Data Sheet

Trend Connect
Managed Connectivity Solution

Trend Connect

Description

Trend Connect is a managed connectivity solution that uses mobile communications to make a connection to a Trend network via Ethernet, allowing Trend software (e.g. 963 and SET) to connect.

A TCONN/LS300 modem is used to provide a secure and reliable network connection via a Virtual Private Network (VPN). The connection uses High-Speed Packet Access (HSPA), or General Packet Radio Service (GPRS) connection where 3G connectivity is unavailable.

The VPN infrastructure and connection are managed by Trend Control Systems, reducing the administration resource and commissioning time.

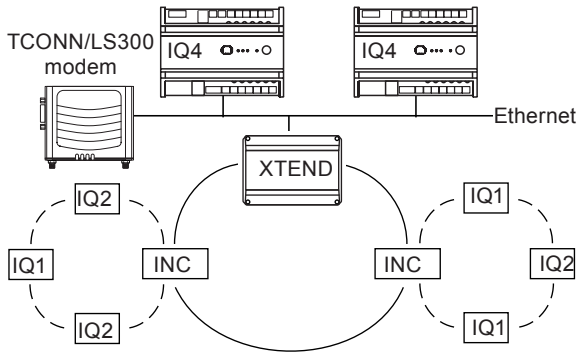
Features

- Remote Ethernet connection to Trend Network
- Easily installed and commissioned
- Trend managed Virtual Private Network (VPN)
- Secure on-demand network
- 12, 24 or 36 month contract with a maximum usage of 30MB per calender month
- 3 different ways of connecting to suit your requirements; VPN Client, VPN Agent and TCONN/LS300 modem

FUNCTIONALITY

SYSTEM

The TCONN/LS300 modem is connected to the Ethernet network using a standard RJ45 Ethernet cable, either directly to a Trend device, or via a hub, switch or router. This is performed by the on-site Trend or TTC engineer.



The hardware can be connected directly to an XTEND or IQ4NC to provide access to IQ1, IQ2, IQ3 and IQ4 controllers, as shown.

The modem is configured remotely by Trend Bureau to connect to the Trend device (e.g. XTEND or IQ4) using the modem's IP address plus the IP address and port numbers of the Trend device, as supplied by the on-site engineer. When connecting to IQ4, only one controller needs to be connected to the modem as all IQ4 controllers communicate with each other on the LAN.

SYSTEM (continued)

Once Trend Connect is installed and configured, SET, TEM and 963 are able to connect in the normal way. IP alarms can be sent from the IQ4 controllers in the normal way over the VPN connection, provided the VPN is connected.

There are 3 ways of connecting to the remote site:

VPN Agent
VPN Client
TCONN/LS300 modem

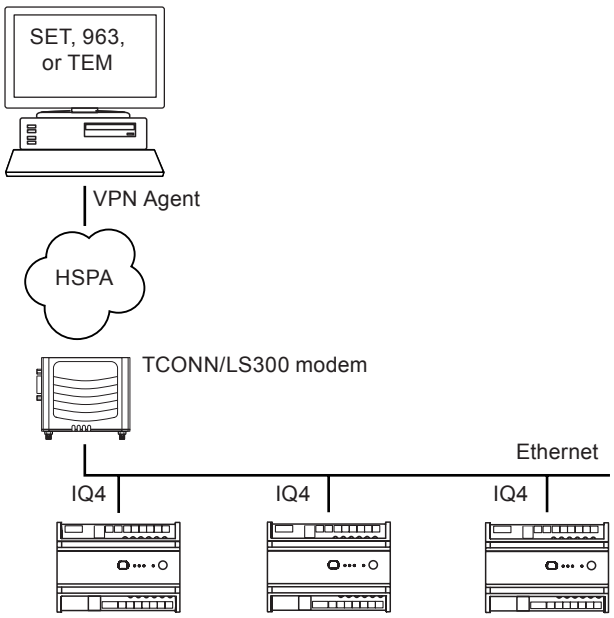
VPN Agent Solution

This solution allows connection over the internet to the Trend site via a secure VPN.

A PC running 963, TEM or SET can access the remote site over the VPN. The VPN Agent automatically connects to the remote site every time the PC on which it is installed is switched on. This is useful for remote alarm monitoring using 963.

With this solution, a TCONN/LS300 modem is connected continuously connected to the remote site and all that is required on the PC is an internet connection and the VPN Agent software. There is only 1 license included in the VPN Agent software package, however additional licenses can be obtained on request (extra charges apply).

The diagram below illustrates the VPN Agent connected to remote IQ4 controllers.



The minimum kit required for this installation is:

1 off TCONN/LS300 modem
1 off Managed Connectivity Solution - 12 Months
1 off VPN Agent Licence for 12 months

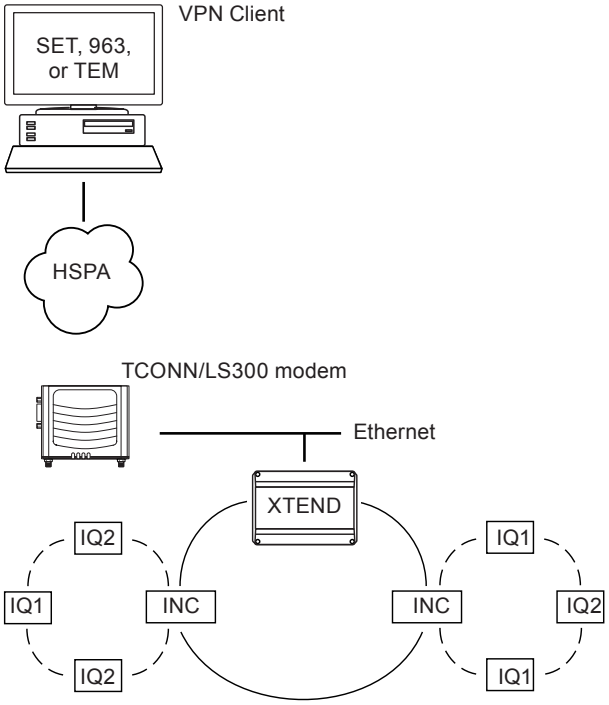
VPN Client Solution

This solution connects to the remote network in the same way as the VPN Agent. The only difference is that the VPN connection to the remote site is not made automatically when the PC is switched on; the user must connect to the VPN Client manually if they wish to access the remote site.

With this solution, a TCONN/LS300 modem is connected using a time limited connection to the Trend site and all that is required on the PC is an internet connection and the VPN Client software.

There is 1 license included for the VPN Client solution with each individually purchased TCONN/LS300 modem, however additional licenses can be obtained on request (extra charges apply).

The diagram below illustrates the VPN Client connected to a remote XTEND.



The minimum kit required for this installation is:

1 off TCONN/LS300 modem
1 off Managed Connectivity Solution - 12 Months (including VPN licence)

TCONN/LS300 modem Solution

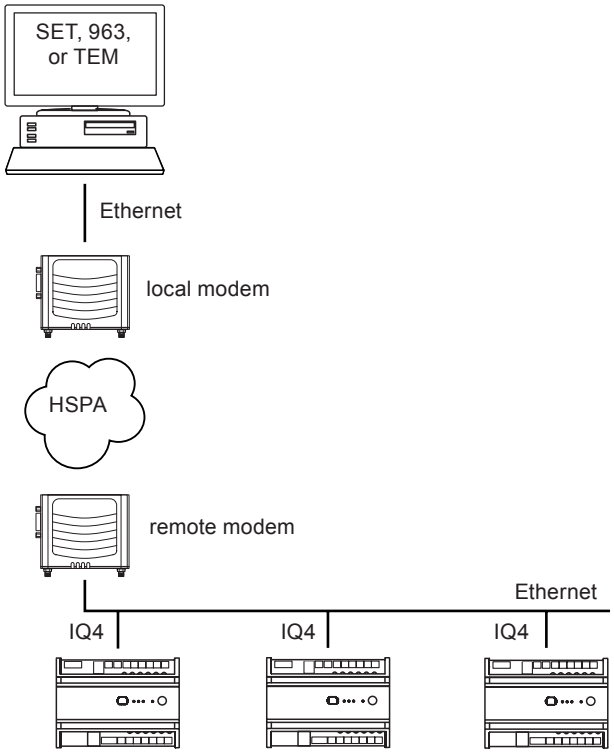
With this solution, a local modem is connected to the PC or network from which the connection is being made as well as a TCONN/LS300 modem connected to the remote site.

The default gateway of the PC from which you are connecting must be set to the local modem's IP address.

The configuration at the remote site remains the same as for the other solutions. The on-site engineer sets the default gateway of the remote Trend device to be the IP address of the remote TCONN/LS300 modem, then Trend Bureau configures the remote modem to communicate with the remote device.

This solution forms a modem to modem connection, without the need for a VPN connection. Therefore, no license is required for this solution. This connection is also continuously open as long as the modems are enabled, which is useful for remote alarm monitoring using 963.

The diagram below illustrates a TCONN/LS300 modem to modem connection to remote IQ4 controllers.



The minimum kit required for this installation is:

2 off TCONN/LS300 modem
2 off Managed Connectivity Solution - 12 Months

HARDWARE

The Trend Connect base package comprises:

- TCONN/LS300 modem
- M2M SIM card (pre-installed in modem)
- Puck antenna with 3 metre lead
- Power lead with set of AC adapters for each region

An RJ45 cable (not supplied) is also required to connect to the Trend system.

Modem: The TCONN/LS300 modem is an Ethernet gateway which provides a secure network connection to remote Trend Ethernet devices.

There are three connections used on the modem:

- Ethernet port
- Antenna connection
- DC power connection (regional AC power adapters supplied)

SIM card: The Machine to Machine (M2M) GDSP

- 12, 24 or 36 month connectivity, maximum usage of 30MB per calender month. Extra charges apply if this limit is exceeded - see the terms and conditions on the Trend Connect Installation Instructions (TG201144).

Antenna: A HGO-3G antenna can be supplied as an optional extra. This can be mounted farther from the modem and receives a stronger radio signal than the puck antenna which comes as standard. (See product order codes at end of document). It comes with a 5-metre lead and has a bolt-through mount (a secure mounting kit can be ordered, see order codes at end of this document). It is not intended for use within close proximity of the human body and should be mounted at a distance of at least 20 cm from the operator.

Power lead: The power lead comes with UK, and European AC adapters so the modem can be powered from most regions, without the need for obtaining a regional adapter.

SOFTWARE

VPN Agent: The VPN Agent provides secure access to the remote Trend Ethernet network with automatic 24/7 connection

Once installed, it must be configured with a username and password. Once configured the VPN Agent establishes a VPN connection to provide remote access to the Trend site via the TCONN/LS300 modem. The VPN Agent automatically connects to the VPN and the remote site every time the PC on which it is installed is switched on. This is useful for remote alarm monitoring using 963.

The VPN Agent software runs as a background Windows task and uses minimal disk space and memory.

VPN Client: The VPN Client provides the same access and functionality as the VPN Agent, but the user must connect to the VPN manually as the connection is time limited.

COMPATIBILITY

IQ System: Trend Connect can communicate with any IQ3 or IQ4 controller (and multiple webpages), any IQ1 and IQ2 through a Trend Ethernet product such as XTEND or IQ4, IQeco through an IQ4NC, and IQL through an XTEND.

Supervisors and Tools: 963, SET, TEM.

INSTALLATION

Note The installation is undertaken by the on-site Trend or TTC engineer.

A full description of the installation process is provided in the Trend Connect Installation Instructions (TG201144).

Before installing the TCONN/LS300 modem:

1. Check the mobile phone signal coverage for your selected network for the postcode or the installation.
2. Survey the site with a 3G Analizer to locate the best position for the antenna.
3. Antenna - For sites with good signal the normal puck antenna can be used. For sites with a low signal strength consider using an alternative antenna.

The procedure is as follows:

1. Connect antenna to modem.
2. Place the antenna where the best signal is found.
3. Connect RJ45 Ethernet cable to modem and relevant Ethernet point on Trend network.
4. Attach correct AC adapter for region to power lead.
5. Connect power lead to modem, plug into mains socket and switch on.
6. Enter 'Default Router' setting in Trend Ethernet device (e.g. XTEND/or IQ4) to be modem's IP address.
7. Trend remotely configure Trend Ethernet device to communicate with modem, using modem's IP address and subnet mask, plus IP address and port numbers of Trend device, supplied by on-site engineer.

Note: The Sim and Modem require activation and this can take up to 72 hours.

To activate the modem and sim contact Trend Bureau on +44 (0)1403 226500 or email trend.connect@trendcontrols.com with the following information:

- Modem number (e.g. 07876812097 or 204043726270469) - located on the label on the box
- IMEI number (e.g. 355310036782401) – located on the packaging
- Serial number - located on the packaging
- Site Name
- Account name
- Default Gateway/router of IP Device on site the Trend Connect is connected to. (Make sure you ask the engineer have all the IP devices got the same default router/gateway)
- IP Address of the Device
- Port Numbers/VCNC's
- Contact information for the engineer on site.

FIELD MAINTENANCE

The TCONN/LS300 modem requires virtually no routine maintenance. However, Trend Control Systems offer ongoing maintenance of the modem and support for the remote connection supplied.

Warning: Contains no serviceable parts. Opening the unit exposes hazardous voltages.

DISPOSAL

WEEE Directive:

At the end of their useful life the packaging and product should be disposed of by a suitable recycling centre.
Do not dispose of with normal household waste.
Do not burn.

ORDER CODES

TCONN/LS300/SIM/PUCK	Trend Connect Managed Connectivity Solution (inc. TCONN/LS300 modem, M2M SIM and puck antenna).
TCONN/LS300/ANTENNA	GSM HGO Antenna
TCONN/LS300/MOUNTKIT	Mounting kit
TREND CONNECT 12	Managed Connectivity Solution - 12 Months
TREND CONNECT 24	Managed Connectivity Solution - 24 Months
TREND CONNECT 36	Managed Connectivity Solution - 36 Months
VPN AGENT LICENCE 12/AGENT LICENCE 12	VPN Agent Licence for 12 months
ADDITIONAL VPN CLIENT LICENCE 12	Additional VPN Client Licence for 12 months

SPECIFICATIONS

Typical Data Transfer Speeds

GPRS	Upload:	up to 24 Kb/s
	Download:	up to 48 Kb/s
EDGE	Upload:	up to 120 Kb/s
	Download:	up to 236 Kb/s
UMTS (3G)	Upload:	up to 384 Kb/s
	Download:	up to 384 Kb/s
HSDPA	Upload:	up to 384 Kb/s
	Download:	up to 3.6 Mbit/s
HSUPA	Upload:	up to 5.2 Mbit/s
	Download:	up to 7.2 Mbit/s

LS300

HSPA+ Models
- HSPA+ with fallback to: HSPA, UMTS, EDGE, GPRS
- Quad-Band HSUPA: 850, 900, 1900, 2100 MHz
- Quad-Band GSM/GPRS: 850, 900, 1800, 1900 MHz

CDMA Models
- EV-DO Rev. A with fallback to: CDMA EV-DO (Rev. 0), CDMA 1xRTT
- Dual-Band EV-DO Rev. A: 800, 1900 MHz

GPS Technology
- Protocols: TAIP, NMEA, RAP
- HSPA+
  - Acquisition time: <3 sec hot start, < 45 sec cold start
  - Accuracy: < 10 m
  - Tracking sensitivity: -155 dBm
- CDMA
  - 12 Channel, continuous tracking
  - Acquisition time: 9 sec hot start, 39 sec cold start
  - Accuracy: < 3 m (50%), < 8 m (90%)
  - Tracking sensitivity: -160 dBm

Protocols
- Network: TCP/IP, UDP/IP, DNS
- Routing: NAT, Host Port Routing, DHCP, PPPoE, VLAN, VRRP, Reliale Static Route
- Routing: NAT, Host Port Routing, DHCP, PPPoE, VLAN, VRRP
- Application: SMS, Telnet/SSH, SMTP, SNMP, SNTP
- Serial: TCP/UDP PAD Mode, Modbus (ASCII, RTU, Variable), PPP
- GPS: NMEA 0183 V3.0, TAIP, RAP

Events Reporting
- Event Types: Digital Input, GPS/AVL, Network parameters, Data usage, Timer, Power, Device temperature
- Report/Action Types: SMS, Email, SNMP Trap, Relay output, GPS RAP report, Events protocol message to server

VPN/Security
- IPsec, SSL, and GRE VPN client
- Up to 5 VPN tunnels IKE encryption
- Port forwarding and DMZ
- Port filtering
- Trusted IP
- MAC address filtering

Device Management
- AirVantage™ Management Service cloud based device management application
- ACEManager™ device configuration utility

Power Consumption (all figures in mA @ 12VDC)
- HSPA+: Idle 224, Typ 245, Max 430
- CDMA: Idle 220, Typ 257, Max 427
- Low Power Standby Mode: <68

Environmental
- Operating temperature: -30°C to +70°C (-22°F to +158°F)
- Storage temperature: -40°C to +85°C (-40°F to +185°F)
- Humidity: 90% RH @ 60°C (140°F)
- Military Spec MIL-STD-810 conformance to thermal, mechanical shock and humidity

Host Interfaces
- 10/100 Base-T RJ-45 Ethernet
- RS-232 serial port
- USB V2.0 Micro-B connector
- 2, SMA antenna connectors (RF, GPS/Rx Diversity)
- Support for active antenna

Mechanical
- 76 mm x 90 mm x 25 mm (3.0″ x 3.5 in x 1.0″)
- 190 g (6.7 oz)

Certifications
- FCC, Industry Canada
- PTCRB
- CE, E-Mark
- RoHS Compliant, Class 1 Div 2
- Approved for deployment by Verizon Wireless, AT&T and Sprint
- Consult website for complete list of operator approval

VPN AGENT

The VPN Agent requires Windows 8, Windows 8.1, Windows 2000 Service Pack 3 or later, Windows XP, Windows 7, Windows Vista, Windows Server 2003, Windows Server 2008 or Windows Small Business Server. Both 32-bit and 64-bit versions are supported.

The VPN Agent runs as a background Windows task and has minimal space and memory requirements.

VPN CLIENT

The VPN Client requires Windows 8, Windows 8.1, Windows 2000 Service Pack 3 or later, Windows XP or Windows 2003 Server (including SBS 2003).

If the VPN Client is behind a NAT device, the following updates are required:

- Windows 2000 requires NAT-T (Nat-Traversal) update (see Microsoft KB 818043). The NAT-T update for Windows 2000 can be downloaded from Microsoft at http://v4.windowsupdate.microsoft.com/catalog (Windows Update Catalog). Install the Update Catalog. Select ‘Find updates for Microsoft Windows operating systems’ and the select the ‘Advanced Search’ option. Enter 818043 as then search term which will provide a link to the NAT-T update.
- Windows XP requires Service Pack 2
- No updates are required for Windows 2003 Servers

Please send any comments about this or any other Trend technical publication to techpubs@trendcontrols.com

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