

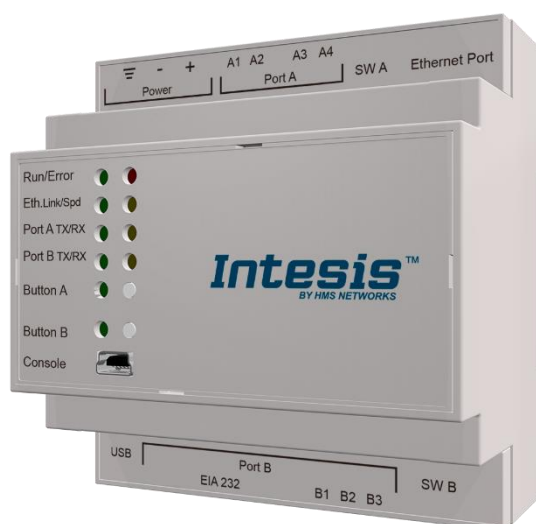
WMP

Panasonic VRF Air Conditioning

Gateway for the integration of Panasonic VRF systems into Home Automation
systems (WMP)

USER MANUAL

Issue date: 09/2020 r1.0 ENGLISH



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Gateway for the integration of Panasonic VRF systems into Home Automation systems (WMP).

ORDER CODE	LEGACY ORDER CODE
INMBSPAN0160000	PA-AC-MBS-16
INMBSPAN0640000	PA-AC-MBS-64
INMBSPAN1280000	PA-AC-MBS-128

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1. Description

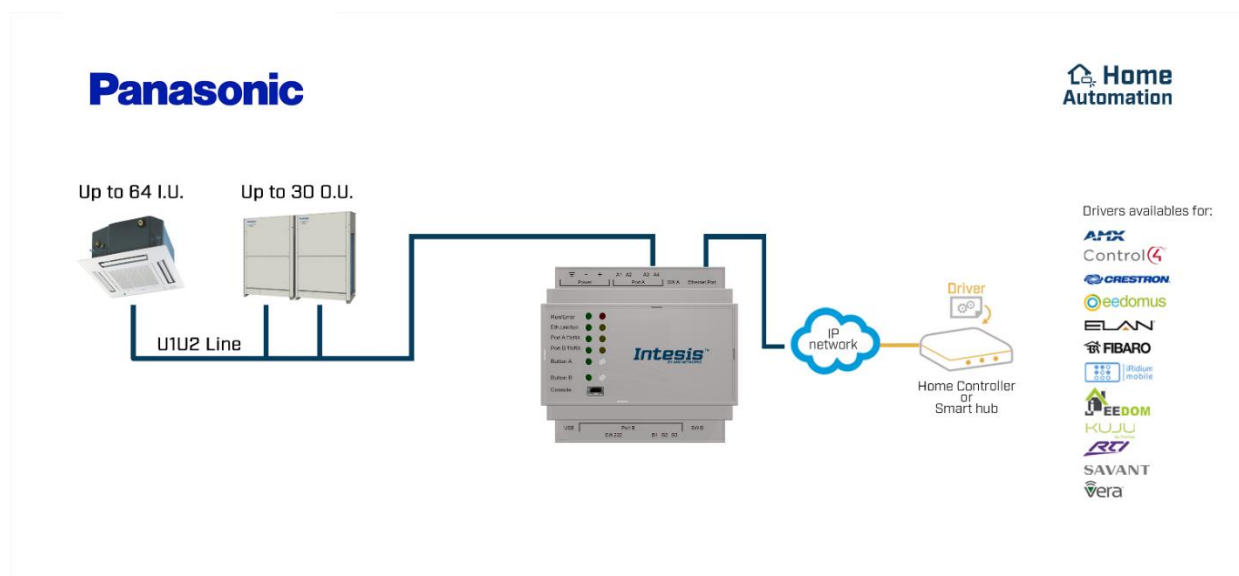
1.1. Introduction

This document describes the integration of Panasonic VRF air conditioning systems into Home Automation systems using the Home Automation (WMP) to *Panasonic VRF* communication gateway.

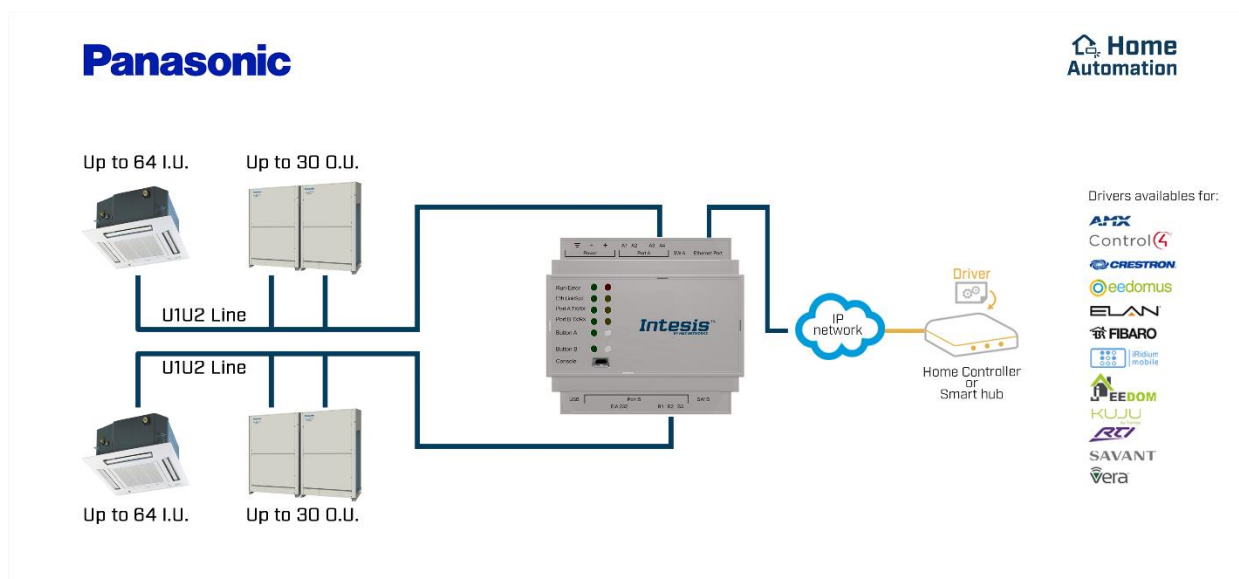
The aim of this integration is to monitor and control Panasonic air conditioning systems, remotely, from a Home Automation system. To do it so, Intesis communicates with Intesis WMP protocol, allowing controlling and update the signals requested from the Home Automation hub.

Up to 128 indoor units supported, depending on product version.

This document assumes that the user is familiar with Home Automation (WMP) and Panasonic technologies and their technical terms.



**Integration of Panasonic's compatible systems into Home Automation (WMP) systems.
1 Panasonic lines can be connected**



**Integration of Panasonic's compatible systems into Home Automation (WMP) systems.
2 Panasonic lines can be connected**

1.2. Functionality

Intesis™ continuously monitors Panasonic VRF network for all configured signals and keeps them updated in its memory available for reading and updating them towards the Home Automation system via Intesis WMP protocol.

Commands toward the indoor units are permitted.

Each indoor unit is offered as a set of WMP commands.

Element	WMP commands supported
Indoor Unit	<ul style="list-style-type: none">• SET (control)• CHN (status)• GET (read)

1.3. Capacity of Intesis

Element	Max.	Notes
Number of indoor units	128*	Number of indoor units that can be controlled through Intesis

* There are different models of *Intesis WMP – Panasonic VRF* each one with different capacity. The table above shows the capacity for the top model (with maximum capacity).

Their order codes are:

- INMBSPAN016O000, Model supporting up to 16 indoor units.
- INMBSPAN064O000, Model supporting up to 64 indoor units.
- INMBSPAN128O000, Model supporting up to 128 indoor units.

2. Intesis WMP interface

In this section, a common description for all Intesis WMP series gateways is given, from the point of view of the Home Automation system which is called from now on *internal system*. Connection with the Panasonic VRF system is also called from now on *external system*.

There is a specific Home Automation (WMP) manual available about WMP protocol with available examples. Here is included the specific information regarding to WMP protocol and its integration in this product, for further explanations, refer to the referred WMP manual available in www.intesis.com.

2.1. HVAC WMP Commands supported

Intesis WMP commands SET/CHN/GET can be used with the different WMP functions.

2.2. HVAC WMP Functions allowed

Depending on the signal, different commands are allowed. WMP protocol uses different functions to refer to different signals of the HVAC system.

In the table below are listed the available WMP signals for the HVAC control, the function to identify the signal, its available values and the commands allowed to interact with them.

OUTDOOR UNITS SIGNALS			
Signal description	Function	Values	Commands
Comm Error OU	ERROROU	OK/ERR	CHN/GET
INDIVIDUAL UNITS			
Signal description	Function	Values	Commands
On/Off	ONOFF	ON/OFF	SET/CHN/GET
Operation Mode	MODE	HEAT/COOL/FAN/DRY/AUTO	SET/CHN/GET
Fan Speed	FANSP	1/2/3/4/5/AUTO	SET/CHN/GET
Vane Position	VANEUD	1/2/3/4/5/AUTO	SET/CHN/GET
Temperature Setpoint (x10) (°C)	SETPTMP	(°C)	SET/CHN/GET
AC Ambient Temperature (x10) (-35..92,5°C)	AMBTMP	(°C)	CHN/GET
Unit Error code (0-No Error,X-Error)	ERRCODE	0/X (see user manual)	CHN/GET

2.3. Link with Home Automation system

This gateway supports one IP connection to communicate with the home automation hub or central controller but allows to communicate with several AC units. To identify the ac unit to control from the Home Automation side, WMP protocol has implemented the acnum parameter. Basically, this parameter links the home automation side identifying the AC unit to control in the AC system.

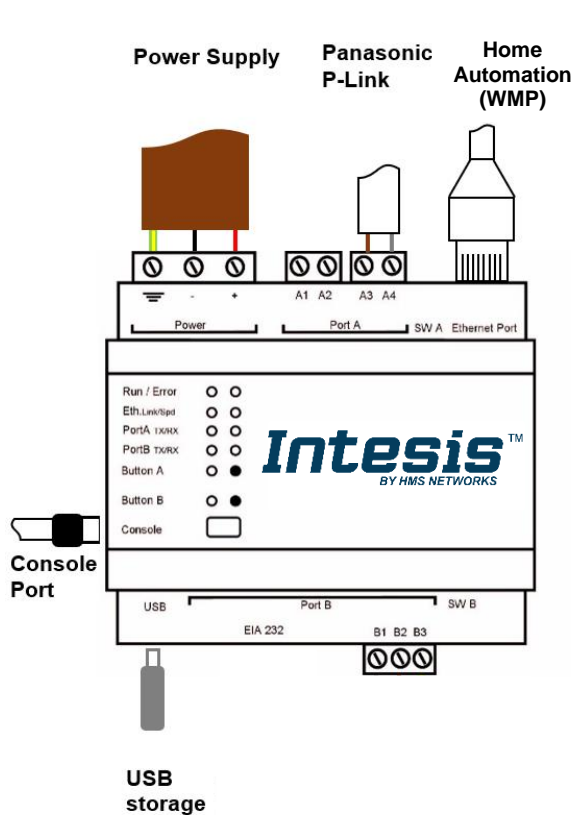
Given an AC unit, all its individual signals have one unique acnum and this number is always different among all the ac units configured in the gateway. Only in some specific cases, outdoor units might share the acnum with one indoor unit as the commands are independent between themselves.

Acnum is given in the configuration section. See [4.2.5 PANASONIC CONFIGURATION](#) for more information.

3. Connections

3.1. Connections for 16 and 64 versions (INMBSPAN016O000 and INMBSPAN064O000)

Find below information regarding the Intesis connections available.



Power Supply

Must use NEC Class 2 or Limited Power Source (LPS) and SELV rated power supply.

If using DC power supply:

Respect polarity applied of terminals (+) and (-). Be sure the voltage applied is within the range admitted (check table below). The power supply can be connected to earth but only through the negative terminal, never through the positive terminal.

If using AC power supply:

Make sure the voltage applied is of the value admitted (24 Vac). Do not connect any of the terminals of the AC power supply to earth, and make sure the same power supply is not supplying any other device.

Ethernet / Home Automation (WMP) / Console (UDP & TCP)

Connect the cable coming from the IP network to the connector ETH of the gateway. Use an Ethernet CAT5 cable. If communicating through the LAN of the building, contact the network administrator and make sure traffic on the port used is allowed through all the LAN path (check the gateway user manual for more information). Default IP is 192.168.100.246. DHCP is enabled by default.

PortA / P-Link Panasonic

Connect the P-Link terminals of Panasonic Outdoor Unit to the connectors A3 and A4 of gateway's PortA. There is no polarity to be respected.

PortB / Free

Console Port

Connect a mini-type B USB cable from your computer to the gateway to allow communication between the Configuration Software and the gateway. Remember that Ethernet connection is also allowed. Check the user manual for more information.

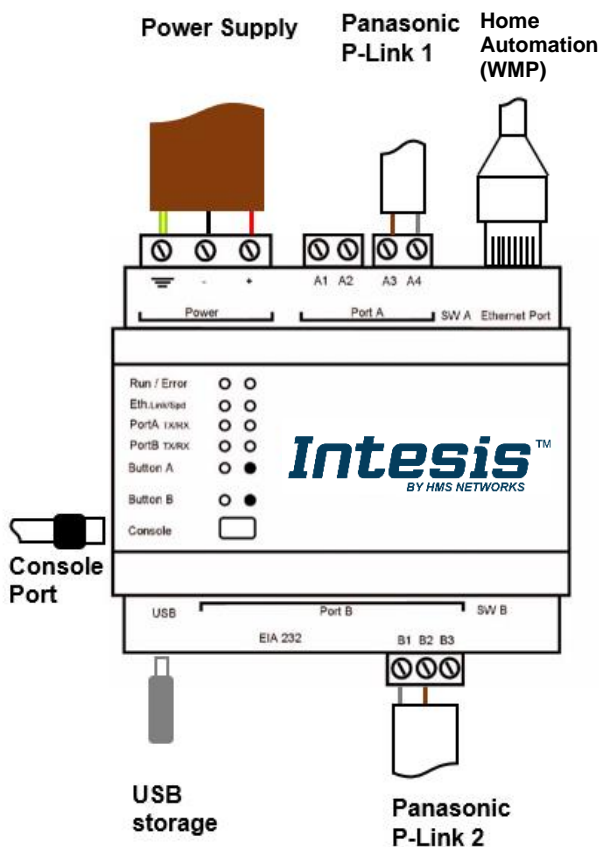
USB

Connect a USB storage device (not HDD) if required. Check the user manual for more information.

Ensure proper space for all connectors when mounted (see [6 DIMENSIONS](#)).

3.2. Connections for 128 version (INMBSPAN128O000)

Find below information regarding the Intesis connections available.



Power Supply

Must use NEC Class 2 or Limited Power Source (LPS) and SELV rated power supply.

If using DC power supply:

Respect polarity applied of terminals (+) and (-). Be sure the voltage applied is within the range admitted (check table below). The power supply can be connected to earth but only through the negative terminal, never through the positive terminal.

If using AC power supply:

Make sure the voltage applied is of the value admitted (24 Vac). Do not connect any of the terminals of the AC power supply to earth, and make sure the same power supply is not supplying any other device.

Ethernet / Home Automation (WMP) / Console (UDP & TCP)

Connect the cable coming from the IP network to the connector ETH of the gateway. Use an Ethernet CAT5 cable. If communicating through the LAN of the building, contact the network administrator and make sure traffic on the port used is allowed through all the LAN path (check the gateway user manual for more information). With factory settings, after powering up the gateway, DHCP will be enabled for 30 seconds. After that time, if no IP is provided by a DHCP server, the default IP 192.168.100.246 will be set.

PortA / P-Link 1 Panasonic

Connect the P-Link terminals of Panasonic Outdoor Unit to the connectors A3 and A4 of gateway's PortA. There is no polarity to be respected.

PortB / P-Link 2 Panasonic

Connect the P-Link terminals of Panasonic Outdoor Unit to the connectors B1 and B2 of gateway's PortA. There is no polarity to be respected.

Console Port

Connect a mini-type B USB cable from your computer to the gateway to allow communication between the Configuration Software and the gateway. Remember that Ethernet connection is also allowed. Check the user manual for more information.

USB

Connect a USB storage device (not HDD) if required. Check the user manual for more information.

Ensure proper space for all connectors when mounted (see [6 DIMENSIONS](#)).

3.3. Power device

The first step to perform is to power up the device. To do so, a power supply working with any of the voltage range allowed is needed (check [5 ELECTRICAL & MECHANICAL FEATURES](#)). Once connected the ON led will turn on.

WARNING! To avoid earth loops that can damage the gateway, and/or any other equipment connected to it, we strongly recommend:

- The use of DC power supplies, floating or with the negative terminal connected to earth. **Never use a DC power supply with the positive terminal connected to earth.**
- The use of AC power supplies only if they are floating and not powering any other device.

3.4. Connect to Panasonic VRF installation

Use the PortA connector in the top corner of the Intesis device to connect P-Link bus to the Intesis. Remember to follow all safety precautions indicated by Panasonic.

Connect the Panasonic P-Link bus to connectors A3 and A4 of gateway's PortA. Bus is not sensitive to polarity.

For the product version supporting 128 units (INMBSPAN128O000), connect the Panasonic P-Link 2 bus to connectors B1 and B2 of gateway PortB. Bus is not sensitive to polarity.

3.5. Connection to Home Automation (WMP)

The gateways Ethernet port connection is used for the Home Automation (WMP) TCP communication. Connect the communication cable coming from the network hub or switch to the Ethernet port of Intesis. The cable to be used shall be a straight Ethernet UTP/FTP CAT5 cable.

TCP port to use (default 3310) and keep alive period must be configured.

IP settings of the gateway (DHCP status, own IP, netmask and default gateway) must be configured as well.

3.6. Connection to PC (Configuration tool)

This action allows the user to have access to configuration and monitoring of the device (more information can be found in the configuration tool User Manual). Two methods to connect to the PC can be used:

- **Ethernet:** Using the Ethernet port of Intesis.
- **USB:** Using the console port of Intesis, connect a USB cable from the console port to the PC.

4. Set-up process and troubleshooting

4.1. Pre-requisites

It is necessary to have the Home Automation system (normally a central hub) operative, configured and properly connected to the Ethernet port of the gateway and the Panasonic VRF installation connected to the corresponding port.

Connectors, connection cables, PC for the Configuration Tool usage and other auxiliary material, if needed, are not supplied by Intesis for this standard integration.

Items supplied by HMS Networks for this integration are:

- Intesis gateway.
- Link to download the configuration tool.
- USB Console cable to communicate with Intesis.
- Product documentation.

4.2. Intesis MAPS. Configuration & monitoring tool for Intesis Home Automation (WMP) series

4.2.1. Connection

To configure the Intesis connection parameters press on the **Connection** button in the *menu bar*.

The screenshot shows the Intesis MAPS Configuration & monitoring tool interface. The menu bar includes Home, Project, Tools, View, and Help. The main toolbar has five buttons: Connection (selected), Configuration *, Signals, Receive / Send, and Diagnostic. The Connection Parameters section is active, showing the Connection Type as IP (selected) and USB Port (unselected). Below this, there is a table of Discovered Gateways. The table has two columns: Description and Value. The table is currently empty. At the bottom, there is a Refresh button, a Gateway IP : Port input field, and buttons for Disconnect and Connect. A Pwd: field with a masked password is also present.

Description	Value
Gateway Name	-
Serial Number	-
Application Name	-
License	-
License Comments	-
Version	-
Last Configuration Date	-
MAC Address	-
IP Address	-
Netmask	-
Gateway	-
DHCP	-
Current Date Time	-
Gateway Operating Time	-

Figure 4.1 MAPS connection

4.2.2. Configuration tab

Select the **Configuration** tab to configure the connection parameters. Three subsets of information are shown in this window: General (Gateway general parameters), WMP (Home Automation system) and Panasonic (Panasonic VRF interface parameters).

The screenshot displays the Intesis MAPS configuration interface. At the top, there is a navigation bar with tabs: Home, Project, Tools, View, and Help. Below this is a secondary bar with icons and labels for Connection, Configuration (selected), Signals, Receive / Send, and Diagnostic. The main content area is divided into three sections: General, WMP, and Panasonic. The General section is active and shows the 'General Configuration' settings. These include fields for 'Gateway Name' (PA-AC-WMP) and 'Project Description' (Intesis Panasonic to WMP Gateway). Below these is the 'Connection' section, which has a checkbox for 'Enable DHCP' (checked) and input fields for 'IP Address' (192.168.100.246), 'Netmask' (255.255.255.0), 'Default Gateway', and 'Password'. At the bottom of the General section is the 'USB Host' section, which includes an 'Edit USB Configuration' button and a 'USB' button.

Figure 4.2 Intesis MAPS configuration tab

4.2.3. General configuration

These are the general settings of the gateway. Here you can find:

- General configuration

In this section you can include a name and description to identify the gateway.

- Connection

Here are the settings related to the IP address (via DHCP/specific IP address) and the password set for the IP configuration of the gateway in MAPS.

- USB Host

In this section it is possible to configure the different settings for the USB host port.

4.2.4. Home Automation (WMP) system configuration

These are the settings available for the Home Automation system (WMP communication):

General

WMP

AC manufacturer

Available Commands

Command	Description
ID	Device ID
INFO	Device Info
DISCOVER	Device discovering via UDP
PING	Ping to device
STATUS	Unit status in one string
LIMITS	Current limits for different signals

TCP Configuration

Port

Keep Alive mins

Figure 4.3 Intesis MAPS Home Automation configuration tab

1. Available commands

This is an informative section displaying all commands available for the WMP communication.

2. TCP Configuration.

This section allows to configure the TCP settings for the WMP communication with the Home Automation system.

- **Port:** WMP TCP communication port setting. Default port 3310.
- **Keep Alive.** Set the time of inactivity to send a keep Alive message. Default 10 minutes.

4.2.5. Panasonic configuration

Set parameters for the connection with Panasonic's installation.

Intesis MAPS

Connection Configuration Signals Receive / Send Diagnostic

General

WMP

Panasonic

Line 1 Configuration

☒ Panasonic Line 1
☐ Panasonic Line 2

Gateway Address in Panasonic line

Autodiscover Panasonic line

Units Configuration

Unit ID	OU	IU	CCAddress	Unit Type	Description
<input checked="" type="checkbox"/> Unit 1	1	1	-	Not Defined	Indoor Unit 1
<input type="checkbox"/> Unit 2	1	2	-	Not Defined	Indoor Unit 2
<input type="checkbox"/> Unit 3	1	3	-	Not Defined	Indoor Unit 3
<input type="checkbox"/> Unit 4	1	4	-	Not Defined	Indoor Unit 4
<input type="checkbox"/> Unit 5	1	5	-	Not Defined	Indoor Unit 5
<input type="checkbox"/> Unit 6	1	6	-	Not Defined	Indoor Unit 6
<input type="checkbox"/> Unit 7	1	7	-	Not Defined	Indoor Unit 7
<input type="checkbox"/> Unit 8	1	8	-	Not Defined	Indoor Unit 8
<input type="checkbox"/> Unit 9	1	9	-	Not Defined	Indoor Unit 9
<input type="checkbox"/> Unit 10	1	10	-	Not Defined	Indoor Unit 10
<input type="checkbox"/> Unit 11	1	11	-	Not Defined	Indoor Unit 11
<input type="checkbox"/> Unit 12	1	12	-	Not Defined	Indoor Unit 12

Supported Active Units: -

Figure 4.4 Intesis MAPS Panasonic configuration tab

There are 2 different types of Scan to be applied. By default, the fastest one is defined since it is assumed that Panasonic units (indoor units and outdoor units) have been addressed. However, and only in case the units do not have an address assigned, the parameter “**Installation with units not addressed (no central address assigned)**” must be selected.

Please take into consideration that when the installation is not addressed, the scan process might take longer than the standard scan (up to 60 min). To decrease this time, it is highly recommended to reduce the OU range to be scanned as much as possible:

Figure 4.6 Intesis MAPS Long Scan Panasonic Units window

By pressing **Scan** button, connected Panasonic P-Link bus will be scanned for available units. Error window will appear if there is a problem in the connection with P-Link bus (units not powered, bus not connected, ...).

A progress bar will appear during the scan, which will take up to a few minutes. After scan is completed, detected units will be shown in available units as follows:

Add	OU	IU	Model	M/S	CCAddress
<input checked="" type="checkbox"/>	01	01	TBD	Master	49
<input checked="" type="checkbox"/>	01	02	TBD	Slave	-
<input checked="" type="checkbox"/>	01	03	TBD	Master	4A
<input checked="" type="checkbox"/>	01	04	TBD	Master	4C
<input checked="" type="checkbox"/>	01	05	TBD	Master	4D
<input checked="" type="checkbox"/>	01	06	TBD	Master	4E
<input checked="" type="checkbox"/>	01	07	TBD	Master	4F
<input checked="" type="checkbox"/>	01	08	TBD	Master	50
<input checked="" type="checkbox"/>	01	09	TBD	Master	51
<input checked="" type="checkbox"/>	01	10	TBD	Master	52
<input checked="" type="checkbox"/>	01	11	TBD	Master	53
<input checked="" type="checkbox"/>	01	12	TBD	Master	54

Figure 4.7 Intesis MAPS Scan Panasonic Units window with scan results

Select with its checkbox units to add (or replace) in installation, according to selection **Replace Units / Add Units**. After units to be integrated are selected, click button **Apply**, and changes will appear in previous **Units Configuration** window.

Acnum

Acnum is the parameter or number associated to every ac unit. This parameter identifies the ac unit from the home automation side.

In this gateway, this number corresponds with the unit ID available during the configuration process. This number cannot be edited and is automatically generated during the manual or automatic (using SCAN) configuration process. You can check the indoor units Unit ID number in its column.

For the outdoor units, acnum corresponds with the lowest Unit ID of its associated indoors.

4.2.6. Signals

All available WMP signals, its corresponding description and other main parameters are listed in the signals tab. The acnum of every unit is also displayed in a column in the signals view.

Connection

Configuration *

Signals

Receive / Send

Diagnostic

Intesis MAPS

#	Active	Description	WMP				Panasonic			
			AcNum	Format	Values	Commands	Unit	IU	OU	Line
1	<input checked="" type="checkbox"/>	Comm Error OU	1	ERROROU	OK/ERR	CHN/GET	-	-	1	Line 1
2	<input checked="" type="checkbox"/>	On/Off	1	ONOFF	ON/OFF	SET/CHN/GET	Unit 1 - Indoor...	1	1	Line 1
3	<input checked="" type="checkbox"/>	Operation Mode	1	MODE	HEAT/COOL/FAN/DRY/AUTO	SET/CHN/GET	Unit 1 - Indoor...	1	1	Line 1
4	<input checked="" type="checkbox"/>	Fan Speed	1	FANSP	1/2/3/4/5/AUTO	SET/CHN/GET	Unit 1 - Indoor...	1	1	Line 1
5	<input checked="" type="checkbox"/>	Vane Position	1	VANEUD	1/2/3/4/5/AUTO	SET/CHN/GET	Unit 1 - Indoor...	1	1	Line 1
6	<input checked="" type="checkbox"/>	Temperature Setpoint (x10) (°C)	1	SETPTEMP	(°C)	SET/CHN/GET	Unit 1 - Indoor...	1	1	Line 1
7	<input checked="" type="checkbox"/>	AC Ambient Temperature (x10) (-35..92,5°C)	1	AMBTMP	(°C)	CHN/GET	Unit 1 - Indoor...	1	1	Line 1
8	<input checked="" type="checkbox"/>	Unit Error code (0-No Error,X-Error)	1	ERRCODE	0/X (see user manual)	CHN/GET	Unit 1 - Indoor...	1	1	Line 1
9	<input checked="" type="checkbox"/>	Error IU	1	ERRSTATUS	OK/ERR	CHN/GET	Unit 1 - Indoor...	1	1	Line 1

After any configuration change, do not forget to send the configuration file to the Intesis using the Send button in the Receive / Send section.

4.2.8. Diagnostic

To help integrators in the commissioning tasks and troubleshooting, the Configuration Tool offers some specific tools and viewers.

To start using the diagnostic tools, connection with the Gateway is required.

The Diagnostic section is composed by two main parts: Tools and Viewers.

- **Tools**
Use the tools section to check the current hardware status of the box, log communications into compressed files to be sent to the support, change the Diagnostic panels' view or send commands to the gateway.
- **Viewers**
To check the status, viewer for the Internal and External protocols are available. It is also available a generic Console viewer for general information about communications and the gateway status and finally a Signals Viewer to simulate the BMS behavior or to check the current values in the system.

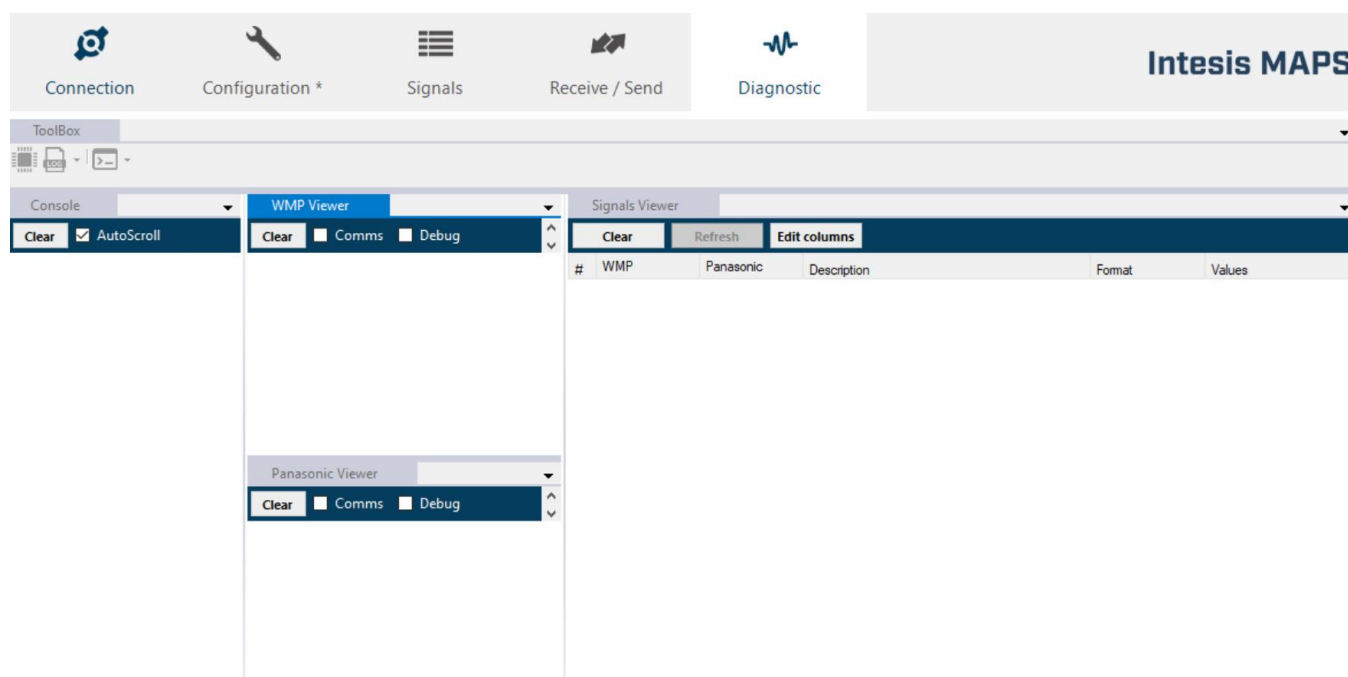


Figure 4.14 Diagnostic

More information about the Diagnostic section can be found in the Configuration Tool manual.

4.2.9. Set-up procedure

1. Install Intesis MAPS on your laptop, use the setup program supplied for this and follow the instructions given by the Installation wizard.
2. Install Intesis in the desired installation site. Installation can be on DIN rail or on a stable not vibrating surface (DIN rail mounted inside a metallic industrial cabinet connected to ground is recommended).
3. For the Home Automation (WMP) communication, connect the communication cable coming from the Ethernet port of the WMP TCP installation to the port marked as Ethernet Port of Intesis. More details in [3 CONNECTIONS](#).

- Connect the communication cable coming from the **Panasonic VRF** installation to the port marked as Port A of Intesis.

If connecting a second **Panasonic VRF** installation, connect it to the port marked as Port B. **Only available for INMBSPAN1280000**. More details in **3 CONNECTIONS**.

- Power up Intesis. The supply voltage can be 9 to 36 Vdc or just 24 Vac. Take care of the polarity of the supply voltage applied.

WARNING! To avoid earth loops that can damage Intesis and/or any other equipment connected to it, we strongly recommend:

- The use of DC power supplies, floating or with the negative terminal connected to earth. **Never use a DC power supply with the positive terminal connected to earth.**
- The use of AC power supplies only if they are floating and not powering any other device.

- If you want to connect using IP, connect the Ethernet cable from the laptop PC to the port marked as Ethernet of Intesis. More details in **3 CONNECTIONS**.

If you want to connect using USB, connect the USB cable from the laptop PC to the port marked as Console of Intesis. More details in **3 CONNECTIONS**.

- Open Intesis MAPS, create a new project selecting a copy of the one named IBOX-WMP-PA-Templat.
- Modify the configuration as desired, save it and download the configuration file to Intesis as explained in the Intesis MAPS user manual.
- Visit the Diagnostic section, enable COMMS () and check that there is communication activity, some TX frames and some other RX frames. This means that the communication with the Home Automation Hub is OK. In case there is no communication activity between Intesis and the Home Automation hub or controller, check that those are operative: check the baud rate, the communication cable used to connect all devices and any other communication parameter.

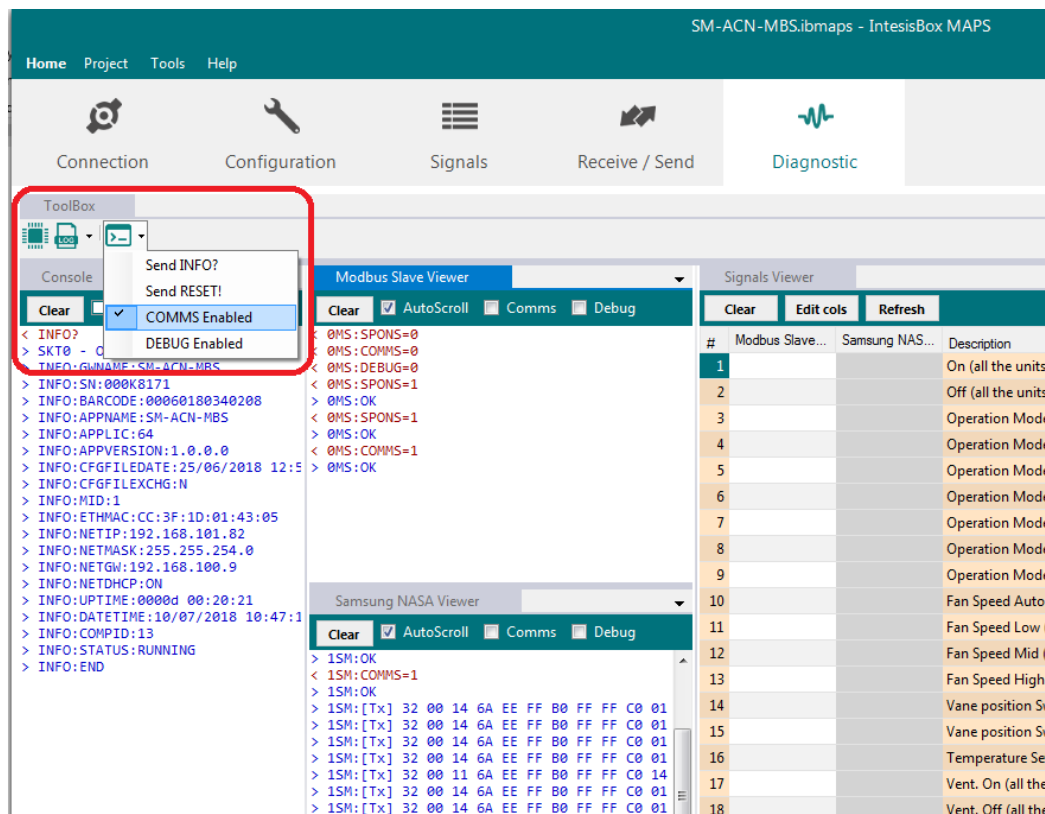


Figure 4.15 Enable COMMS

5. Electrical & Mechanical Features

5.1. Intesis WMP for Panasonic 16 and 64 units



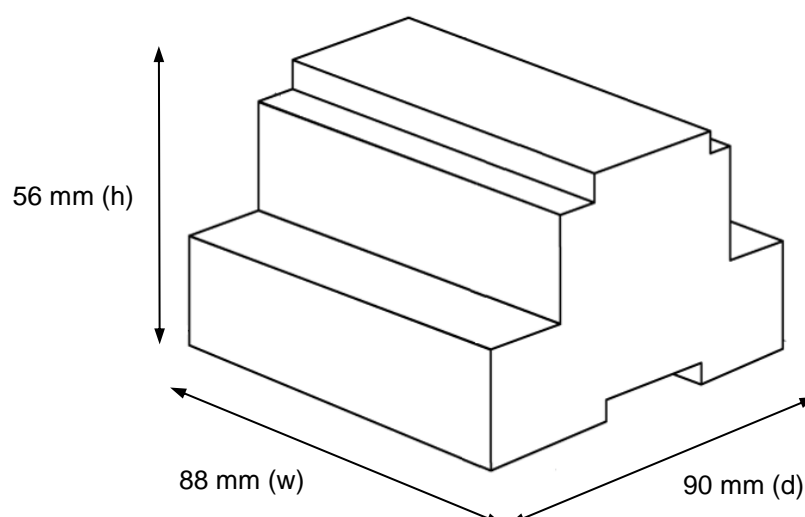
Enclosure	Plastic, type PC (UL 94 V-0) Net dimensions (dxwxh): 90x88x56 mm Recommended space for installation (dxwxh): 130x100x100mm Color: Light Grey, RAL 7035	Battery	Size: Coin 20mm x 3.2mm Capacity: 3V / 225mAh Type: Manganese Dioxide Lithium
Mounting	Wall. DIN rail EN60715 TH35.	Console Port	Mini Type-B USB 2.0 compliant 1500VDC isolation
Terminal Wiring (for power supply and low-voltage signals)	Per terminal: solid wires or stranded wires (twisted or with ferrule) 1 core: 0.5mm ² ... 2.5mm ² 2 cores: 0.5mm ² ... 1.5mm ² 3 cores: not permitted If cables are more than 3.05 meters long, Class 2 cable is required.	USB port	Type-A USB 2.0 compliant Only for USB flash storage device (USB pen drive) Power consumption limited to 150mA (HDD connection not allowed)
Power	1 x Plug-in screw terminal block (3 poles) 9 to 36VDC +/-10%, Max.: 140mA. 24VAC +/-10% 50-60Hz, Max.: 127mA Recommended: 24VDC	Push Button	Button A: Not used Button B: Not used
Ethernet	1 x Ethernet 10/100 Mbps RJ45 2 x Ethernet LED: port link and activity	Operation Temperature	0°C to +60°C
Port A	1 x P-Link Plug-in screw terminal block orange (2 poles) 1500VDC isolation from other ports 1 x Plug-in screw terminal block green (2 poles) Reserved for future use	Operational Humidity	5 to 95%, no condensation
Switch A (SWA)	1 x DIP-Switch for EIA485 configuration: Reserved for future use	Protection	IP20 (IEC60529)
PORT B	1 x Serial EIA232 (SUB-D9 male connector) Not used 1 x Serial EIA485 Plug-in screw terminal block (3 poles) A, B, SGND (Reference ground or shield) 1500VDC isolation from other ports	LED Indicators	10 x Onboard LED indicators 2 x Run (Power)/Error 2 x Ethernet Link/Speed 2 x Port A TX/RX 2 x Port B TX/RX 1 x Button A indicator 1 x Button B indicator
Switch B (SWB)	1 x DIP-Switch for serial EIA485 configuration: Position 1: ON: 120 Ω termination active Off: 120 Ω termination inactive (default) Position 2-3: ON: Polarization active Off: Polarization inactive (default)		

5.2. Intesis WMP for Panasonic 128 units

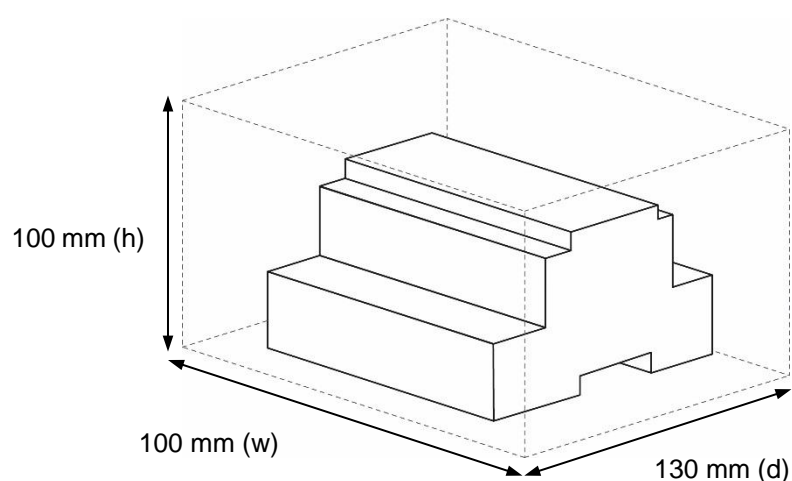


Enclosure	Plastic, type PC (UL 94 V-0) Net dimensions (d×w×h): 90x88x56 mm Recommended space for installation (d×w×h): 130x100x100mm Color: Light Grey. RAL 7035	Battery	Size: Coin 20mm x 3.2mm Capacity: 3V / 225mAh Type: Manganese Dioxide Lithium
Mounting	Wall. DIN rail EN60715 TH35.	Console Port	Mini Type-B USB 2.0 compliant 1500VDC isolation
Terminal Wiring (for power supply and low-voltage signals)	Per terminal: solid wires or stranded wires (twisted or with ferrule) 1 core: 0.5mm ² ... 2.5mm ² 2 cores: 0.5mm ² ... 1.5mm ² 3 cores: not permitted If cables are more than 3.05 meters long, Class 2 cable is required.	USB port	Type-A USB 2.0 compliant Only for USB flash storage device (USB pen drive) Power consumption limited to 150mA (HDD connection not allowed)
Power	1 x Plug-in screw terminal block (3 poles) 9 to 36VDC +/-10%, Max.: 140mA. 24VAC +/-10% 50-60Hz, Max.: 127mA Recommended: 24VDC	Push Button	Button A: Not used Button B: Not used
Ethernet	1 x Ethernet 10/100 Mbps RJ45 2 x Ethernet LED: port link and activity	Operation Temperature	0°C to +60°C
Port A	1 x P-Link 1 Plug-in screw terminal block orange (2 poles) 1500VDC isolation from other ports 1 x Plug-in screw terminal block green (2 poles) Reserved for future use	Operational Humidity	5 to 95%, no condensation
Switch A (SWA)	1 x DIP-Switch for EIA485 configuration: Reserved for future use	Protection	IP20 (IEC60529)
PORT B	1 x Serial EIA232 (SUB-D9 male connector) <i>Not used</i> 1 x P-Link 2 Plug-in screw terminal block orange (2 poles) 1500VDC isolation from other ports	LED Indicators	10 x Onboard LED indicators 2 x Run (Power)/Error 2 x Ethernet Link/Speed 2 x Port A TX/RX 2 x Port B TX/RX 1 x Button A indicator 1 x Button B indicator
Switch B (SWB)	1 x DIP-Switch for serial EIA485 configuration: Reserved for future use		

6. Dimensions



Recommended available space for its installation into a cabinet (wall or DIN rail mounting), with space enough for external connections



7. AC Unit Types compatibility

The gateway is compatible with Panasonic VRF units belonging to ECOi, ECOg and PACi series.

8. Error codes for Indoor and Outdoor Units

This list contains all possible values shown in WMP for “Error Code” for each indoor unit and outdoor unit.

It must be taken into account that Outdoor Units are only able to reflect a single error for each indoor / outdoor unit in the system. Thus, a unit having two or more active errors from that list will only report a single error code – the one of the first error that has been detected.

Error Code	Error in Control Panel	Error category	Error Description
0	N/A	N/A	No active error
1	A01	GHP Engine Issues	GHP - Engine oil pressure fault
2	A02		GHP - Engine oil level fault
3	A03		GHP - Engine over speed
4	A04		GHP - Engine under speed
5	A05		GHP - Ignition power supply failure
6	A06		GHP - Engine start up failure
7	A07		GHP - Fuel gas valve failure
8	A08		GHP - Engine stalled
9	A09		GHP - Engine overload
10	A10		GHP - High exhaust gas temp
11	A11		GHP - Engine oil level failure
12	A12		GHP - Throttle actuator fault
13	A13		GHP - Fuel gas valve adjustment failure
14	A14		GHP - Engine oil pressure sensor fault
15	A15		GHP - Starter power output short circuit
16	A16		GHP - Starter motor locked
17	A17		GHP - Starter current (CT) coil failed
19	A19		GHP - Wax Valve (3 Way) fault
20	A20		GHP - Cooling water temp high
21	A21		GHP - Cooling water level fault
22	A22		GHP - Cooling water pump fault
23	A23		GHP - Engine crank angle sensor failure
24	A24		GHP - Engine cam angle sensor failure
25	A25		GHP - Clutch fault
26	A26		GHP - Misfire
27	A27		GHP - Catalyst temperature fault
28	A28		GHP - Generator fault
29	A29		GHP - Converter fault
30	A30		GHP - Fuel gas pressure low
33	C01	Central Controller Issues	Duplicated setting of control address
34	C02		Central control number of units mis-matched
35	C03		Incorrect wiring of central control
36	C04		Incorrect connection of central control
37	C05		System Controller fault, error in transmitting comms signal, i/door or o/door unit not working, wiring fault
38	C06		System Controller fault, error in receiving comms signal, i/door or o/door unit not working, wiring fault, CN1 not connected correctly
44	C12		Batch alarm by local controller
48	C16		Transmission error from adaptor to unit
49	C17		Reception error to adaptor from unit
50	C18		Duplicate central address in adaptor
51	C19		Duplicate adaptor address
52	C20		Mix of PAC & GHP type units on adaptor
53	C21		Memory fault in adaptor
54	C22		Incorrect address setting in adaptor
55	C23		Host terminal software failure
56	C24		Host terminal hardware failure

Error Code	Error in Control Panel	Error category	Error Description
57	C25		Host terminal processing failure
58	C26		Host terminal communication failure
60	C28		Reception error of S-DDC from host terminal
61	C29		Initialization failure of S-DDC
63	C31		Configuration change detected by adaptor
65	E01	Addressing and Communication Problems	Remote control detecting error from indoor unit, Address not set/Auto address failed. Check interconnecting wiring etc. Re-address system.
66	E02		Remote detecting error from indoor unit,
67	E03		Indoor unit detecting error from remote,
68	E04		Indoor seeing error from outdoor. Qty of i/d units connected are less than qty set. Check; all i/d units are ON, reset turn off all units wait 5min power up
69	E05		Indoor unit detecting error from outdoor unit, Error in sending comms signal
70	E06		Outdoor unit detecting error from indoor unit, Error in receiving comms signal
71	E07		Outdoor unit detecting error from indoor unit, Error in sending comms signal
72	E08		Incorrect setting indoor/controller, Indoor address duplicated
73	E09		Incorrect setting indoor/controller, Remote address duplicated or IR wireless controller not disabled
74	E10		Indoor unit detecting error from 'option' plug, Error in sending comms signal
75	E11		Indoor unit detecting error from 'option' plug, Error in receiving comms signal
76	E12		Auto addressing failed, Auto address connector CN100 shorted during auto addressing
77	E13		Indoor unit failed to send signal to remote controller
78	E14		Setting Failure, Duplication of master indoor units
79	E15		Auto addressing failed, Number of indoor units connected are less than number set
80	E16		Auto addressing failed, Number of indoor units connected are more than number set
81	E17		Group control wiring error, Main indoor unit not sending signal for sub indoor units
82	E18		Group control wiring error, Main indoor unit not receiving signal for sub indoor units
84	E20		Auto addressing failed, No indoor units connected
88	E24		Auto addressing failed, Error on sub outdoor unit
89	E25		Auto addressing failed, Error on outdoor unit address setting
90	E26		Auto addressing failed, Quantity of main and sub outdoor units do not correspond to the number set on main outdoor unit P.C.B.
93	E29		Auto addressing failed, Sub outdoor unit not receiving comms for main outdoor unit
95	E31		Between units, Comms failure with MDC, does E31 remain after power is re-instated? If so replace PCB. & power PCB
97	F01	Sensor Faults	Indoor Heat Exch inlet temp sensor failure (E1)
98	F02		Indoor Heat Exch freeze temp sensor failure (E2)
99	F03		Indoor Heat Exch outlet temp sensor failure (E3)
100	F04		Outdoor Discharge temp sensor failure (TD) or (DISCH1)
101	F05		Outdoor Discharge temp sensor failure (DISCH2)
102	F06		Outdoor Heat Exch temp sensor failure (C1) or (EXG1)
103	F07		Outdoor Heat Exch temp sensor failure (C2) or (EXL1)
104	F08		Outdoor Air temp sensor failure (TO)
106	F10		Indoor inlet temp sensor failure

Error Code	Error in Control Panel	Error category	Error Description
107	F11		Indoor outlet temp sensor failure
108	F12		Outdoor Intake sensor failure (TS)
109	F13		GHP - Cooling water temperature sensor failure
112	F16		Outdoor High pressure sensor failure
113	F17		GHP - Cooling water temperature sensor fault
114	F18		GHP - Exhaust gas temperature sensor fault
116	F20		GHP Clutch coil temperature fault
119	F23		Outdoor Heat Exch temp sensor failure (EXG2)
120	F24		Outdoor Heat Exch temp sensor failure (EXL2)
125	F29		Indoor EEPROM error
126	F30		Clock Function (RTC) fault
127	F31		Outdoor EEPROM error
129	H01	Compressor Issues	Compressor Fault, Over current (Comp1)
130	H02		Compressor Fault, Locked rota current detected (Comp1)
131	H03		Compressor Fault, No current detected (Comp1)
133	H05		Compressor Fault, Discharge temp not detected (Comp1)
134	H06		Compressor Fault, Low Pressure trip
135	H07		Compressor Fault, Low oil level
136	H08		Compressor Fault, Oil sensor Fault (Comp1)
139	H11		Compressor Fault, Over current (Comp2)
140	H12		Compressor Fault, Locked rota current detected (Comp2)
141	H13		Compressor Fault, No current detected (Comp2)
143	H15		Compressor Fault, Discharge temp not detected (Comp2)
149	H21		Compressor Fault, Over current (Comp3)
150	H22		Compressor Fault, Locked rota current detected (Comp3)
151	H23		Compressor Fault, No current detected (Comp3)
153	H25		Compressor Fault, Discharge temp not detected (Comp3)
155	H27		Compressor Fault, Oil sensor fault (Comp2)
156	H28		Compressor Fault. Oil sensor (connection failure)
159	H31		Compressor Fault. IPM trip (IMP current on temperature)
193	L01	Incorrect Settings	Setting Error, Indoor unit group setting error
194	L02		Setting Error, Indoor/outdoor unit type/model miss-matched
195	L03		Duplication of main indoor unit address in group control
196	L04		Duplication of outdoor unit system address
197	L05		2 or more controllers have been set as 'priority' in one system - shown on controllers set as 'priority'
198	L06		2 or more controllers have been set as 'priority' in one system - shown on controllers not set as 'priority'
199	L07		Group wiring connected on and individual indoor unit
200	L08		Indoor unit address/group not set
201	L09		Indoor unit capacity code not set
202	L10		Outdoor unit capacity code not set
203	L11		Group control wiring incorrect
205	L13		Indoor unit type setting error, capacity
207	L15		Indoor unit paring fault
208	L16		Water heat exch unit setting failure
209	L17		Miss-match of outdoor unit with different refrigerant
210	L18		4-way valve failure
211	L19		Water heat exch unit duplicated address
213	L21		Gas type setup failure
225	P01	Indoor Unit Problems	Indoor unit fault, Fan motor thermal overload
226	P02		Outdoor unit fault, Compressor motor thermal overload, over or under voltage
227	P03		Outdoor unit fault, Compressor discharge temperature too high (Comp1) over 111 °C. Low on ref gas, exp valve, pipework damage.

Error Code	Error in Control Panel	Error category	Error Description
228	P04		Outdoor unit fault, High pressure trip
229	P05		Outdoor unit fault, Open phase on power supply. Check power on each phase, inverter pcb, control pcb
233	P09		Indoor unit fault, Ceiling panel incorrectly wired
234	P10		Indoor unit fault, Condensate float switch opened
235	P11		GHP - Water Heat exch low temp (frost protection) fault
236	P12		Indoor unit fault, Fan DC motor fault
238	P14		Input from leak detector (If fitted)
239	P15		Refrigerant loss, high discharge temp and EEV wide open and low compressor current draw.
240	P16		Outdoor unit fault, Open phase on compressor power supply
241	P17		Outdoor unit fault, Compressor discharge temperature too high (Comp2) over 111 degC. Low on ref gas, exp valve, pipework damage.
242	P18		Outdoor unit fault, By-pass valve failure
243	P19		Outdoor unit fault, 4 way valve failure, i/door temp rises in cooling or falls in heating. Check wiring, coil, pcb output, valve operation.
244	P20		Ref gas, high temp/pressure fault, heat exch temp high C2, 55-60 degC, cooling over-load, sensor fault.
246	P22		Outdoor unit fan motor fault, fan blade jammed, check connections, does fan turn freely, motor resistance 30-40ohm on each pair, no fan fault, yes pcb fault.
250	P26		Outdoor unit fault, Compressor overcurrent - check winding resistance, Inverter failure - check internal resistance term HIC + & - to UVW 200-300Kohm or more
252	P29		Outdoor unit fault, Inverter circuit fault - Motor-current Detection Circuit (MDC) fault, check comp windings, sensors C1 & TS, if ok possible pcb failure.
253	P30		Indoor unit fault, System controller detected fault on sub indoor unit
255	P31		Simultaneous operation multi control fault, Group controller fault