Omni

Vaisala Interface

Models:
OMWEB02: Omni Vaisala Interface

DS 30.03
March 2019

Overview

The Innotech OMWEB02 is a pre-configured Omni Controller used to convert all Vaisala Weather Transmitter and programmed data to defined BACnet Objects. The OMWEB02 interrogates the Vaisala Weather Transmitter and stores the current values for all Vaisala NMEA points, as well as calculating additional information to extend the transmitter's capabilities. 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 [RS-485]
- 1 x Isolated BACnet MS/TP comms port [RS-485]
- 2 x Ethernet (100BaseT) ports [Port B unused]
- Native BACnet with BTL Listing
- Compatible with BACnet MS/TP and BACnet/IP networks
- Support for Vaisala WXT53x models
- Support for Vaisala WXT53x Auxiliary Sensors
- Automatic protocol conversion from Vaisala NMEA to BACnet
- Simple web-setup via the virtual Ethernet Mini-B USB Port and cable (No software required)
- Cross-platform, HTML5 embedded web server Dashboard for live monitoring and historic analysis (no plug-ins)
- Viewing of real-time and historic data with up to 5000 records for each BACnet Trend Log
- Web server extraction, viewing & exporting of Trend Logs to CSV
- Sunrise and Sunset countdown with Daylight Output based on global location settings , all exposed as BACnet Objects
- Automatic BACnet MS/TP to BACnet/IP Routing
- BACnet Broadcast Management Device (BBMD support)
- Ethernet, RS-485 and USB communications
- Battery backed Real Time Clock
- Polarity independent AC or DC Power Supply
- Visual indication of power, system and communications activity

Applications

- For transmitting Vaisala weather data and Omni calculated data to BACnet enabled devices on BACnet/IP or BACnet MS/ TP
- Automated BACnet integration for Building & Energy Management Systems (BEMS)
- A complete web-based client weather interface

Installation

The OMWEB02 should be installed in an environment that does not exceed the maximum operating parameters of the device. It should be mounted in a clean and dry environment free of vibration, and properly ventilated.

The OMWEB02 should be mounted on DIN rail in cabinets approved for switchgear or industrial control equipment. Maximum terminal cable entry is 1.5mm^2.

Wiring should be done in accordance with Innotech and Vaisala connection diagrams and local bylaws or refer to your local distributor.

Connect the 24VAC/DC supply to the correct terminals on the controller. Wire the EARTH terminal of all controllers to a DIN rail earth terminal on the same rail, or the nearest earth stud.

All cable screens should connect to the same earth point unless otherwise stated in the Innotech wiring manual.

Communications

The OMWEB02 allows a BACnet network to receive data from a Vaisala Weather Transmitter (BACnet/IP or BACnet MS/TP).

Vaisala

The OMWEB02 communicates directly with the Vaisala Weather Transmitter using a dedicated RS-485 channel.

For 'plug and play' communications, ensure to use the following order code when purchasing a Vaisala Weather Transmitter:

- WXT53X-C1XXXXXXXXX (Where "X" refers to factory options)

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

Models

WXT536	WXT535	WXT534	WXT533	WXT532	WXT531
P ●	P ●	P ●	P ○	P ○	P ○
T ●	T ●	T ●	T ○	T ○	T ○
U ●	U ●	U ●	U ○	U ○	U ○
R ●	R ●	R ○	R ●	R ○	R ●
W ●	W ○	W ○	W ●	W ●	W ○

P = Pressure | **T** = Temperature | **U** = Humidity | **R** = Rain | **W** = Wind

Communications (continued)

Ethernet / BACnet/IP (Default)

The 100BaseT Ethernet port provides access for the BACnet/IP network. The BACnet settings must be configured to be compatible with the BACnet system into which the OMWEB02 is being integrated.

This port is also the interface to the embedded web server used for setup, commissioning, and viewing and extracting data. Refer to the Default Settings in this document.

BACnet MS/TP (RS-485)

The BACnet MS/TP communication port must be configured to be compatible with the BACnet system into which the OMWEB02 is being integrated. Refer to the Default Settings in this document.

OMWEB02 Specification

Device Name	Omni Vaisala Interface
Processor Speed	800MHz
Non Volatile Memory	128KB
Real-time Clock	Yes
RS-485 Ports	2
Ethernet - 100BaseT	2 [Port B unused]
USB-A (Host)	Yes
USB-Mini B (PC Link)	Yes
Status LEDs	Yes
Web Server	Yes
Protocol Routing	Yes
8GB MicroSD for Logging	Yes

The real-time clock battery is user replaceable and should only be replaced by qualified Innotech service technicians or distributors. The battery is located in the expansion bay.

General Specifications

PROCESSING

CPU	ARM Cortex A8

POWER SUPPLY REQUIREMENTS

Power Input	24VAC ±20% or 24VDC (18VDC to 35VDC)
Recommended Transformer Rating	15VA
Power Consumption	5W nom. / 10W max.

Polarity independent supply wiring.
The power supply is full wave rectified to reduce transformer stress.
The controller's earth terminal must be connected at all times.

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

Operating Temperature	-10° to 50°C (14° to 122°F)
Storage Temperature	-20° to 60°C (-4° to 140°F)

INSTALLATION ORIENTATION

Horizontally mounted DIN rail on a vertical surface.

Allow a minimum 20mm (40mm recommended) gap between the end of the terminal plug and cable ducts.

ENCLOSURE

Housed in a rectangular case suitable for DIN rail mounting. Housing moulded from flame retardant plastics recognised by UL as UL94-V0.

Colour	Blue/Black
Omni Vaisala Interface Dimensions	W 180mm x H 93.4mm x D 80mm (7.09" x 3.68" x 3.15")
Maximum Dimensions (with Terminals)	W 180mm x H 103.40mm x D 80mm (7.09" x 4.07" x 3.15")

APPROVALS

EN61326:2013 Class A for CE & RCM Labelling

Title 47 CFR, Part 15 Class A for FCC Marking

UL Listed to UL916, File Number PAZX.E242628, PAZX7.E242628

LIsted by BTL

BATTERY

Contains a Lithium Type Battery, Dispose of Properly.
(In accordance with local regulations)

- Type: CR-2032 Lithium (user replaceable)
- Nominal voltage: 3 Volts
- Shelf life: 5 Years, dependent on ambient temperature

Caution: Risk of explosion if battery is replaced by an incorrect type.

COMMUNICATIONS

Ethernet	100BaseT
RS-485	Up to 115kbps (with EOL)

DEFAULT SETTINGS FOR COMMS CHANNELS

Comm1	Vaisala NMEA		19200 baud, 8, N, 1
Comm2	BACnet MS/TP		38400 baud Node Address = 1
Ethernet A (TCP) Alter the web server TCP to: • HTTP Port 80 (Default) • HTTPS Port 443	IP Address		192.168.2.100
	Subnet Mask		255.255.255.0
	Gateway		0.0.0.0
	Application	**Transport**	**Port**
	Local/Remote Communications	TCP/UDP	20000
	Local BACnet Comms	UDP	47808
	Web Server	TCP	80
Ethernet B	Unused		-

DEFAULT SETTINGS FOR BACnet COMMUNICATIONS

BACnet Device Instance	2100
BACnet/IP Network Number	1
BACnet MS/TP Network Number	2100
Max Masters	10
Max Info Frames	3

The BACnet Network Numbers must match the site Network Numbers for BACnet/IP or BACnet MS/TP.

Refer to BACnet Report located on the Innotech Website or on-board your OMWEB02 web server.

The Max Masters setting should be set to match the total number of BACnet MS/TP Masters attached to this network.

CONFIGURING / MONITORING COMMUNICATIONS	
USB Device (Mini-B Type) ⓘ The Mini-B USB connection provides a Virtual TCP connection and access to the OMWEB02 web server for setup and commissioning.	High Speed 480Mbps → Computer Connection Virtual IP Address: 169.254.2.100
USB Host (A Type Connector)	Service Upgrade Port

DATA LOGGING	
MicroSD Slot	8GB Class 10 MicroSD card supplied (5000 Records per BACnet Trend Log)

PROTOCOLS
• BACnet/IP • BACnet MS/TP • Innotech TCP • Vaisala NMEA
Portions of the software copyright Cimetrics Inc.

EXPANSION BAY
Card Slot - Unused

LED INDICATORS	
Comms LEDs for RS-485	Red - Tx Green - Rx
Ethernet 100Mbit Link	Orange
Ethernet Traffic	Green
Heartbeat LED	
Status OK	Green Flash
Fault	Red Flash
Request ⓘ	Orange Flash
Power Fail	Slow Orange Flash

ⓘ Shown when upgrading, initialising etc.

FCC Class A Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. 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.

License Statement

The software on this product may contain copyright protected software which is licensed under various open source licenses.

Copies of the corresponding licenses:

- are provided together in this product's built-in web interface (Device Info / Legal Information Page)
- can be downloaded at www.innotech.com

If foreseen in the corresponding open source license, you may obtain the corresponding source code and other related data for a period of three years after our last shipment of this product, by sending an email to opensource@innotech.com. Please include the product model number, system version information and the corresponding license you wish to enquire about. This offer is valid to anyone in receipt of this information.

Web Server

The OMWEB02 web server allows access to user programmed variables, system settings, log data (with export and printing functions), alarms, access control and real-time supervising of Transmitter and OMWEB02 calculated data.

To access the web server, either:

- By entering the IP Address of the OMWEB02 in your web browser, ensuring your computer is on the same range, or
- Use a Mini-B USB cable and enter the virtual address, **169.254.2.100** in a web browser.

The device's web server uses HTML5 and requires no additional plugins, ensuring compatibility across multiple web browsers.

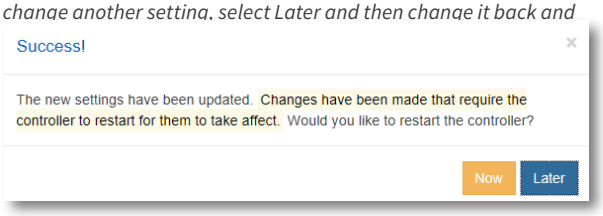
Initial Setup Instructions

1. Connect your WXT53x and the device as per the OMWEB02 datasheet. *Check your wiring carefully* (Power and communications) and then power the devices.

2. Connect to the OMWEB02 TCP/IP address via Ethernet Port A.
   Preferred Method: ensure your computer is on the same Subnet as the OMWEB02. The default address is **http://192.168.2.100**.
   Alternate Method: connect a USB-Mini B cable from your computer to your OMWEB02 and enter the pre-configured IP address of **http://169.254.2.100** into your web-browser. (This is a virtual address that allows you to connect without modifying your settings.)

3. When the OMWEB02 Home Page is displayed, click **Login** at the top right of the page.
   a. Enter the User **Vaisala**, with the Password **1111**.
   b. For security purposes, on initial login you will be required to alter the OMWEB02 Password. (*Ensure you record your password carefully as bypassing this will require investigation with the client, time, and a cost.*)
   c. You are logged in with **Commissioner** Level Permissions, which allows you to change OMWEB02 Network Addresses, Location, Time and Date Settings, Vaisala Weather ⓘ ransmitter Settings, and Access Control to add other users.

*When altering settings you will be asked whether you want to restart **Now** or **Later**. Select Later until you are making your final change, then select Now. (If you forget, simply recycle power or change another setting, select Later and then change it back and*



select Now)

4. Go to the **Settings** Tab:
   a. OmniWeb - Change the **Location** to display the Clients name in the web server.
   b. Vaisala Transmitter / Sensors:
   i) Enable and Disable Sensors. (Only if required as this will reprogram the Transmitter)
   ii)Set units for enabled sensors.
   c. Protocols:
   i) *BACnet / Device Instance* - Ensure this is unique across the entire project
   d. Port Assignment:
   i) **Ethernet** / *Port A*:
   - *IP Address* - Ensure this is unique
   - *Subnet Mask* - Match to the connected network
   - *Gateway* - Match to the connected network

Initial Setup Instructions (continued)

BACIP Local:
- *Network Number* - This must match the site BACnet/IP Network Number
- *UDP Port* - This must match the Local BACnet/IP UDP Port
- *Mode* - Leave setting as **Device** as this should only be changed by experienced technicians for enhanced functionality

ii) **RS-485**

Port 1 / *Vaisala NMEA Comms* (leave unchanged if the order code is used.)

Port 2 / *BACnet MS/TP*:
- *Baud Rate* - This needs to match the BACnet MS/TP baud rate of the connected network
- *Node Address* - This must be unique on the BACnet MS/TP Network
- *Network Number* - This must match the BACnet MS/TP Network Number. Every BACnet Network requires a unique Network Number.
- *Max. Masters* - Set this to match the total number of BACnet MS/TP Masters attached to this network. This will optimise communications performance between all attached devices.

e. Date and Time:

i) **Local Settings**:
- *Location* - Set this region as this will provide accurate Sunrise, Sunset and Daylight Calculations.
- *Date and Time* - Update to the time where the OMWEB02 is located.
- *NTP / Client* - Enable if required, and then set a Time-Server to sync with.
- *BACnet Time Sync* - Enable if required, and then set Time Sync Accepted to receive Local, UTC or both.

f. Web Access:

i) *HTTP* - Change if required.

ii) *HTTPS* - Change if required.

iii) *Redirect to HTTPS* - **Disabled** (change if required)

iv) *Maximum Logins* - This is only for logins into the OMWEB02, not the Home Page access.

g. SSL Certificate / *Use 3rd Party Certificate* - Only a factor when using HTTPS, however the Innotech certificate is included. To add your own certificate, enable this mode, set your details and add your certificate.

h. Address Book:

i) On the Settings Tab > Address Book, click the **Add** button.

ii) Enter the personal details of the new user.

iii) Select the Access Level as "**Client**".

iv) Enter the System Access details - **Username** & **Password**.

v) Click **Update** to add the new user.

Personal Details - if a password is lost it may be reset by email, but only if the Email Settings have been configured and a valid email address provided.

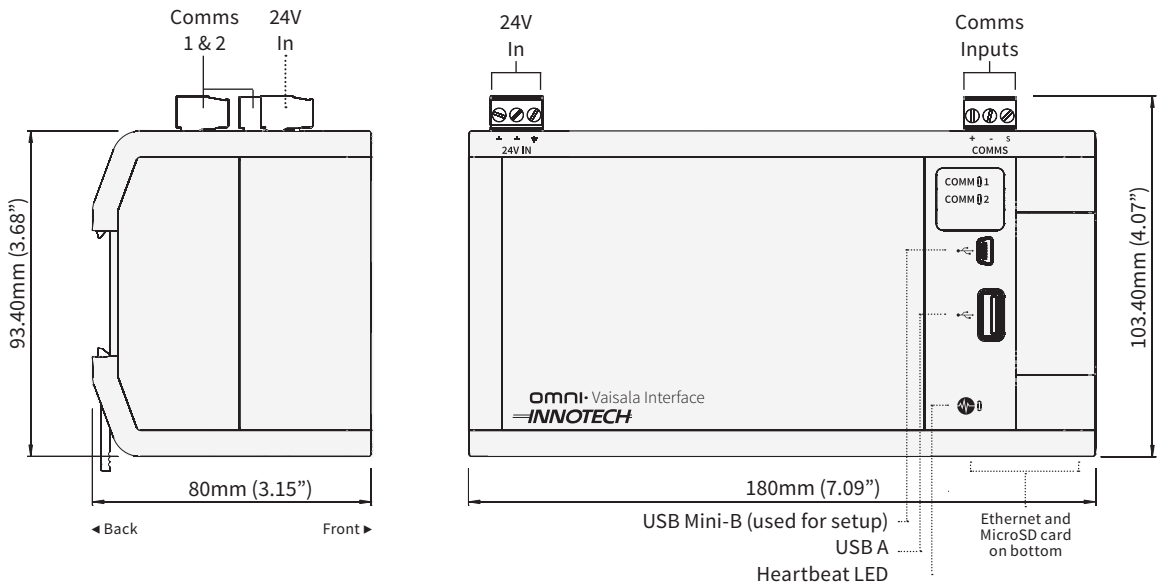
New users should be added with **Client Access** Level only. *For more information about the Access Levels, refer to the Omni Vaisala Interface User Instructions.*

Once you have set your last Settings change, ***Update Now*** *or Re-cycle the Power to accept all changes.*

Refer to the OMWEB02 Installation Instructions for a comprehensive list of all available settings.

Sunrise *displays in BACnet as the number of seconds from midnight until Sunrise, where 5:30am = 19,835.5214 secs.*
Sunset *displays in BACnet as the number of seconds from midnight until Sunset, where 6:42pm = 67,375.4921 secs.*
Daylight*:*
- *Shows in the web interface as the amount of minutes until Daylight (a negative value counting up to 0) and until Sunset (a positive value counting down to 0).*
- *Displays in BACnet as the number of minutes until daylight and the number of minutes of daylight left.*

OMWEB02 Dimensions & Parts Identification



OMWEB02 BACnet Objects

Name	Type	Inst.	Object Properties	Update Method
B: Today Low Temp_AI1	AI	1	Present Value	COV: 0.1
B: Today Hi Temp_AI2	AI	2	Present Value	COV: 0.1
B: Yest Low Temp_AI3	AI	3	Present Value	COV: 0.1
B: Yest Hi Temp_AI4	AI	4	Present Value	COV: 0.1
B: Yest Rain Total_AI5	AI	5	Present Value	COV: 0.05
B: Sunrise_AI6	AI	6	Present Value	COV: 1
B: Sunset_AI7	AI	7	Present Value	COV: 1
B: Daylight Output_AI8	AI	8	Present Value	COV: 1
BL: Air Pressure_AI100	AI	100	Present Value	COV: 0.01
BL: Air Temperature_AI101	AI	101	Present Value	COV: 0.1
BL: Relative Humidity_AI102	AI	102	Present Value	COV: 0.1
BL: Rain Intensity_AI103	AI	103	Present Value	COV: 0.1
BL: Rain Duration_AI104	AI	104	Present Value	COV: 1
BL: Rain Accum._AI105	AI	105	Present Value	COV: 0.1
BL: Hail Intensity_AI106	AI	106	Present Value	COV: 0.1
BL: Hail Duration_AI107	AI	107	Present Value	COV: 1
BL: Hail Accum._AI108	AI	108	Present Value	COV: 0.1
BL: Wind Speed Min_AI109	AI	109	Present Value	COV: 1
BL: Wind Speed Ave_AI110	AI	110	Present Value	COV: 1
BL: Wind Speed Max_AI111	AI	111	Present Value	COV: 1
BL: Wind Direction Min_AI112	AI	112	Present Value	COV: 5
BL: Wind Direction Ave_AI113	AI	113	Present Value	COV: 5
BL: Wind Direction Max_AI114	AI	114	Present Value	COV: 5
BL: Rain Peak Intensity_AI115	AI	115	Present Value	COV: 0.1
BL: Hail Peak Intensity_AI116	AI	116	Present Value	COV: 0.1
BL: Heating Temp_AI117	AI	117	Present Value	COV: 0.1
BL: Heating Voltage_AI118	AI	118	Present Value	COV: 0.1
BL: Internal Temp_AI119	AI	119	Present Value	COV: 0.1
BL: Reference Voltage_AI120	AI	120	Present Value	COV: 0.1
BL: Supply Voltage_AI121	AI	121	Present Value	COV: 0.1
BL: Tend Wind Direction_AI122	AI	122	Present Value	COV: 1
BL: Tend Wind Speed_AI123	AI	123	Present Value	COV: 1
BL: Apparent Temp_AI124	AI	124	Present Value	COV: 0.1
BL: Precipitation Reset_AI125	AI	125	Present Value	COV: 0.5
BL: Aux.Temperature_AI126	AI	126	Present Value	COV: 0.1
BL: Aux.Rain_AI127	AI	127	Present Value	COV: 0.1

Name	Type	Inst.	Object Properties	Update Method
BL: Level Sensor-Met_AI128	AI	128	Present Value	COV: 0.1
BL: Level Sensor-Imp_AI129	AI	129	Present Value	COV: 0.5
BL: Solar Radiation_AI130	AI	130	Present Value	COV: 1
BL: Rain Total Today_AI131	AI	131	Present Value	COV: 0.05
B: Vaisala Common FLT_BI1	BI	1	Present Value	-
BL: Air Pressure_Trd100	TL	100	Log Buffer	Poll: 30sec
BL: Air Temperature_Trd101	TL	101	Log Buffer	COV: 0.1
BL: Relative Humidity_Trd102	TL	102	Log Buffer	COV: 0.1
BL: Rain Intensity_Trd103	TL	103	Log Buffer	COV: 0.1
BL: Rain Duration_Trd104	TL	104	Log Buffer	COV: 1
BL: Rain Accum._Trd105	TL	105	Log Buffer	COV: 0.1
BL: Hail Intensity_Trd106	TL	106	Log Buffer	COV: 0.1
BL: Hail Duration_Trd107	TL	107	Log Buffer	COV: 1
BL: Hail Accum._Trd108	TL	108	Log Buffer	COV: 0.1
BL: Wind Speed Min_Trd109	TL	109	Log Buffer	COV: 5
BL: Wind Speed Ave_Trd110	TL	110	Log Buffer	COV: 5
BL: Wind Speed Max_Trd111	TL	111	Log Buffer	COV: 5
BL: Wind Direction Min_Trd112	TL	112	Log Buffer	COV: 10
BL: Wind Direction Ave_Trd113	TL	113	Log Buffer	COV: 10
BL: Wind Direction Max_Trd114	TL	114	Log Buffer	COV: 10
BL: Rain Peak Intensity_Trd115	TL	115	Log Buffer	COV: 0.1
BL: Hail Peak Intensity_Trd116	TL	116	Log Buffer	COV: 0.1
BL: Heating Temp_Trd117	TL	117	Log Buffer	COV: 0.1
BL: Heating Voltage_Trd118	TL	118	Log Buffer	COV: 0.1
BL: Internal Temp_Trd119	TL	119	Log Buffer	COV: 0.1
BL: Reference Voltage_Trd120	TL	120	Log Buffer	COV: 0.1
BL: Supply Voltage_Trd121	TL	121	Log Buffer	COV: 0.1
BL: Tend Wind Direction_Trd122	TL	122	Log Buffer	COV: 1
BL: Tend Wind Speed_Trd123	TL	123	Log Buffer	COV: 1
BL: Apparent Temp_Trd124	TL	124	Log Buffer	COV: 0.1
BL: Precipitation Reset_Trd125	TL	125	Log Buffer	COV: 0.5
BL: Aux.Temperature_Trd126	TL	126	Log Buffer	COV: 0.1
BL: Aux.Rain_Trd127	TL	127	Log Buffer	COV: 0.1
BL: Level Sensor-Met_Trd128	TL	128	Log Buffer	COV: 0.1
BL: Level Sensor-Imp_Trd129	TL	129	Log Buffer	COV: 0.5
BL: Solar Radiation_Trd130	TL	130	Log Buffer	Poll: 1min
BL: Rain Total Today_Trd131	TL	131	Log Buffer	COV: 0.05

Table Key

AI - Analog Input
BI - Binary Input
TL - Trendlog

Object Properties Supported

Refer to the complete Innotech Omni Protocol Implementation Conformance Statement (PICS) found at https://innotech.com/DownloadFiles/Documents/innotech_pics_omni.pdf or download it directly from your OMWEB02 Omni Vaisala Interface web server.

Analog Input

Object Property	Read/Write	Property Data Type
Object_Identifier	Read Only	BACnetObjectIdentifier
Object_Name	Read Only	CharacterString
Object_Type	Read Only	BACnetObjectType
Present_Value	Read/Write	REAL
Description	Read Only	CharacterString
Device_Type	Read Only	CharacterString
Status_Flags	Read Only	BACnetStatusFlags
Event_State	Read Only	BACnetEventState
Reliability	Read Only	BACnetReliability
Out_of_Service	Read/Write	BOOLEAN
Update_Interval	Read Only	Unsigned
Units	Read Only	BACnetEngineeringUnits
COV_Increment	Read Only	REAL
Min_Pres_Value	Read Only	REAL
Max_Pres_Value	Read Only	REAL
Resolution	Read Only	REAL

Binary Input

Object Property	Read/Write	Property Data Type
Object_Identifier	Read Only	BACnetObjectIdentifier
Object_Name	Read Only	CharacterString
Object_Type	Read Only	BACnetObjectType
Present_Value	Read/Write	BACnetBinaryPV
Description	Read Only	CharacterString
Device_Type	Read Only	CharacterString
Status_Flags	Read Only	BACnetStatusFlags
Event_State	Read Only	BACnetEventState
Reliability	Read Only	BACnetReliability
Out_of_Service	Read/Write	BOOLEAN
Polarity	Read Only	BACnetPolarity

Trend Log

Object Property	Read/Write	Property Data Type
Object_Identifier	Read Only	BACnetObjectIdentifier
Object_Name	Read Only	CharacterString
Object_Type	Read Only	BACnetObjectType
Description	Read Only	CharacterString
Enable	Read/Write	BOOLEAN
Start_Time	Read/Write	BACnetDateTime
Stop_Time	Read/Write	BACnetDateTime
Log_DeviceObjectProperty	Read Only	BACnetDeviceObjectPropertyReference
Log_Interval	Read/Write	Unsigned
COV_Resubscription_Interval	Read Only	Unsigned
Client_COV_Increment	Read Only	BACnetClientCOV
Stop_When_Full	Read/Write	BOOLEAN
Buffer_Size	Read Only	Unsigned32
Log_Buffer	Read Only	BACnetLIST of BACnetLogRecord
Record_Count	Read Only	Unsigned32
Total_Record_Count	Read Only	Unsigned32
Logging_Type	Read Only	BACnetLoggingType
Status_Flags	Read Only	BACnetStatusFlags
Trigger	Read Only	BOOLEAN
Event_State	Read Only	BACnetEventState

Vaisala Weather Transmitter Connector Pin-Outs

Note: Colour coded per Vaisala documentation.

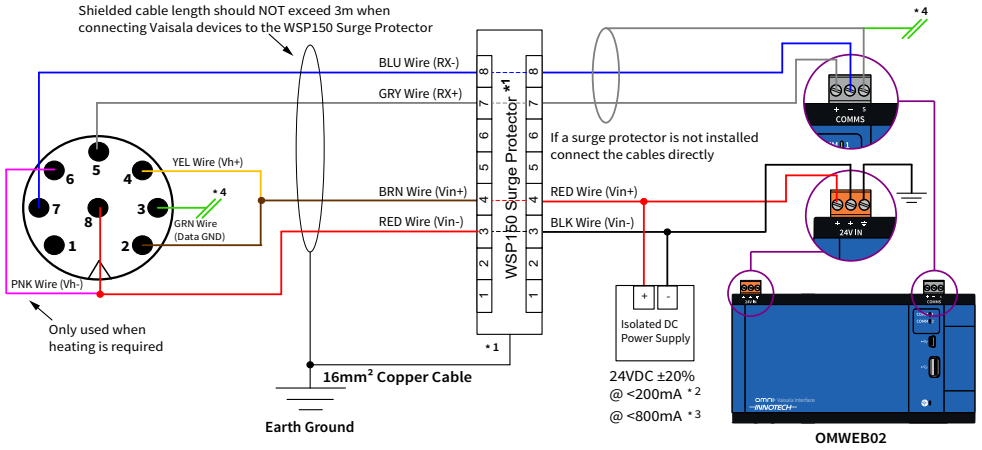
***1** Wire the Vaisala device to the WSP150 Surge Protector in accordance with appropriate Vaisala technical documentation.

***2** When heating is NOT used.

***3** When heating IS used.
If heating is required and supplied via the same supply wires, ensure a substantial cable with cross-section >1mm² is used to avoid excessive voltage drops. Excessive voltage drops may cause comms problems.

***4** Communication Ground is wired directly to Omni RS-485 shield terminal.

Vaisala WXT53x
Wiring to 8-Pin M12 Connector, Split Cabling for Heating*1



Note: Colour coded per Vaisala documentation.

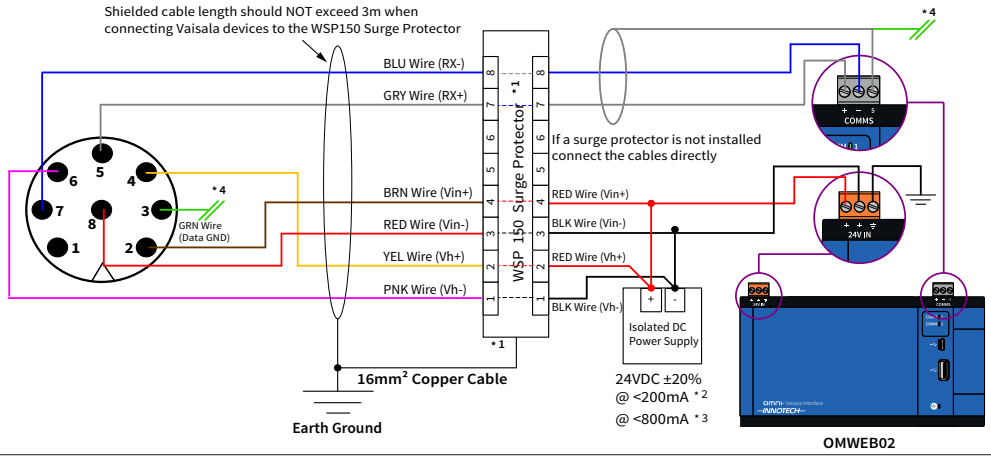
***1** Wire the Vaisala device to the WSP150 Surge Protector in accordance with appropriate Vaisala technical documentation.

***2** When heating is NOT used.

***3** Higher heating currents cause voltage drop. Select cable with sufficient cross section for longer runs.

***4** Communication Ground is wired directly to Omni RS-485 shield terminal.

Vaisala WXT53x
Wiring to 8-Pin M12 Connector, Isolated Cabling for Heating*1



M12 Pin-outs for WXT53x

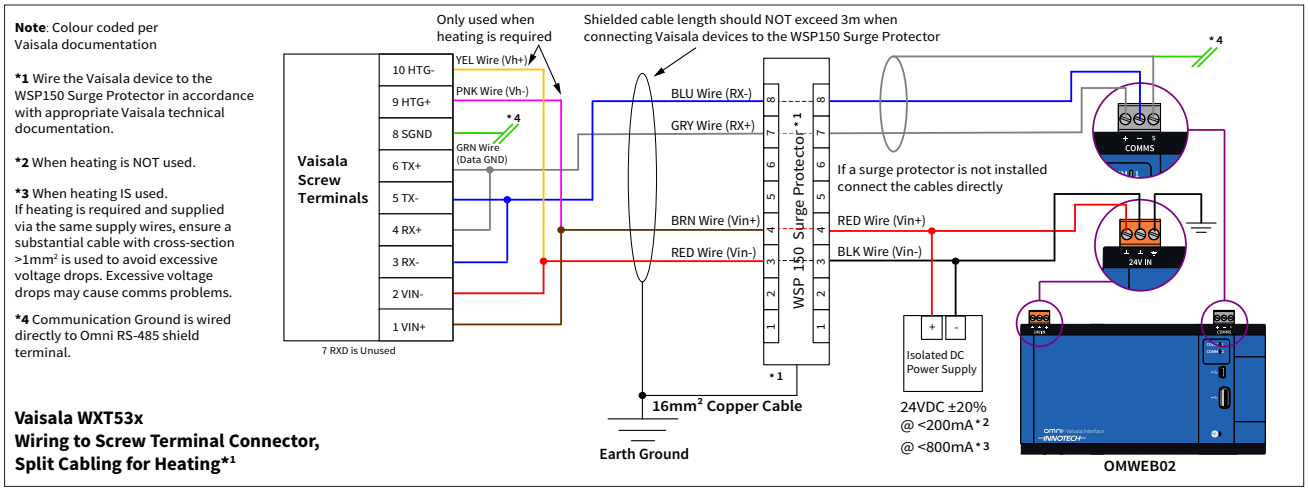
WIRE COLOUR	M12 PIN#	RS-485
Blue	7	RX-
Grey	5	RX+
White	1	Unused
Green	3	GND for Data

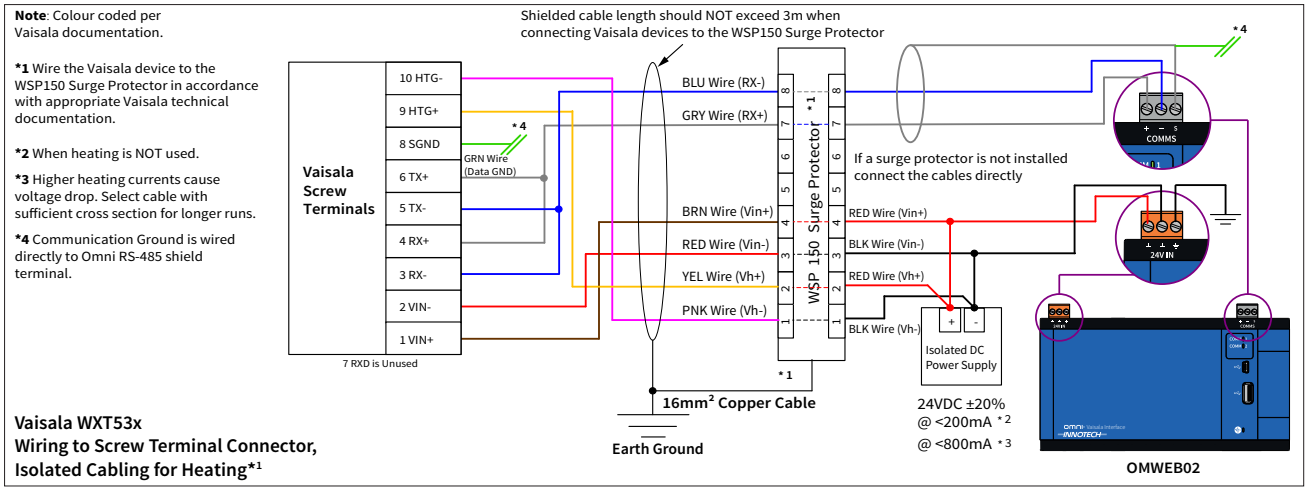
(Continued)

WIRE COLOUR	M12 PIN#	RS-485
Pink	6	Vh- (heating GND)
Yellow	4	Vh+ (heating Supply Voltage)
Red	8	Vin- (operating GND)
Brown	2	Vin+- (operating supply voltage)

Exact minimum cable specifications for the power supply will vary, and are installation specific. Ensure to select the correct cable to carry the current load as required.

Vaisala Weather Transmitter Screw Terminal Pin-Outs





Screw Terminal Pin-Outs for Vaisala Weather Transmitters

SCREW TERMINAL PIN	RS-485
1 VIN+	Vin+ (operating supply voltage)
2 VIN-	Vin- (operating GND)
3 RX-	RX-
4 RX+	RX+
5 TX-	RX-

(Continued)

SCREW TERMINAL PIN	RS-485
6 TX+	RX+
7 RXD	Unused
8 SGND	Communications ground (GND)
9 HTG+	Vh+ (heating supply voltage)
10 HTG-	Vh- (heating GND)

Exact minimum cable specifications for the power supply will vary, and are installation specific. Ensure to select the correct cable to carry the current load as required.

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