>Invalid State</i>	No AC power, running on battery
BATT OK	Battery voltage OK	<i>Invalid State</i>	Battery voltage is low / no battery is connected
Panel OK	Serial communications established	Concept Communication Mode Selected - Serial communications not established	Securitel Communication Mode Selected - Serial communications not established
GSM REG	GSM modem is registered. <i>See note 1.</i>	GSM modem is not ready. If it remains off, then GSM modem is faulty.	GSM modem is working, but not yet registered. <i>See note 2.</i>
ENET OK	Communicating to Multipath-IP Server via Ethernet	IP address problem, no IP address assigned by DHCP server	IP address OK but not yet communicating with server.
GPRS OK	Communicating to Multipath-IP Server via GPRS	Not communicating on GPRS	Problem Communicating to Multipath-IP Server via GPRS
GSM USE	GSM is in use, either SMS or GSM dialler	GSM is not in use	<i>Invalid State</i>
Rx PANEL	Alarm Panel is off-hook	Waiting for data from the connected alarm panel	Receiving data from the connected alarm panel
ALARMS	<i>Invalid State</i>	No alarms buffered within the Omni-link STU	Alarms buffered within the Omni-link STU

Notes:

1. When the Omni-link STU has registered with the network; the MOBILE OK lamp will pulse off between 1 and 5 times, every 10 seconds. The number of pulses represents the signal strength, 1 pulse is the lowest, and 5 pulses are the highest.
2. If the MOBILE OK lamp flashes for 2 seconds, then remains off for 2 seconds, repeatedly, this indicates a SIM card problem. Either the SIM card is not inserted or requires a PIN or is faulty. Slow flashing indicates GSM modem is being initialized; fast flashing continuously indicates that there is not enough signal strength.

Troubleshooting

To troubleshoot installation issues, refer to the documents "Installation Guide: Ethernet" (part number 638325ETH) and "Installation Guide: GPRS" (part number 638325GPRS) that were included in your Multipath-IP.



Defaulting the Omni-link STU

The Omni-link STU is defaulted to the correct mode of operation in the factory.

The following procedure is only used if:

- A problem has occurred during installation or enrollment that requires the unit to be defaulted again.
 - Monitoring is being transferred to a different Central Monitoring Station.
 - The Omni-link STU has been upgraded from an earlier firmware version.
 - If you are unsure that the unit is “factory fresh”.
- 1) Whilst shorting the “INIT” pins, power up the unit. When powered up, after a couple of seconds release the short and ONLY the PWR OK lamp should turn on. (If any other lamps are illuminated, the default process was unsuccessful and should be stated again)
 - 2) Now momentarily short the INIT pins repeatedly, until the “**GPRS OK**” lamp is illuminated. This is the 6th lamp from the top and selects the “Multipath IP STU” default (If any other lamps are illuminated the default process was unsuccessful and should be started again).
 - 3) Now initiate the default by momentarily shorting the “OK” pins. During the default, the BATT OK, GSM REG, GPRS OK and Rx Panel lamps will illuminate, after which the Omni-link STU will resume its normal operation.

Note: This guide assumes that the “Multipath-IP” default has been done. Defaulting to any other option instead of “GPRS OK” will cause the Omni-link STU to fail to enrol with the Central Monitoring Station.

Appendix 1 – Specifications & Parts List

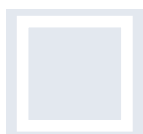
Specifications

PCB Dimensions:	200mm x 94mm
Cabinet Type / Dimensions:	Metal Box / 260mm x 255mm x 85mm. (-XS Part Nos. only)
Shipping Weight (Gross) / Size:	3.5Kg. 390mm x 300mm x 90mm. (-XS Part Nos. only)
Maximum Ambient:	50 degrees C
Power Source: <i>See Appendix 3.</i>	16V 1.5Amps AC via supplied plug-pack OR 13.75 V DC from host Alarm Panel.
Total available current: (If powered via plug-pack)	700mA @ 12 Volts (Battery charging plus Ancillary load)
Max. Battery current	500mA continuous
Max. Ancillary current:	200mA continuous (100mA per open collector Auxiliary)
Recommended battery: (If powered via plug-pack)	12 Volt SLA (gel) type, 7 Amp-Hour.
Typical Battery Backup time:	Up to 11hours (7 Amp-Hour battery)
Minimum operating voltage:	10.5 Volts
Low battery sense voltage (typical):	11.5 Volts
Battery fuse:	2 Amps
Supply currents @ 12volts:	140mA (idle)+ 90mA/160mA (PANEL on line/PANEL Linked) +200mA to 600mA (GSM on line)
Zone inputs:	Zone 1 is used for PABX connection monitoring. Zone 'WD' used for Panel Watchdog. Zone 'TAMP' is a dedicated Cabinet Tamper (short = alarm, open = sealed). NOTE: Zones 1 & 2 Require EOL Resistors. ALL ZONES MUST BE CONNECTED TO DRY CONTACTS - NO VOLTAGE SHOULD BE APPLIED
Relay Auxiliary outputs: (AX1 & AX2)	2A – 30VDC
Fail auxiliary output (LA):	'LA' Terminal - open collector (fail = open circuit)
Test auxiliary output (PT):	'PT' Terminal - open collector (test = open circuit)
Indicator lamps:	9
Alarm format:	Contact ID or IRfast
PSTN isolation voltage:	2500 V RMS
PSTN Earthing:	Yes, through supplied plug-pack.
Max PABX Line voltage:	35 Volts
Max PABX current:	35 mA
PABX Output Level:	-15dBm
Max RF Power:	2 Watt (Power class 4, 91/263/EEC directive)

- All figures quoted are typical. Manufacturer reserves the right to alter at any time.
- Note that +V on the Omni-link STU is internally connected to the battery via the battery fuse.
- Over-current on +V will cause the battery fuse to blow, and therefore no battery will be available for the Omni-link STU.
- External loads should be wired via a separate fuse.

Notes

1. Upon commissioning, the system should be tested according to AS2201.5 (Intruder Alarm Systems - Alarm Transmission Systems) Clause 2.5. (PDF document available from: <http://www.saiglobal.com/shop/Script/search.asp>)
2. When an external alarm panel is connected via a PABX connection, a separate tamper circuit wired to the Multipath-IP STU on the Zone 1 Input shall be installed alongside the PABX connection cable, with the monitoring resistor (end-of-line resistor) located inside the alarm system cabinet. See details and wiring diagram on page 13.



Parts List

All Part Numbers

- Multipath-IP Omni-link STU PCB
- Multipath-IP Omni-link Install Manual (this document)
- Multipath-IP Omni-link Installation Guide – GPRS
- Multipath-IP Omni-link Installation Guide – Ethernet
- Multipath-IP Omni-link Important Information Form
- Multipath-IP GPRS SIM card(s)
- Installation Kit containing:
 - o 2 x 2-Way plug-on screw terminals.
 - o 1 x 6-Way plug-on screw terminals.
 - o 5 x 4-Way plug-on screw terminals.
 - o 1 x 6.3mm “Quick Connect” connectors for Earth.
 - o GSM Antenna with 2.5 metre lead & Bracket.
 - o PANEL Lead to connect to alarm panel.

Metalware part numbers Only, additional Installation kit components

- o 1.5 Amp Plug Pack with Earth lead.
- o 1 x Tamper switch and Tamper switch bracket.
- o 2 x 4.8mm “Quick Connect” connectors for Tamper switch.
- o 1 x pair of Battery Leads 40cm.



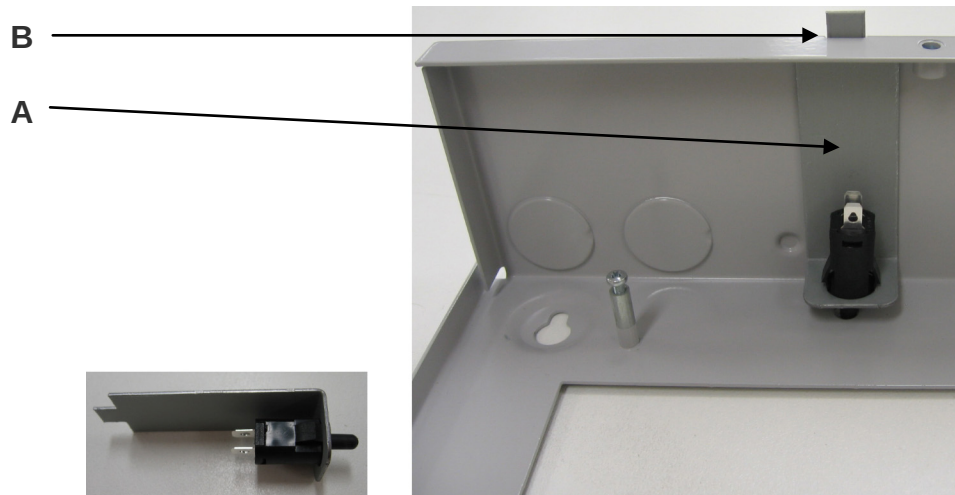
Appendix 2 – Hardware Installation

Pre-installation checks

- A GPO (mains outlet) is required to be located such that the plug pack lead will comfortably reach the AC terminals on the Omni-link STU.
- The antenna can be positioned such that good signal strength is achievable.
- The antenna wiring is long enough to reach the intended antenna location (2.5 metres).
- An Ethernet connection is available if a plan that includes the Ethernet path is being utilized.

Mounting the Omni-link STU

- Fit the Tamper switch to the tamper bracket.
- Slide the tamper bracket (A) through the slot (B) in the Omni-link STU chassis, before placing the chassis on the mounting surface.
- Mount the Omni-link STU cabinet on a solid surface, and fix securely.



Mounting the antenna

- Having verified good signal strength and found the most suitable position for the antenna, use the antenna mounting bracket and screws to secure the antenna to an appropriate surface. Alternately the antenna may be mounted to the metal enclosure using the 13mm knockout hole provided.
- Position the GSM antenna so that humans or animals cannot approach closer than 10 cm during normal operation and so that it is protected from lightning. Do not locate GSM antenna within 1 metre of any other electronic equipment or near metallic objects.
- Route the antenna cable so that all bends are smooth and there are no kinks in the cable.
- Ensure that moisture cannot run down the antenna into the Omni-link STU enclosure, as this may result in shorting of components and damage to the Omni-link STU.

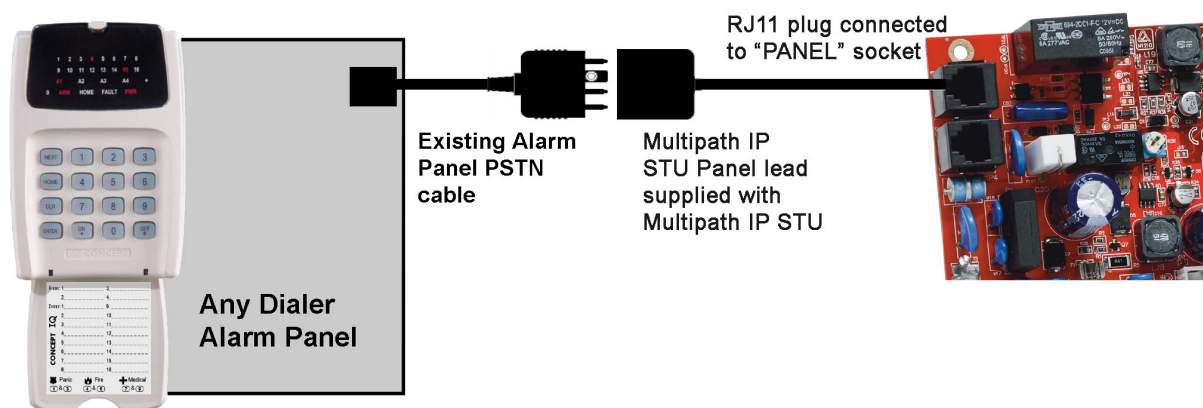


Connecting a Omni-link STU to any Contact ID Alarm Panel

Unplug the alarm panel's PSTN Contact ID dialer lead from its existing Mode3 611 socket (if connected) and connect it to the 610 inline socket on the Omni-link STU "PANEL" cable supplied in the Omni-link STU accessory pack. Plug the other end of the "PANEL" cable into to the RJ11 socket on the Omni-link STU labeled "PANEL".

Programming the dialer alarm panel:

- The alarm panel is required to be programmed to report standard Contact ID only.
- A single digit phone number (E.g. 1) is all that is required to be programmed in the alarm panel's dialer. This saves time when transmitting alarms/events from the alarm panel to the Omni-link STU and hence the overall time of reporting alarms/events to the Central Monitoring Station.
- The Omni-link STU kisses off alarms/events from the alarm panel, and then sends these to the Central Monitoring Station.
- The client code in the alarm panel will not be transmitted to the monitoring centre; instead the 6 digit client code of the Omni-link STU will be used.



Connecting an Omni-link STU to a Securitel Enabled Alarm Panel

The Omni-link STU can be connected to alarm panels that use the Securitel protocol. Connections are provided for either TTL or RS232 interface formats. A list of alarm panels that have currently been verified to be compatible with the Omni-link STU is:

- Concept 3000/4000 alarm panel
- Concept 2000 alarm panel
- Concept IQ plus alarm panel
- Tecom Challenger alarm panel
- NX alarm panels (via the NX-583 Securitel interface)
- Solution 16 alarm panel
- DSC

To connect any of the above alarm panels to the Omni-link STU follow the instructions in this section and refer to the wiring diagram in Appendix 3.

When connecting the Omni-link STU to the Serial Securitel port on other Alarm Panels, it is recommended that the Alarm Panel manufacturer's recommended Serial STU cable be used.

E.g.	Concept 2000	Concept 1000/2000 Securitel Cable P/No: 990035
	Concept IQ Plus	Concept IQ Securitel Cable P/No: 995524
	NX-583 Securitel Interface	200mm cable is supplied with the NX-583 interface.
	Challenger	Contact Inner Range Support for recommendations.

After the connections have been made the 'Panel OK' lamp will illuminate and remain on. With every successful Securitel poll received from the connected alarm panel the 'Rx Panel' lamp will flash.

Link Settings

LK1	1-2	Factory setting. Do not change.
	2-3	Not used
LK2	1-2	Factory setting. Do not change.
	2-3	Not used
LK3	Not fitted	Alarm panel connected via the "IFACE RS-232" port. (T1 Screw terminal connector or P2 Box header)
	Fitted	Alarm panel connected via the "IFACE TTL" port. (T2 Screw terminal connector)

Connecting a Omni-link STU to a Concept 3000/4000 (Type 1) Alarm Panel

- A Concept 3000/4000 Type 1 alarm panel can either be connected via the dialer (in the same way as described above) or via a serial UART port with a high level interface cable (FE3000 GSM Modem Interface cable -IR P/N: 994092).

NOTE: IRfast cannot be used via serial with a Type 1 Concept Panel.

When the Concept 3000/4000 Control Module is being connected to the Omni-link STU via the serial UART port, the Concept 3000/4000 comms task of "GSM" must be used.

Connecting a Omni-link STU to a Concept 3000/4000 (Type 2) Alarm Panel

- If the Contact ID reporting format is to be used, a Concept 3000/4000 alarm panel can either be connected via the dialer (in the same way as described above) or via a serial UART port with a high level interface cable (FE3000 GSM Modem Interface cable -IR P/N: 994092).

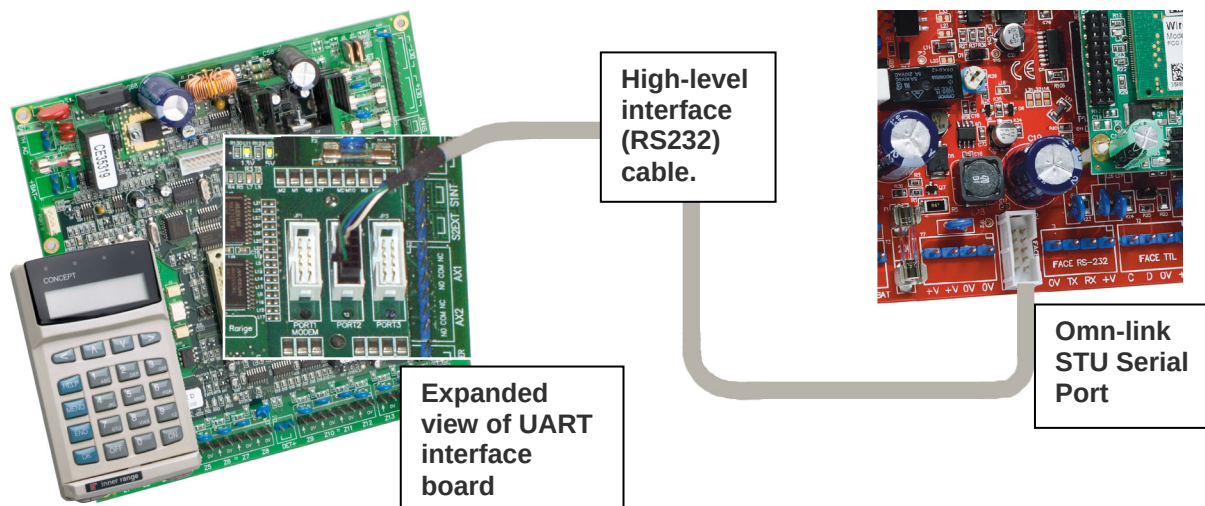
- If the IRfast reporting format is to be used, a Concept 3000/4000 alarm panel must be connected via a serial UART port with a high-level interface cable.

The Concept 3000/4000 alarm panel must have firmware version 5.7 or higher.

- If the IRfast reporting format is to be used with IRfast Text, a Concept 3000/4000 alarm panel must be connected via a serial UART port with a high-level interface cable.

The Concept 3000/4000 alarm panel must have firmware version 7.8 or higher.

When the Concept 3000/4000 Control Module is being connected to the Multipath-IP STU via the serial UART port, the Concept 3000/4000 comms task format "GSM" must be used.



Alarm Panel monitoring options

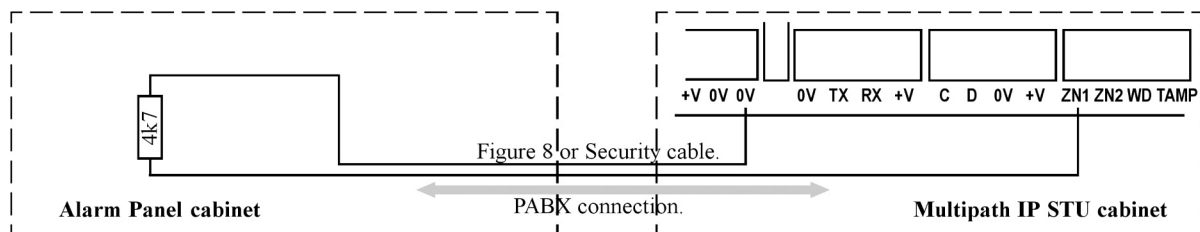
Panel Watchdog:

When using the Panel Watchdog feature, the Omni-link STU will monitor the 'WD' Zone input for a physical transition from Sealed to Alarm every 15 seconds. If the 'WD' input does not change state within this time the zone will go into alarm and will report Contact ID point 947 to the Central Monitoring Station. (See Appendix 3 – Wiring Diagram)

This feature is not enabled by default. The Central Monitoring Station can set this feature at any time.

PABX Cable Tamper Monitoring:

When an external alarm panel is connected via a PABX connection, install a separate tamper circuit wired to the Omni-link STU ZN1. The tamper circuit cable must run alongside the PABX connection cable and the 4K7 Ohm EOL (End-of-line) resistor must be located inside the alarm system cabinet as shown below.



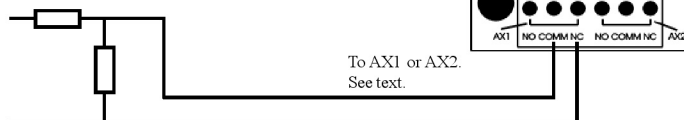
Remote Arming / Disarming via Alarm Panel Keyswitch Zone:

The Omni-link STU can provide an output to trigger a momentary or latching keyswitch via the AX1 and AX2 relay outputs. These outputs can be wired to a zone input on the Alarm Panel for remote arming &/or disarming of the alarm panel.

Note that not all Central Monitoring Stations may offer this facility. Check with the Central Monitoring Station before implementing.

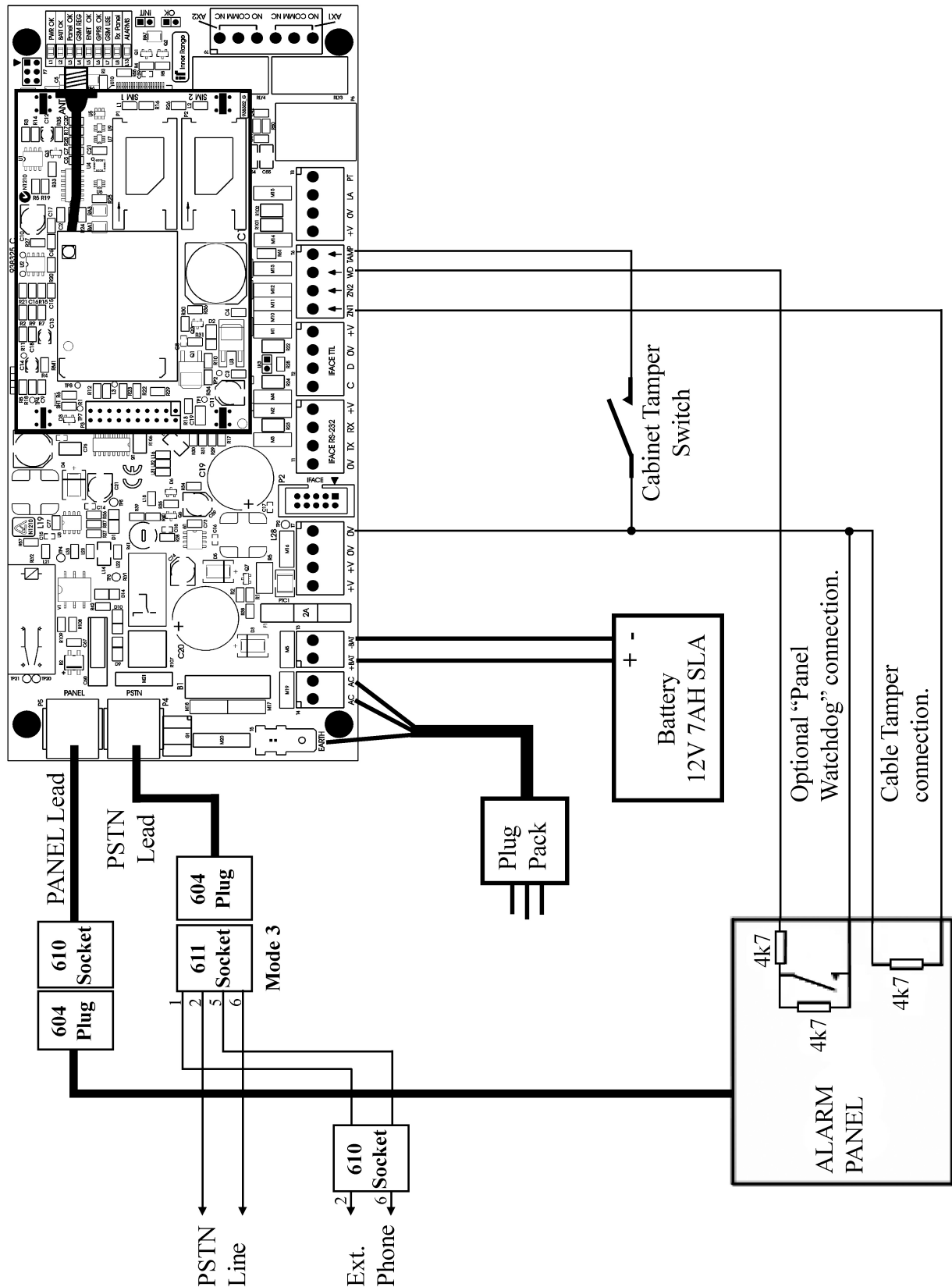
Note: The end-of-line (EOL) resistors for the Keyswitch zones are specific to the type of alarm panel used. Please refer to the Alarm Panel's installation manual for the values and configuration.

B. Wired back to a Keyswitch zone in any Dialer Alarm Panel.

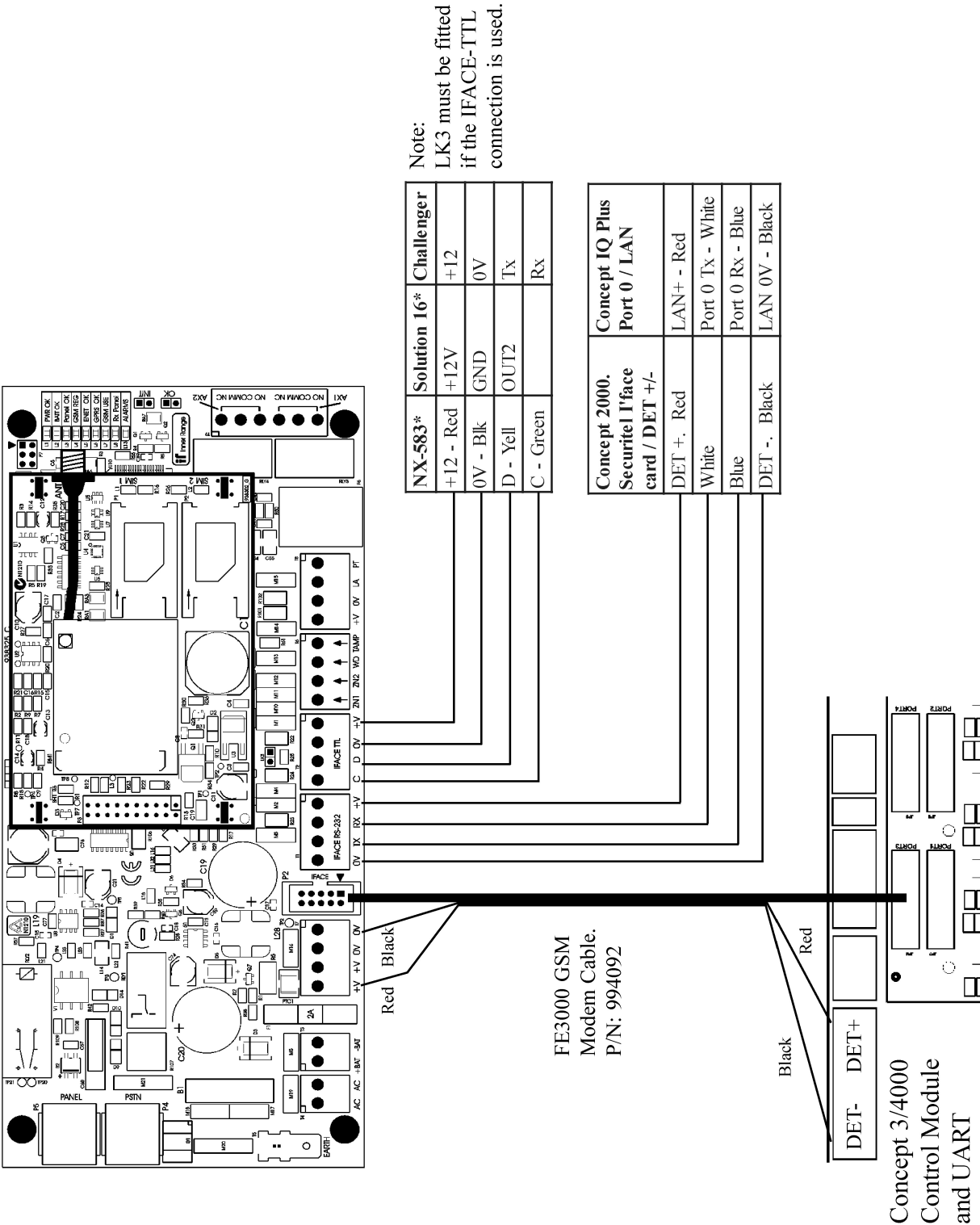


Appendix 3 - Wiring Diagrams

Power, PSTN and Input wiring.



Serial connections



Fratch Multipath IP Omni-link STU

Installation Guide: Ethernet

This is an installation guide for installing and connecting a Multipath-IP Omni-link STU to the Multipath-IP network via an Ethernet connection.



Prior to installation

Page

PRE-STEP 1 Contact the Central Monitoring Station and obtain their *IP address* and *UDP port* information. 2



PRE-STEP 2 Contact the client site and request that the IT administrator: 2

- Reads the Multipath-IP Network Administrator's Guide (IR Part No. 638307BSAI)
- Opens the necessary UDP ports
- Sends details of the desired IP addressing scheme (DHCP or Static)
- Runs the Multipath-IP Network Test application

On Site Installation



STEP 1 Connect the Antenna, SIM Card(s) and Communications connection to the Alarm Panel. 2



STEP 2 Connect the STU to an Ethernet network. 2



STEP 3 Power up the Omni-link STU and wait for the GSM modem to establish registration on the mobile GSM network. 3



STEP 4 Contact the Central Monitoring Station and enrol the STU. 4



STEP 5 Minimum suggested site commissioning tests for Ethernet. 5

Appendix A and B provide additional troubleshooting tips. See pages 6 and 10.



Note

The pre-installation steps should be completed *before visiting the client site*. After installation, standard site commissioning tests should be completed.

Detailed Instructions: Pre-Install



Obtain the IP address and UDP Port from the Central Monitoring Station

1. Contact the Central Monitoring Station and request the IP address and UDP Port number that is used by the Central Monitoring Station for Multipath-IP communications.



Liaise with Client Site IT Administration

A document specifically for network administrators can be downloaded from the Inner Range website at: <http://www.innerrange.com/support.php>

Log into the support portal and navigate to:
Directory Tree: root /Document_Downloads /Multipath-IP /Multipath-IP Premier STU

The document filename is 638307BSAI. It is recommended that this document be forwarded to the IT administrator at the client site.

2. **If the ports are closed, request that the UDP ports be opened.** Ensure the firewall protecting the local network has the specific UDP port nominated by the Central Monitoring Station opened for outgoing/incoming packets. Retry step 3 once completed.
3. **Obtain the IP addressing scheme.** The IT administrator at the client site will specify that the Omni-link STU will use either static or dynamic IP addressing.
 - If dynamic IP addressing is used then no IP address details are required.
 - If static IP addressing is used, then the **IP address**, **subnet mask** and **gateway address** must be provided by the IT administrator. These addresses will look like four numbers separated by periods (for example, 192.168.0.1).

Detailed Instructions: On Site



Connect the Antenna to the Omni-link STU

1. Connect the antenna to the GSM modem.
2. Ensure the antenna is "finger tight" only. DO NOT OVERTIGHTEN.
3. DO NOT cut or otherwise modify the cable.
4. Ensure the cable is free of any kinks or sharp bends.



Connect the Omni-link STU to the Ethernet Network

1. Connect an RJ45 cable from the Omni-link STU to an Ethernet network connection point.

Ensure the STU is connected to a piece of networking hardware capable of communicating at 10 Mbit. (A 10/100mbit device is sufficient for this, whilst a 100 Mbit only device is not).



Connect the Omni-link STU to the Alarm Panel

1. Connect the alarm panel to one of the four interfaces available, depending on your panel. (PANEL phone cable, Concept 10pin header, TTL Securitel interface or RS232 Securitel interface.)
2. Power up the Omni-link STU. This can be done using the supplied plug-pack with a battery **OR** connect the 12V DC power from the power supply source to ONE of the TTL or RS232 interface connections. If plug-pack used, do not connect +12V from Alarm Panel.

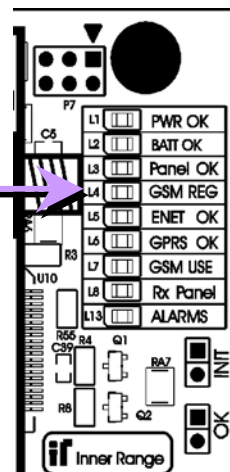
3

Check for Connection to the GSM Network

1. Check for connection to the GSM network. The "GSM RED" lamp will initially flash. When the Omni-link STU has successfully connected to the GSM network, then the "GSM REG" lamp will illuminate for approximately 5 seconds and then flash. (This 5 second illumination and flash sequence, will repeat every 10 seconds)

After 1 minute, if the "GSM REG" lamp does not enter the 5 second illumination cycle, then relocate the antenna to a position with greater GSM signal strength.

2. Check for adequate GSM signal strength. Once the "GSM REG" lamp has entered the 5 second illumination cycle, then the number of flashes represents the GSM signal strength.
 - 1 or 2 flashes represents low or unacceptable GSM signal strength.
 - 3 flashes represents adequate GSM signal strength.
 - 4 or 5 flashes represents good GSM signal strength.

**Note**

If the "GSM REG" lamp shows low GSM signal strength (i.e. 1 or 2 flashes), then relocate the antenna to a position with greater GSM signal strength.

Note

The signal level on a mobile phone can also be used to check the signal strength at different positions around a site. When relocating the GSM antenna, allow 30 seconds for the new signal strength to be displayed.

3. In order to check the signal strength of the Backup SIM card (if it is available) the following steps can be used:
 - a. Connect a shorting link across the "OK" pins of the Omni-link STU.
 - b. Immediately the "PWR OK" and "BATT OK" lamps will begin flashing alternately and all other lamps will turn off.
 - c. In order to use the Backup SIM card the modem must first reset. Normally the modem takes about 1 minute to reset and display the signal strength of the Backup SIM card.
 - d. The "GSM REG" lamp now represents the status of the Backup SIM card in the same way as described in Part 2 above.
 - e. Repeat the steps described above Part 2 in order to maximise the signal strength for the Backup SIM card by moving the antenna location.
 - f. When this test has been completed, remove the shorting link from the "OK" pins. The "PWR OK" and "BATT OK" lamps will immediately stop flashing and all of the other lamps will again represent their labelled statuses.
 - g. Again the modem will take approximately 1 minute to reset and use the Primary SIM card again.
 - h. The swapping and checking of SIM cards can be repeated as many times as necessary.

4

Contact the Central Monitoring Station and Enrol the Multipath-IP Omni-link STU

1. Contact the Central Monitoring Station and request that the Omni-link STU be enrolled (The mobile phone number of the Omni-link is required by the Central Monitoring Station for enrolment. This number is on the Important Information form supplied in the box.)
2. Receive confirmation from the Central Monitoring Station that the Omni-link STU has been successfully enrolled.
3. Check that the "ENET OK" lamp is on.

If the "ENET OK" lamp is off there is an IP addressing problem.

- If the Omni-link STU is configured for dynamic IP addressing:
 - Contact the IT Administrator or Customer to ensure DHCP is enabled.
 - Connect the Omni-link's Ethernet cable to a laptop computer configured for dynamic IP Assignment. Check to ensure an IP Address is allocated. (See Appendix A of this manual for details of this procedure). If an IP address is not allocated then contact the IT administrator and inform them that there appears to be a problem accessing the DHCP service.
 - If an IP address is allocated, reattach the Ethernet cable to the Omni-link STU and retry the enrolment process.
- If the Omni-link STU is configured for static IP Addressing:
 - Ensure that the IP address assigned to the Omni-link STU is not being used by another device on the network. Use the ping utility from another computer on the network whilst the Omni-link STU is disconnected. (See Appendix B of this manual for details of this procedure).

If the "ENET OK" lamp is flashing the unit has an IP address but is unable to communicate to the Multipath-IP Server in the Central Monitoring Station.

- Ensure the firewall protecting the local network has the specific UDP port nominated by the Central Monitoring Station opened for outgoing and incoming packets.
- Ensure that the Central Monitoring Station currently has Ethernet connectivity with other customers and is not experiencing an outage. Try power cycling the router, modem or other networking hardware.

If the "ENET OK" lamp remains flashing after the above procedures have been carried out, contact Inner Range Technical Support for further assistance.

5

Minimum suggested site commissioning tests for an Omni-link STU using Ethernet

1. Verify polling on the primary IP path (ETHERNET)
 - a. The Omni-link STU should be communicating to the Multipath-IP server via ETHERNET. To verify this, request the Central Monitoring Station to check the Multipath-IP Server, this will show the path that is being used. Also the "ENET OK" lamp should be on solid.
2. Verify polling on the secondary IP path (GPRS1)
 - a. Request that the Central Monitoring Station start the GPRS path. The Omni-link STU should start communicating to the Multipath-IP Server via GPRS1. To verify this, request the Central Monitoring Station to check the Multipath-IP Server, this will show the path that is being used. Also the "GPRS OK" lamp should be on solid.
3. Verify polling on the redundant secondary IP path (GPRS2)
 - a. Request that the Central Monitoring Station swap the active SIM from SIM1 to SIM2 and then start the GPRS path. After approximately 1 minute the Omni-link STU should be communicating to the Multipath-IP Server via GPRS2. To verify this, request the Central Monitoring Station to check the Multipath-IP Server, this will show the path that is being used. Also the "GPRS OK" lamp should be on solid.
4. Verify recovery from power failure
 - a. Remove power from the Omni-link STU for approximately 10 seconds then apply power again. After approximately 10 seconds the Omni-link STU should be communicating to the Multipath-IP server via the primary IP path (ETHERNET). To verify this, request the Central Monitoring Station to check the Multipath-IP Server STU, this will show the path that is being used.

Appendix A:

Checking that DHCP is Enabled on a Network

DHCP, or “Dynamic Host Configuration Protocol”, means computers and devices on a network are allocated an “address” automatically. The address is essential for all communications with the device. This is the opposite of “static” address allocation, wherein all devices are configured manually.

One way to test that DHCP is enabled on a network is to try to add a machine to the network and see if the DHCP server gives the machine an address (known as a “DHCP Lease”).

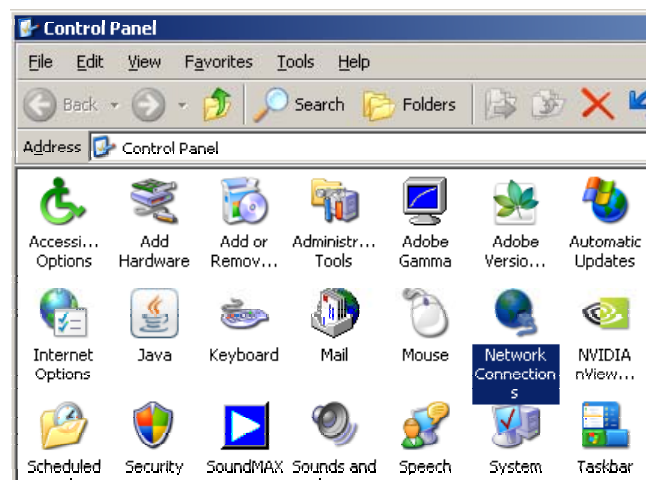
1. Set the machine to use DHCP

(Note: the methods and procedures depicted below may vary depending on your version of Microsoft® Windows®).

- a. Select Control Panel from the Windows Start Menu

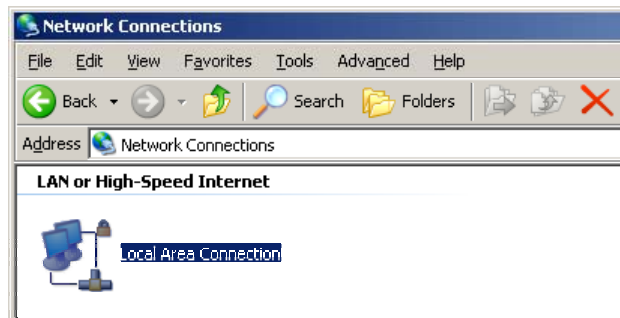


- b. Select Network Connections from the Control Panel

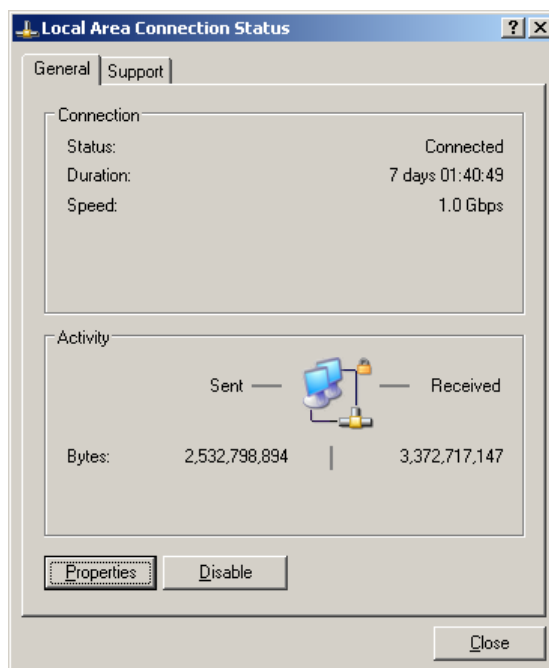


(Continued overleaf...)

- c. Select Local Area Connection. The Status Dialog will appear.

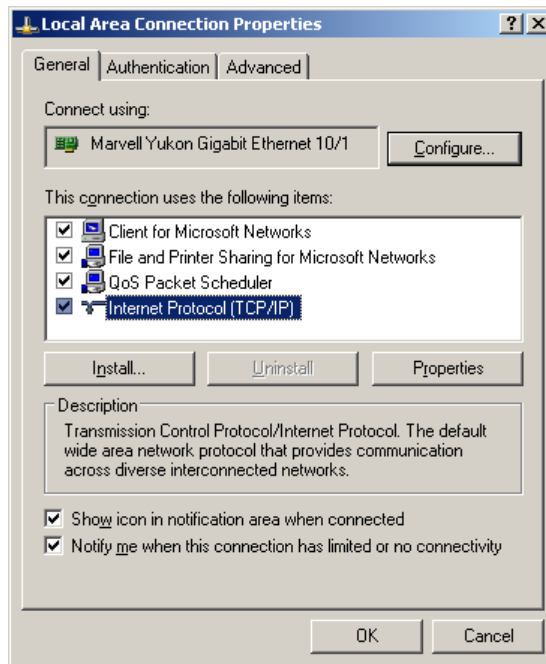


The Status Dialog will appear.

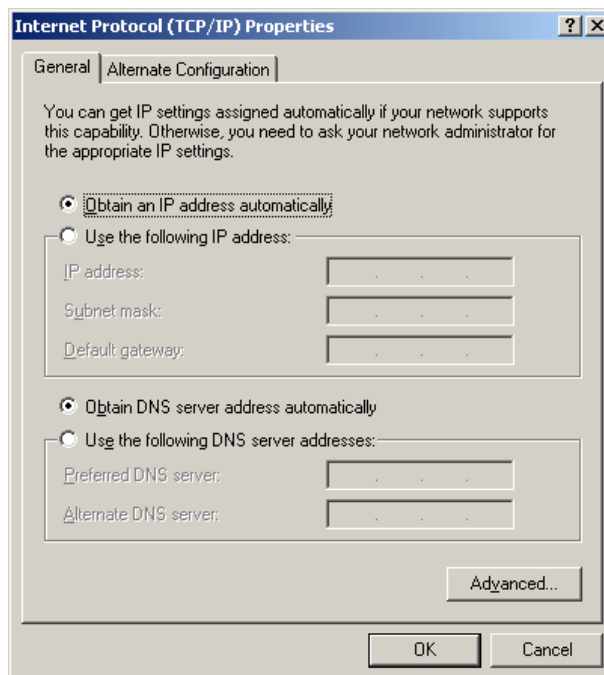


(Continued overleaf...)

- d. Select the Properties button. The Connection Properties Dialog will appear.



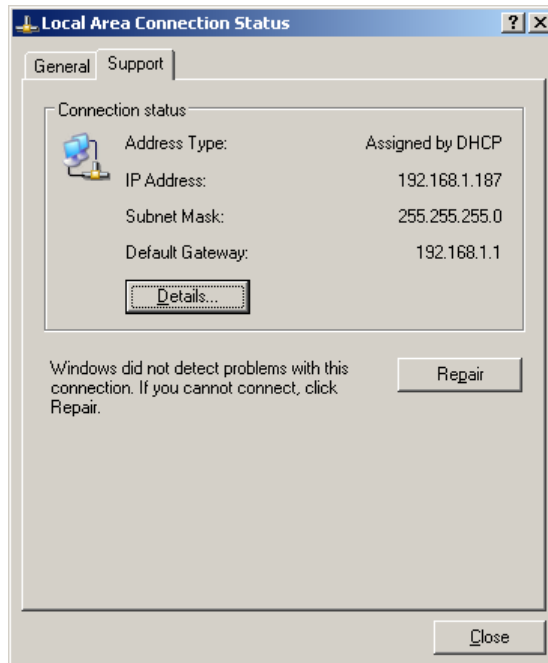
- e. Choose the Internet Protocol (TCP/IP) item from the list and select Properties. Another dialog, TCP/IP Properties will appear. (At this point, it may be wise to take a note of any existing settings, so that they can be reverted back to, if necessary).



- f. On the General tab of the new dialog, ensure that "Obtain an IP address automatically" and "Obtain DNS server address automatically" are selected.
- g. Select OK to close this dialog. Select OK to close the Connection Properties Dialog.

2. Check to see that an IP address has been assigned

- a. On the Status Dialog (opened in 1c above), select the Support tab. This will show the type of network connection (DHCP or manual) and other details about the connection.
- b. If the process in step 1 was successful, the dialog will appear as below, showing that:



- c. If the dialog is not as shown in (2b) above, try using the Repair button to refresh the connection. Another dialog will appear whilst the machine takes the necessary steps.
- d. If (2c) above did not appear to result in a successful connection using DHCP, contact the local network administrator. The failure to connect may be due to:
 - i. Some DHCP enabled networks have a register of MAC addresses of network interface devices that are authorised to be on the network. If the MAC address of the machine/STU is not in the register, it will be unable to obtain a DHCP lease from the DHCP server.
 - ii. There could be other network issues. Consult your local network administrator for assistance.

Appendix B:

Pinging an IP Address

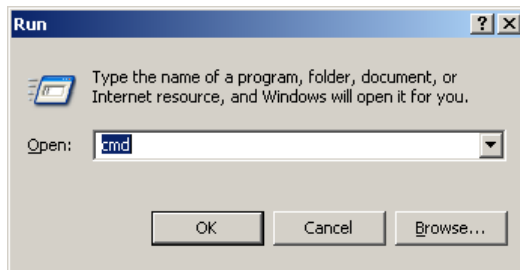
To test whether an IP address is in use and/or if an IP address is responding to the network, you can attempt to 'ping' it. To ping an IP address using the Windows operating system:

1. Open the command line interface console (aka the 'cmd window')

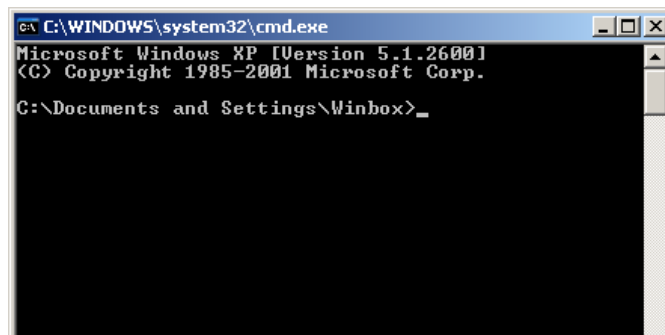
- a. Select Run from the Windows Start Menu



- b. In the dialog that appears, type in cmd and then select the OK button

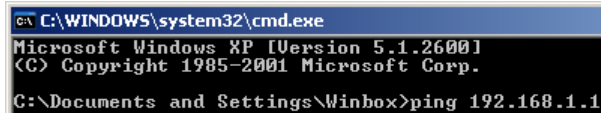


- c. The cmd window will appear:



2. Use the 'ping' command to see if the IP address is responding

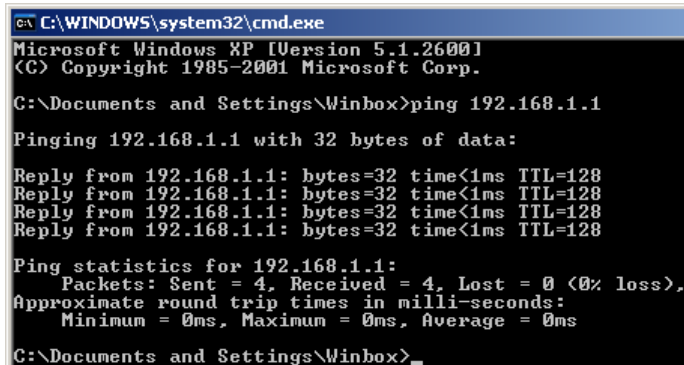
- a. In the cmd window, type in "ping" followed by the IP address of interest then hit Enter. For example, if you wanted to see if 192.168.1.1 was responding, you would type:
ping 192.168.1.1



```
ca C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\Winbox>ping 192.168.1.1
```

- b. The machine will then attempt to raise a response from the target IP address, if successful, the cmd window will look something like:



```
ca C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\Winbox>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

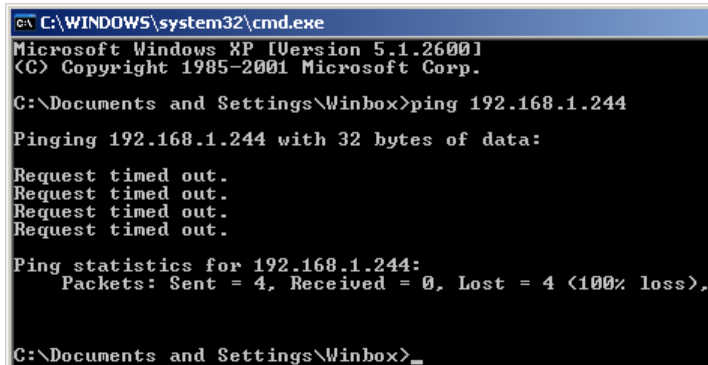
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Documents and Settings\Winbox>_
```

This means that there is something in the network responding to this IP address.

- c. If the target IP address does not respond, the cmd window may look something like:



```
ca C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\Winbox>ping 192.168.1.244

Pinging 192.168.1.244 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.1.244:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\Documents and Settings\Winbox>_
```

This means that there is no device/STU on the network with this IP address or the device is set up to not respond to a ping. The STU is always set up to respond to a ping.

This page intentionally left blank.

Fratech Multipath IP Omni-link STU

Installation Guide: GPRS

This is an installation guide for installing and connecting a Multipath-IP Omni-link STU to the Multipath-IP network via a GPRS (General Packet Radio Service) connection.

On Site Installation		Page
----------------------	--	------



STEP 1	Connect the Antenna, SIM Card(s) and Communications connection to the Alarm Panel.	2
--------	--	---



STEP 2	Power up the Omni-link STU and wait for the GSM modem to establish registration on the mobile GSM network.	2
--------	--	---



STEP 3	Contact the Central Monitoring Station and enrol the Omni-link STU.	3
--------	---	---



STEP 4	Minimum suggested site-commissioning tests for GPRS.	4
--------	--	---

Note

After installation, standard site commissioning tests should be completed.

Detailed Instructions: On Site

1

Connect the Antenna to the Omni-link STU

1. Connect the antenna to the GSM modem.
2. Ensure the antenna is "finger tight" only. DO NOT OVERTIGHTEN.
3. DO NOT cut or otherwise modify the cable.
4. Ensure the cable is free of any kinks or sharp bends.



Connect the Omni-link STU to the Alarm Panel

1. Connect the alarm panel to one of the four interfaces available, depending on your panel. (PANEL phone cable, Concept 10pin header, TTL Securitel interface or RS232 Securitel interface.)
2. Power up the Omni-link STU. This can be done using the supplied plug-pack with a battery **OR** connect the 12V DC power from the power supply source to ONE of the TTL or RS232 interface connections. If plug-pack used, do not connect +12V from Alarm Panel.

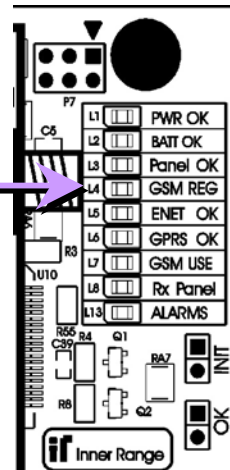
2

Check for Connection to the GSM Network

1. *Check for connection to the GSM network.* The "GSM REG" lamp will initially flash. When the Omni-link STU has successfully connected to the GSM network, then the "GSM REG" lamp will illuminate for approximately 5 seconds and then flash. (This 5 second illumination and flash sequence, will repeat every 10 seconds)

After 1 minute, if the "GSM REG" lamp does not enter the 5 second illumination cycle, then relocate the antenna to a position with greater GSM signal strength.

2. Check for adequate GSM signal strength. Once the "GSM REG" lamp has entered the 5 second illumination cycle, then the number of flashes represents the GSM signal strength.
 - 1 or 2 flashes represents low or unacceptable GSM signal strength.
 - 3 flashes represents adequate GSM signal strength.
 - 4 or 5 flashes represents good GSM signal strength.



Note

If the "GSM REG" lamp shows low GSM signal strength (i.e. 1 or 2 flashes), then relocate the antenna to a position with greater GSM signal strength.

Note

The signal level on a mobile phone can also be used to check the signal strength at different positions around a site. When relocating the GSM antenna, allow 30 seconds for the new signal strength to be displayed.

3. In order to check the signal strength of the Backup SIM card (if it is available) the following steps can be used:
 - a. Connect a shorting link across the "OK" pins of the Omni-link STU.
 - b. Immediately the "PWR OK" and "BATT OK" lamps will begin flashing alternately and all other lamps will turn off.
 - c. In order to use the Backup SIM card the modem must first reset. Normally the modem takes about 1 minute to reset and display the signal strength of the Backup SIM card.
 - d. The "GSM REG" lamp now represents the status of the Backup SIM card in the same way as described in Part 2 above.
 - e. Repeat the steps described above Part 2 in order to maximise the signal strength for the Backup SIM card by moving the antenna location.
 - f. When this test has been completed, remove the shorting link from the "OK" pins. The "PWR OK" and "BATT OK" lamps will immediately stop flashing and all of the other lamps will again represent their labelled statuses.
 - g. Again the modem will take approximately 1 minute to reset and use the Primary SIM card again.
 - h. The swapping and checking of SIM cards can be repeated as many times as necessary.

3

Contact the Central Monitoring Station and Enrol the Multipath-IP Omni-link STU

1. Contact the Central Monitoring Station and request that the STU be enrolled (The Central Monitoring Station should already have the mobile phone number of the STU. This is required for enrolment. This number is on the plan activation form.)
2. Receive confirmation from the Central Monitoring Station that the STU has been successfully enrolled.
3. Whilst enrolling, the "GPRSOK" LED should flash, and when communication is established the "GPRSOK" LED should be on.

4

Minimum suggested site commissioning tests for a Multipath-IP Omni-link STU using GPRS

1. Verify polling on the primary IP path (GPRS1):
 - a. The STU should be communicating to the Multipath-IP server via GPRS1. To verify this, request the Central Monitoring Station to check the Multipath-IP Server, this will show the path that is being used. Also the "GPRS OK" lamp should be on solid.
2. Verify polling on the redundant secondary IP path (GPRS2), if available:
 - a. Request that the Central Monitoring Station swap the active SIM from SIM1 to SIM2. After approximately 1 minute the Omni-link STU should be communicating to the Multipath-IP Server via GPRS2. To verify this, request the Central Monitoring Station to check the Multipath-IP Server, this will show the path that is being used. Also the "GPRS OK" lamp should be on solid.
3. Verify recovery from power failure
 - a. Remove power from the Omni-link STU for approximately 10 seconds then apply power again. After approximately 1 minute the Omni-link STU should be communicating to the Multipath-IP Server via the primary IP path (GPRS1). To verify this, request the Central Monitoring Station to check the Multipath-IP Server, this will show the path that is being used. Also the "GPRS OK" lamp should be on solid.

This page intentionally left blank.