Models:
IG04 BACnet Gateway

IG04 BACnet Gateway

Unless specified, the Vaisala devices referred to in this document are the WXT520 & WXT530 series Weather Transmitters and WMT52 & WXT532 series Ultrasonic Wind Sensors.

Overview

The Innotech IG04 BACnet Gateway is a protocol gateway between the Vaisala Weather Transmitter or Ultrasonic Wind Sensor and a BACnet network. The IG04 BACnet Gateway interrogates the Vaisala device and stores the current values for all NMEA points. This data is updated and transmitted regularly as predefined BACnet objects available as BACnet/IP or BACnet MS/TP values.

Features

- 1 x Vaisala NMEA comms port
- 1 x Isolated BACnet MS/TP comms port
- 1 x Protected Service comms port
- 1 x Ethernet (10baseT) port (also used as the BACnet/IP port)
- All wires connected by pluggable screw terminals
- Program resides in non-volatile flash RAM
- Visual indication of power, system and communications activity
- Embedded web server interface for setup and client monitoring, including seven days of historical data
- Support for up to five concurrent connections (actual usage may vary dependent on connection speed)
- Programming of the Vaisala Weather Transmitter or Ultrasonic Wind Sensor from the FusionLIVE web interface

Communications

The IG04 BACnet Gateway allows a BACnet network to receive sensor data from a Vaisala device. It may be selected as BACnet/IP or BACnet MS/TP.

Vaisala

The IG04 BACnet Gateway communicates directly with the Vaisala device using a dedicated RS-485 channel. The IG04 BACnet Gateway is designed to communicate with the Weather Transmitter or Ultrasonic Wind Sensor model of Vaisala device.

For 'plug and play' communications, ensure to use the following order codes when ordering a Vaisala device:

- WXT520-AACxxxxxx0 (where "x" refers to factory options)
- WXT536-C1XXXXXXXXX (where "x" refers to factory options)
- WMT52-AACxxxxxx0 (where "x" refers to factory options)
- WXT532-C1XXXXXXXXX (where "x" refers to factory options)

If a different order code is required, ensure that the Vaisala device is configured to communicate using the NMEA protocol on RS-485 at 19200 baud 8, N, 1.

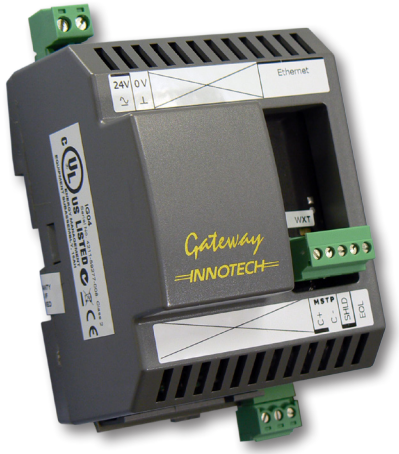
Ethernet / BACnet/IP (Default)

The 10BaseT Ethernet port provides access to the BACnet/IP networks. The BACnet/IP settings must be configured to be compatible with the BACnet system into which the Vaisala device is being integrated. It is also the interface to the embedded web server used for setup and commissioning. The IG04 BACnet Gateway is pre-configured with the following static TCP/IP parameters:

IP address	Gateway	Subnet mask
192.168.2.100	0.0.0.0	255.255.255.0

BACnet MS/TP

The BACnet communication ports must be configured to be compatible with the BACnet system into which the Vaisala device is being integrated.



Service

This port should only be used under direct instruction of Innotech support or service personnel.

Applications

- For transmitting Vaisala Weather Transmitter or Ultrasonic Wind Sensor data to BACnet enabled devices on BACnet/IP or BACnet MS/TP networks
- Building automation systems

Objects supported

Name	Type	Instance
Air Temperature	Analog Input	0
Internal Pressure Temperature	Analog Input	1
Heating Temperature	Analog Input	2
Minimum Wind Direction	Analog Input	10
Average Wind Direction	Analog Input	11
Maximum Wind Direction	Analog Input	12
Minimum Wind Speed	Analog Input	20
Average Wind Speed	Analog Input	21
Maximum Wind Speed	Analog Input	22
Air Pressure	Analog Input	30
Humidity	Analog Input	40
Accumulated Rain	Analog Input	50
Accumulated Hail	Analog Input	51
Rain Duration	Analog Input	60
Hail Duration	Analog Input	61
Rain Intensity	Analog Input	70
Hail Intensity	Analog Input	71
Peak Rain Intensity	Analog Input	72
Peak Hail Intensity	Analog Input	73
Heating Voltage	Analog Input	80
Supply Voltage	Analog Input	81
Reference Voltage	Analog Input	82

Object Properties Supported

- Object_Name
- Present_Value
- Status_Flags (Fault only)
- Reliability

Specifications

POWER SUPPLY REQUIREMENTS	
AC	
Power input	24VAC ±10% @ 50/60Hz
Power consumption	4 VA
DC	
Power input	24VDC ±10%
Power consumption	2.3 W
Transformer nominal rating	8 VA
The operating voltage must meet the requirements of Safety Extra Low Voltage (SELV) to EN60730. The transformer used must be a Class 2 safety transformer in compliance with EN60742 and be designed for 100% duty. It must also be sized and fused in compliance with local safety regulations.	

ENVIRONMENTAL	
Storage Temperature	-5 to 50°C non-condensing
Operating Temperature	0 to 50°C non-condensing

ENCLOSURE	
Housed in a rectangular case suitable for DIN Rail mounting. Housing moulded from flame retardant plastics recognised by UL as UL94-V0.	
Color	Grey
Dimensions (Maximum)	(W)71mm x (H)115mm x (D)67mm

APPROVALS
EN 61326:2013 for CE Marking and RCM Labelling
Title 47 CFR, Part 15 Class A for FCC Marking
UL & C-UL listed to UL916, File Number E242628

BATTERY	
Type	CR-2032 Lithium
Nominal voltage	3 V
Shelf life of 5 years depending on ambient temperature	
Caution: Risk of explosion if replaced by an incorrect type.	
Contains a lithium battery, Dispose of Properly. (In accordance with local regulations)	

Status LEDs

LED Indicator	LED Colour	Description
Power	Red	Power is ON
Heartbeat	Flashing green	Device status OK
Ethernet (Comms)	Orange	Network connection
	Green	Network activity
RS485 (Comms)	Red	Data transmit
	Green	Data receive

Installation

The IG04 BACnet Gateway should be installed in an environment which adheres to the operating specifications outlined in this document. It should be mounted in a dry, clean, and vibration free environment.

Wiring

Please refer to the appropriate Vaisala technical documentation for detailed wiring information.

Java Settings for FusionLive

If the computer you are using to access FusionLive has internet access, ensure that the Java security level is set to “Very High”. If there is no internet access, set the Java security level to “High”.

Modifying the Java security level

1. Open the control panel and double click Java.
2. Click the Security Tab.
3. Change the Security Level to the required setting and click OK.

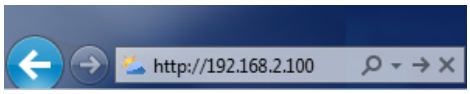
Configuring Vaisala device

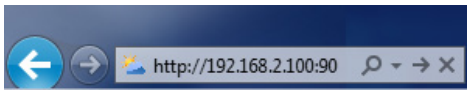
The Vaisala device settings can be configured using the embedded web server accessible with Microsoft Internet Explorer® version 8 or greater web browser.

The Java Runtime Environment (JRE) version 6.1 or greater must also be installed on the computer in order to access the commissioning web pages in FusionLIVE.

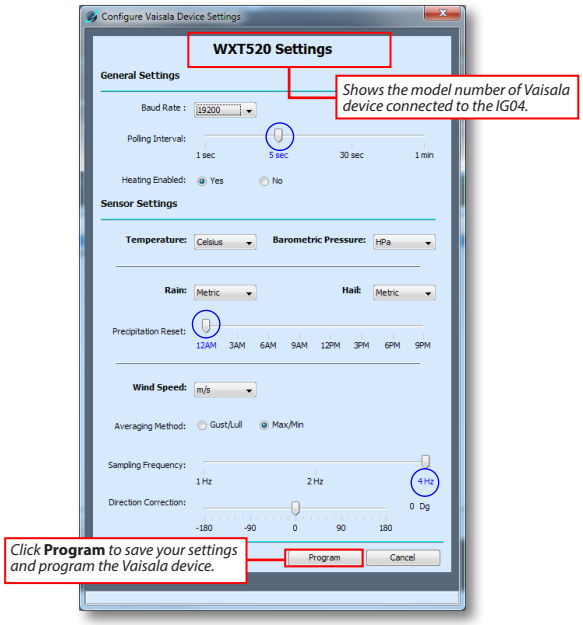
For initial setup and configuration, configure the TCP/IP address of your computer to be on the same subnet as the default IP address of the IG04 BACnet Gateway. You can then follow the steps below to configure the Vaisala device using FusionLIVE.

Enter the default IP address of the IG04 BACnet Gateway into the address bar of Internet Explorer and press **Enter** as illustrated below. If the port has been changed from the default (80), the port also needs to be specified in the address.





When you have accessed the embedded web server, click on the Configure button to launch FusionLIVE. If not already installed, the JRE may be downloaded and installed on your computer at this time. The FusionLIVE window will be displayed.
From FusionLIVE, click on the Configure Vaisala Device button to modify the configuration settings of the Vaisala device.
The *Configure Vaisala Device Settings* window will be displayed as shown below.



Values shown in the blue circles in the screenshot above are recommended settings for the Vaisala device.

Vaisala device settings

Baud Rate is the speed at which the Vaisala device communicates with the IG04. If it is changed the IG04 baud rate will change automatically to match the Vaisala device baud rate.

Precipitation Reset is used to reset the rain and hail counters at a desired time of the day.

Refer to Vaisala technical documentation at www.vaisala.com for more information on other Vaisala device settings.

Configuring IG04

The IG04 BACnet Gateway is configured using the embedded web server and FusionLIVE interface. Follow the instructions below to configure the IG04 BACnet Gateway using FusionLIVE.

Follow the steps outlined on Page 2 to access the embedded web server of the IG04 and launch FusionLIVE.
Click on the Configure IG04 button to modify the configuration settings of the IG04 BACnet Gateway.

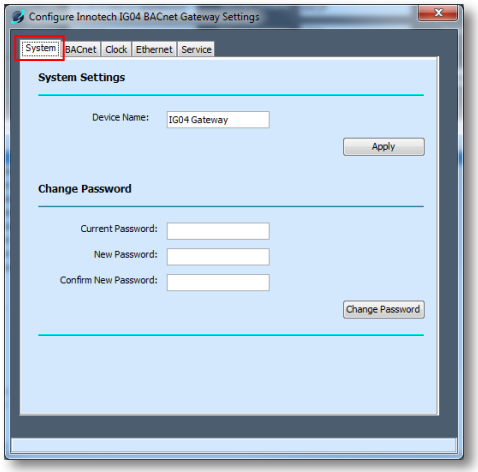
The *Configure Innotech IG04 BACnet Gateway Settings* window will be displayed. It is recommended to configure the Ethernet settings as the last step, because this will require you to change the TCP/IP address of your computer to be on the same subnet as the IG04 BACnet Gateway. Configure the IG04 BACnet Gateway with the settings as shown in the screenshots.

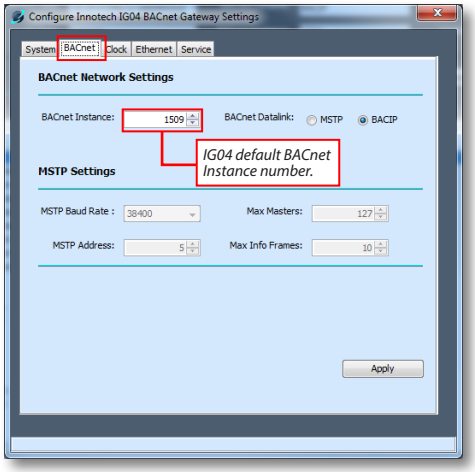
Please refer to *IG04 BACnet Gateway Installation Instructions* document at www.innotech.com.au for more detailed information.

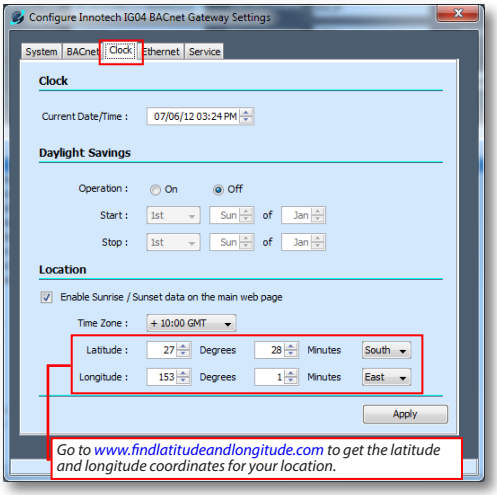
If you configure a password, or modify an existing password, click on **Change Password** to save the new settings.

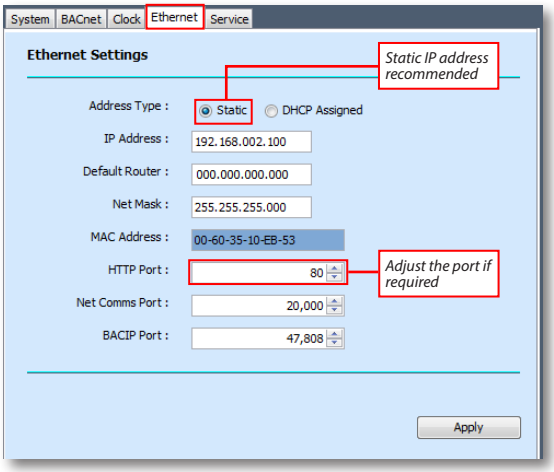
If any settings are modified, click on **Apply** to save the new configuration.

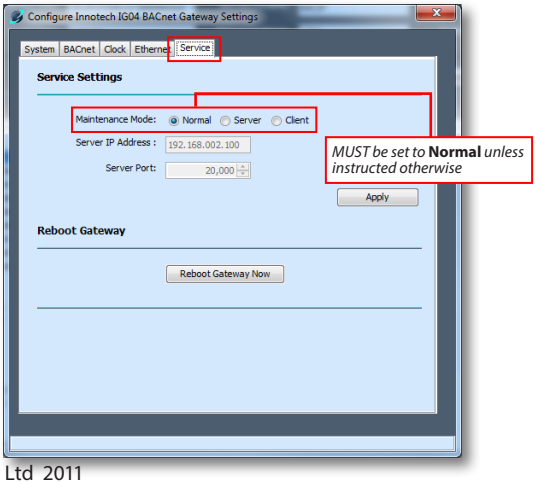
The following screenshots show the factory default settings of the IG04 BACnet Gateway.



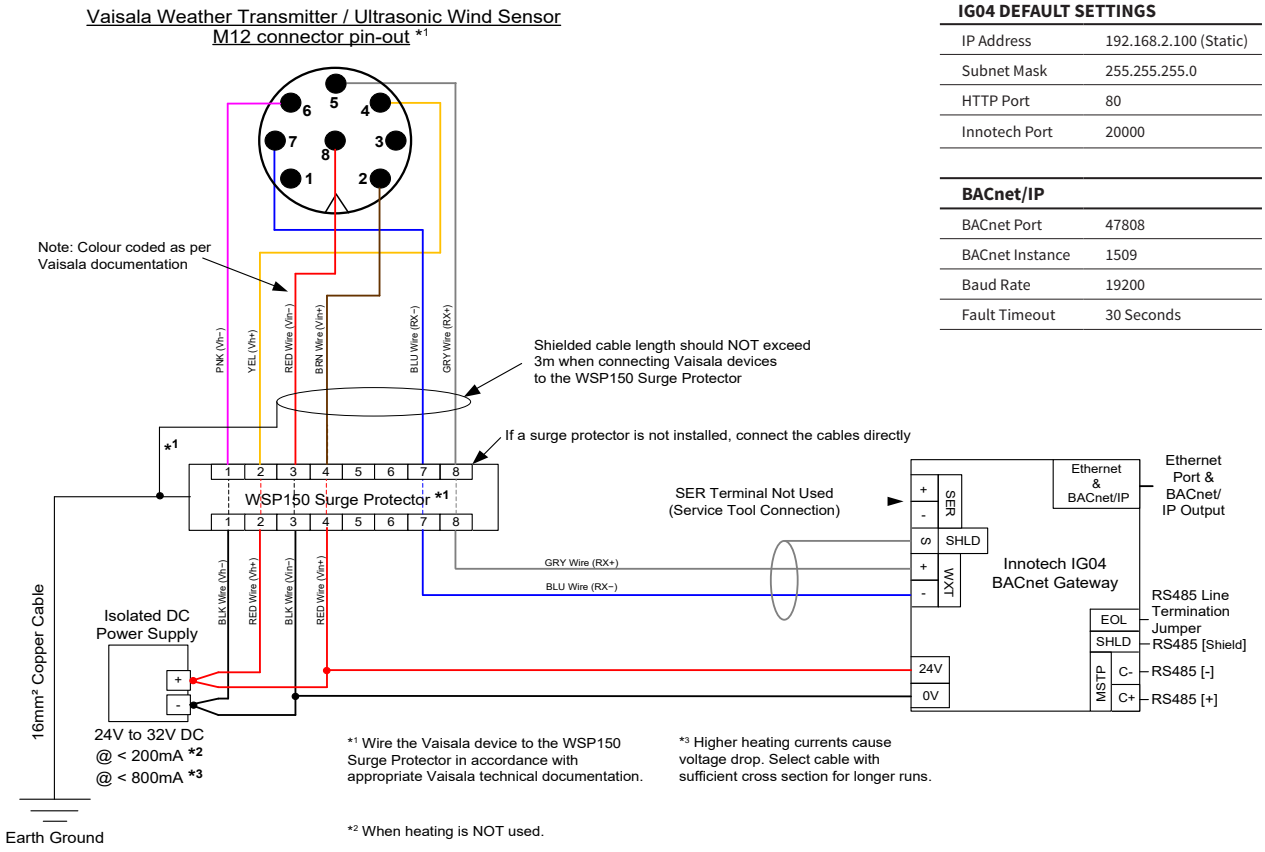








Wiring Example #1: Wiring to 8-Pin M12 Connector, Isolated Cabling for Heating



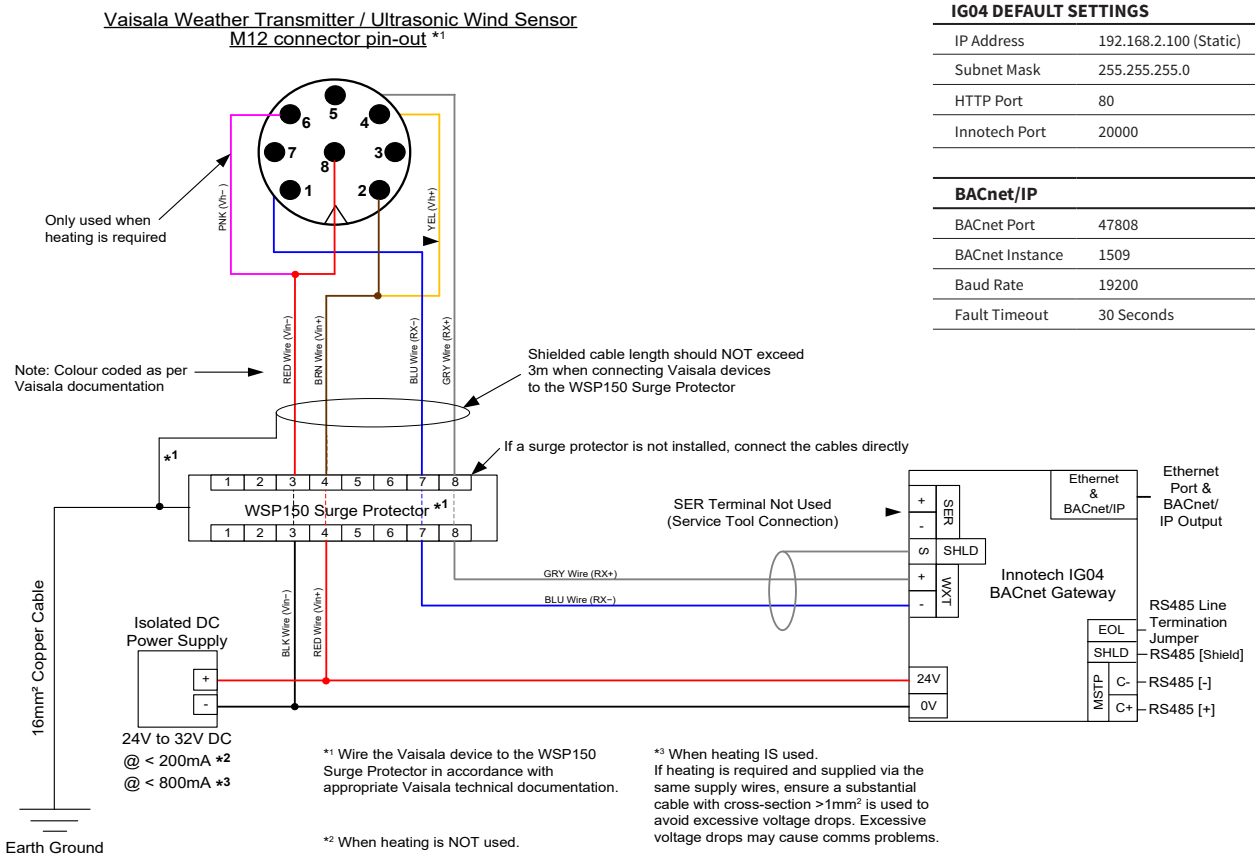
IG04 DEFAULT SETTINGS	
IP Address	192.168.2.100 (Static)
Subnet Mask	255.255.255.0
HTTP Port	80
Innotech Port	20000

BACnet/IP	
BACnet Port	47808
BACnet Instance	1509
Baud Rate	19200
Fault Timeout	30 Seconds

M12 Pin-outs

Wire Colour	M12 Pin#	RS-485
Blue	7	Rx-
Grey	5	Rx+
White	1	
Green	3	
Pink	6	Vh- (heating GND)
Yellow	4	Vh+ (heating supply voltage)
Red	8	Vin- (operating GND)
Brown	2	Vin+ (operating supply voltage)

Wiring Example #2: Wiring to 8-Pin M12 Connector, Split Cabling for Heating



IG04 DEFAULT SETTINGS	
IP Address	192.168.2.100 (Static)
Subnet Mask	255.255.255.0
HTTP Port	80
Innotech Port	20000

BACnet/IP	
BACnet Port	47808
BACnet Instance	1509
Baud Rate	19200
Fault Timeout	30 Seconds

M12 Pin-outs

Wire Colour	M12 Pin#	RS-485
Blue	7	Rx-
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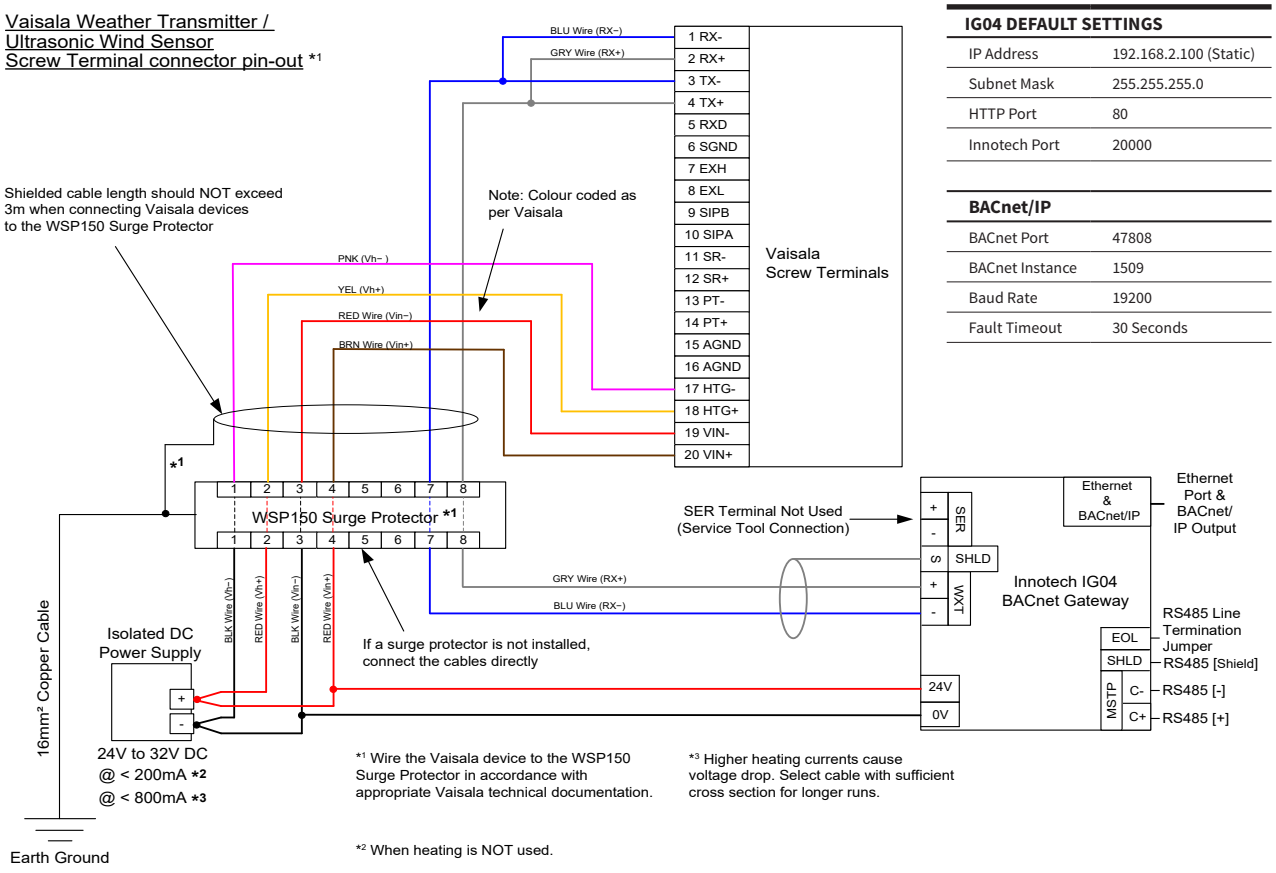
White	1	
Green	3	
Pink	6	Vh- (heating GND)
Yellow	4	Vh+ (heating supply voltage)
Red	8	Vin- (operating GND)
Brown	2	Vin+ (operating supply voltage)

Wiring Example #3: Wiring to Screw Terminal Connector, Isolated Cabling for Heating



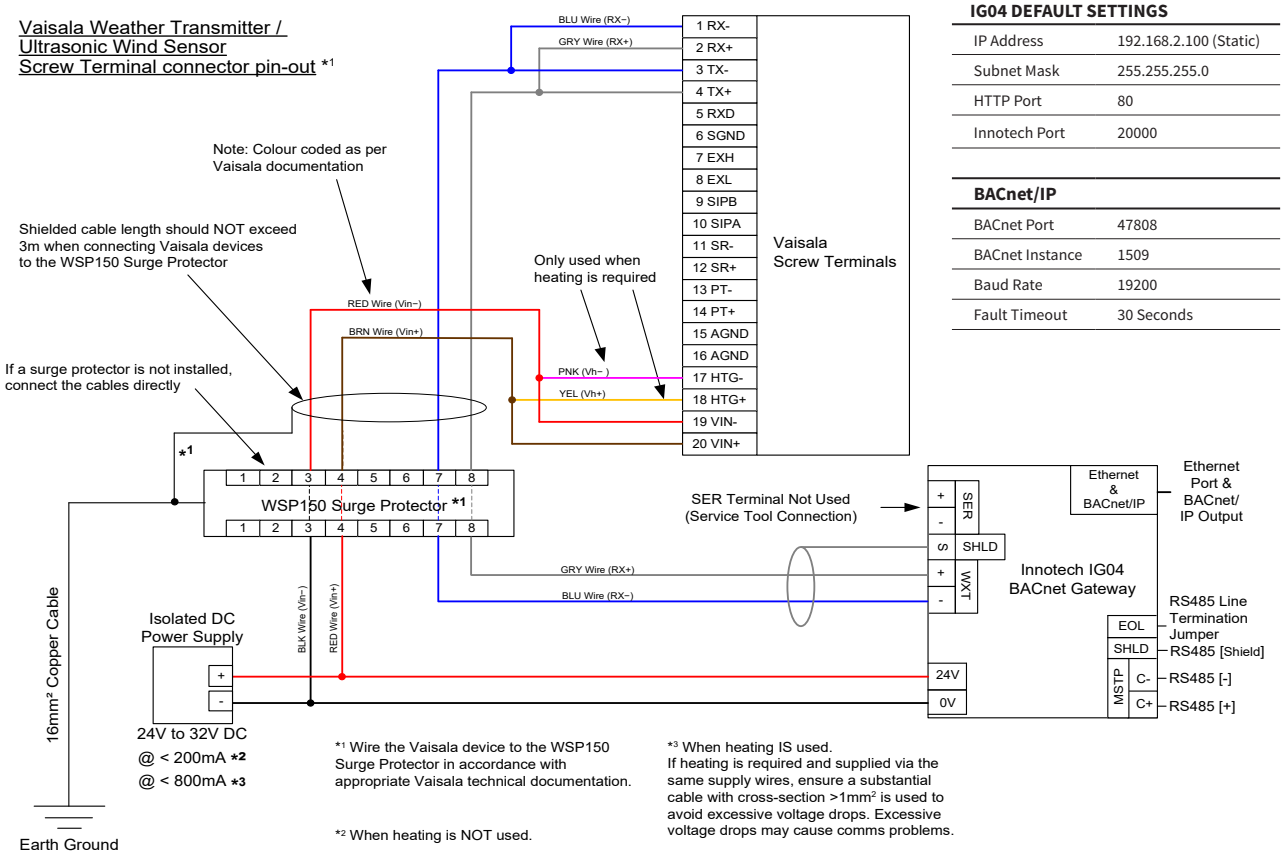
IG04 DEFAULT SETTINGS	
IP Address	192.168.2.100 (Static)
Subnet Mask	255.255.255.0
HTTP Port	80
Innotech Port	20000

BACnet/IP	
BACnet Port	47808
BACnet Instance	1509
Baud Rate	19200
Fault Timeout	30 Seconds

Screw Terminal Pin-outs

Screw Terminal Pin	RS-485
1 Rx-	Rx-
2 Rx+	Rx+
3 Tx-	Rx-
4 Tx+	Rx+
5 RXD	
6 SGND	
7 EXH	
8 EXL	
9 SIPB	
10 SIPA	
11 SR-	
12 SR+	
13 PT-	
14 PT+	
15 AGND	
16 AGND	
17 HTG-	Vh- (heating GND)
18 HTG+	Vh+ (heating supply voltage)
19 VIN-	Vin- (operating GND)
20 VIN+	Vin+ (operating supply voltage)

Wiring Example #4: Wiring to Screw Terminal Connector, Split Cabling for Heating



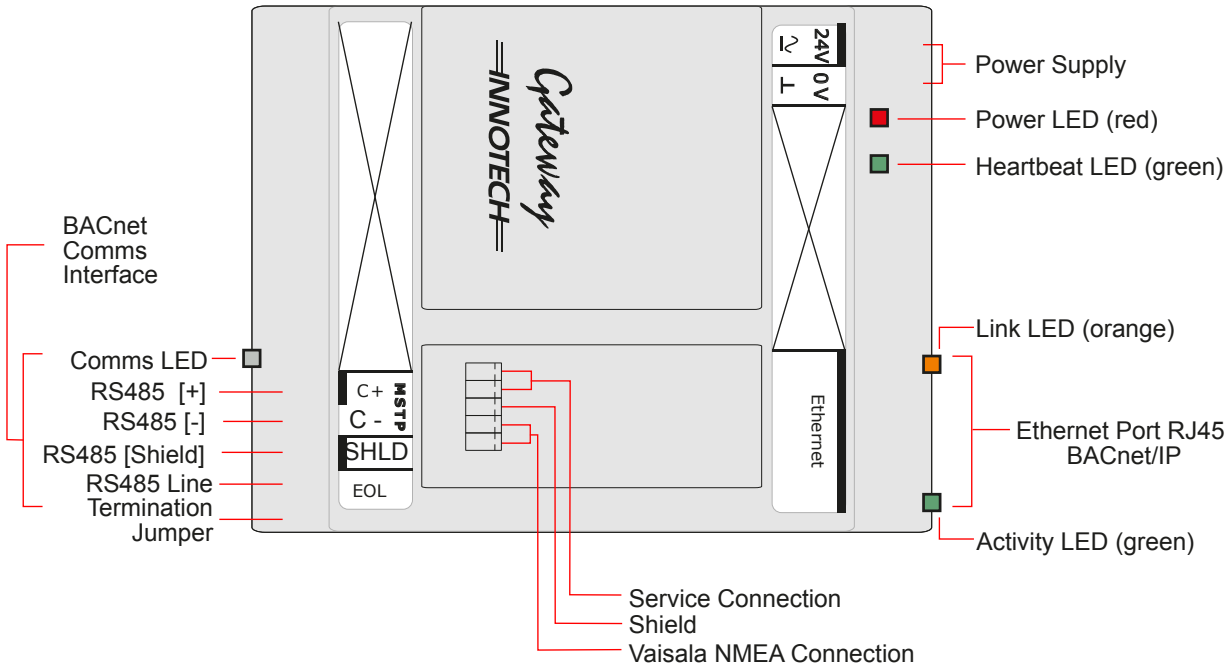
IG04 DEFAULT SETTINGS	
IP Address	192.168.2.100 (Static)
Subnet Mask	255.255.255.0
HTTP Port	80
Innotech Port	20000

BACnet/IP	
BACnet Port	47808
BACnet Instance	1509
Baud Rate	19200
Fault Timeout	30 Seconds

Screw Terminal Pin-outs

Screw Terminal Pin	RS-485
1 Rx-	Rx-
2 Rx+	Rx+
3 Tx-	Rx-
4 Tx+	Rx+
5 RXD	
6 SGND	
7 EXH	
8 EXL	
9 SIPB	
10 SIPA	
11 SR-	
12 SR+	
13 PT-	
14 PT+	
15 AGND	
16 AGND	
17 HTG-	Vh- (heating GND)
18 HTG+	Vh+ (heating supply voltage)
19 VIN-	Vin- (operating GND)
20 VIN+	Vin+ (operating supply voltage)

IG04 BACnet Gateway Connection Diagram



With regard to the WXT530 series, please note that the IG04 is compatible with the WXT532 & 536 models only.

FCC Class A Notice
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
This device may not cause harmful interference.
This device must accept any interference received, including interference that may cause undesired operation.
Note – This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.
Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
Modifications to this device, may void the authority granted to the user by the FCC to operate this equipment.

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Australian Owned, Designed & Manufactured
by Mass Electronics Brisbane

Phone: +61 7 3421 9100 **Fax:** +61 7 3421 9101
Email: sales@innotech.com.au www.innotech.com.au

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