# Intesis®

BY HMS NETWORKS

## Gateways for building automation and HVAC control

## Connecting sustainable buildings

**HMS**

# Intesis
# connecting buildings

Intesis gateways for building automation cover all relevant standards and technologies, and includes the market's most comprehensive portfolio for HVAC integration with solutions for all major AC-brands.

Robust, reliable and easy to configure, the Intesis product family is widely used for system integration. Users benefit from efficient commissioning and uninterrupted operation.

### Intesis by HMS Networks

Intesis is part of HMS Networks, market leader in solutions for industrial communication and the Industrial Internet of Things, IIoT. Intesis is the HMS' main brand for Building Automation products and solutions Other markets from HMS are Manufacturing, Power, Energy, Transportation, Infrastructure and Logistics.

### About HMS Networks

With millions of installed products worldwide, HMS Networks is the leading supplier of solutions for Industrial ICT (Information & Communication Technology).
We enable valuable data and insights from industrial equipment, allowing our customers to increase productivity and sustainability.

- Employees:          > 800
- Locations:          in 18 countries
- Distributors:       > 50 countries
- Brands:             Anybus, Ewon, Intesis, Ixxat
- Customers:          Device manufacturers, machine builders, system integrators, end users
- Year founded:       1988

## High quality standards

Intesis products are subject to extensive testing and certification processes to ensure the highest quality standards. Also, additional tests are implemented for specific markets.

### 100% tested
Every product is tested on premises to ensure the highest quality standards.

### UL listed
Intesis products contain UL marked components and the production line is subject to periodic UL audits. It is with pride that we put the UL mark on all main Intesis products.

### Global coverage
In addition to rigorous internal quality tests, Intesis products are also certified by independant testing labs to fulfill national legal requirements on different markets.

### Protocol certifications
All implementations of standard protocols in Intesis products are performed rigorously according to each protocol specification. Full interoperability is then ensured thanks to testing and certification by external accredited laboratories.

# No matter what building automation protocol or AC brand,

## Protocol Translators

BACnet, KNX, Modbus, DALI, M-Bus, ASCII, PROFINET, LonWorks, OCPP, EtherNet/IP — are all supported by Intesis Protocol Translators. With cutting edge technology built on a reliable platform, integration solutions are offered for all your needs.

## Air conditioning interfaces

Developed with the support and collaboration of the air conditioning manufacturers, Intesis AC Interfaces enable high quality integration of climate systems into BACnet, KNX, Modbus, and 2,4 GHz wireless installations.

## Cloud solutions

Intesis long experience of Building Automation protocols and communication solutions for HVAC integration brought to the cloud for straight-forward remote device management.

## Intesis has the solutions for every project

# Intesis MAPS — the configuration tool for Intesis products

Home    Project    Tools    Help

Connection    Configuration    Signals    Receive / Send    Diagnostic

**Connection Mode**

Connection Mode    ○ IP
                   ● USB Port

Discovered Devices

| COM1 | Description | Value |
|------|-------------|-------|
| COM3 | Gateway Name | |
| COM11 | Serial Number | XXXX0000 / 000XXXXXXXXXXX |
| | Application Name | |
| | License | |
| | License comments | - |
| | Version | 0.0.0.1 |
| | Last Configuration Date | XX/XX/XXXX 00:00:00 |
| | MAC Address | XX:XX:XX:00:00:00 |

## Intesis MAPS

Is an intuitive configuration tool for all Intesis gateways that helps reducing commisioning time.

Intesis MAPS enables easy configuration offering a simple and consistent way to program all gateways. Upon launching Intesis MAPS, the user selects the right template for the application they need and the configuration procedure can start.

## Multi Addressing Point Solution

### Project templates
For every gateway there is a template providing a step by step setup guide for both protocols in the gateway.

### Product templates
Product templates are provided for automatic import of all device data, removing the need for manual work.

### Device scan
By using the scanning functionality, users can find devices in the field and import all their data automatically.

### Data conversion
Data can be transformed into the desired format, e.g., adjusting offset, scaling or converting from degrees Celsius to Fahrenheit.

### Diagnostics
Problems and errors can be detected and solved with Intesis MAPS diagnostics.

### Secure and safe configuration
MAPS configuration projects are protected by passwords to prevent unauthorized manipulation of projects and installations.

### Recovery
Users can save the gateway configuration project to file for e.g., recovery purposes or in case of gateway replacement.

### Update information
The tool informs whenever there is a new software version available for the gateway or Intesis MAPS itself.

# Be prepared for the integration process

## Get ready to start your project even if you are not off-site

Intesis MAPS offers you the possibility of starting your projects even without the Intesis device. Simply start creating your configuration file from the field devices' manual and/or the BMS or SCADA engineer information.
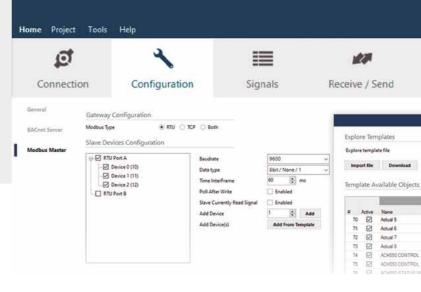
## Get everything ready before commissioning

Check your configuration, simulate communications, use our templates, consult our manuals, attend our webinars and get the most of our team experience in a powerful tool. Everything in its right place for a smooth commissioning process.

## Template functionality

Thanks to our template functionality you can import already existing templates from third party devices* and include them in your project with a simple click of the mouse. Moreover, you can create your own templates and use them in any of your projects.

\* Requires Internet connection.



## Fast, save and secure commissioning and troubleshooting

Even if you are not off-site, remote connections are available to the gateway through IP*, which ensures the possibility of testing the project during the commissioning stage. You can also troubleshoot any possible issue you might face from your office.

## Save money and time with less travelling

A remote connection drastically reduces the need for travelling since commissioning or troubleshooting can be done from anywhere.

With four simple steps you will be ready to go:

**1** Create your configuration project

**2** Enable communications

**3** Download the configuration

**4** Test and/or troubleshoot

*Check with your IT department for more information about external communication configurations.

## Perform the commissioning and troubleshooting anywhere

# Protocol Translators

When choosing an Intesis Protocol Translator, you can be sure that you get a ready-to-use product which easily solves the complex task of integrating between building automation protocols.

**ASCII**

**LonWorks**

**ASHRAE BACnet™**

**M-Bus**

**DALI 2**

**Modbus**

**EtherNet/IP™**

**OCPP**

**KNX**

**PROFINET®**

# Protocol Translators with the latest technology

Intesis Protocol Translators include the most recent and modern technology, assembled in user-friendly products to facilitate installation, configuration and deployment.

### LED indicator matrix
Multiple LED indicators confirm that all protocols are communicating properly or indicate if there is a communication issue.

### IP/USB console
Direct and safe access to the configuration via USB or the Ethernet port.

### USB host
Configuration can be performed with the USB host port, from downloading projects or generating log files to updating the firmware.

### Multiple ports
With multiple ports for the different physical layers (cable/network types), all common connectivity requirements are met.

### Design for DIN-rail mounting
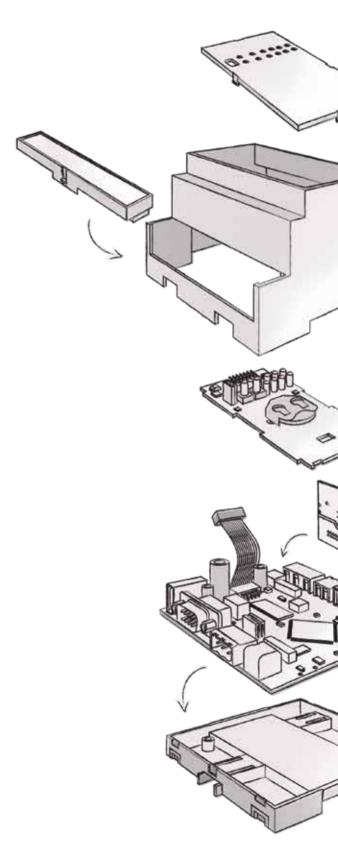Using just five DIN-Rail modules, it is easy to fit Intesis Protocol Translators into cabinets.

### Low power
The Protocol Translators are designed for low power consumption for energy efficient operation on-site.

### Intesis MAPS Configuration
Powerful configuration of all Intesis Protocol Translators for a fast and straight-forward commissioning.

## NEW 700 Series
## Intesis platforms for multi-protocol selection

700 Series is the new platform concept for Intesis Protocol Translators.
This concept enables interfaces for multiple Building Automation protocols in the same hardware so, the user can pair the combination using Intesis MAPS. The process is called late configuration.

### Benefits

- Reduced number of references to stock, optimizing distributor's lead times.
- Late configuration.
- Change applications quickly with our configuration tool Intesis MAPS.
- Diagnostic and troubleshooting tools available.
- Minimize technical service requests.

### Product features

**Stock-Friendly**
Multiple protocol combinations for each hardware.

**Versatility**
Flexible and agile protocol translation.

**User-friendly configuration**
Easy to set up with Intesis MAPS, our user-friendly configuration tool.

**High capacity**
Up to 3000 data points of capacity to best match your needs.

**Certification**
International and local certifications. Ready to be sold worldwide

## Adapt your Protocol Translator to each project needs

Having different protocols available on the same hardware, enable multiple integration possibilities. Each one of the combinations is defined as an application.

Intesis MAPS, the configuration tool for Protocol Translators, is the instrument to select the correct application to match your project's needs. Is an easy process you don't need to plan in advance.

**700series for Protocol Translators**

### IN700485***0000
Intesis Protocol Translator with Serial and
IP support - 100, 250, 600, 1200 & 3000 Points



### IN701KNX***0000
Intesis Protocol Translator with KNX, Serial and
IP support - 100, 250, 600, 1200 & 3000 Points



### IN703DAL0640000
Intesis DALI-2 Protocol Translator with Serial
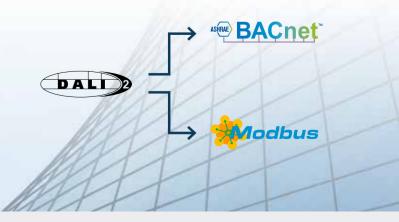and IP support - 1 DALI Channel



### IN704DAL1280000
Intesis DALI-2 Protocol Translator with
IP support - 2 DALI Channels

# ASCII Protocol Translators

## General features for ASCII

Supervision and control of BACnet or KNX devices can be done from an ASCII-based control system using simple ASCII messages over serial (EIA232, EIA485) or TCP/IP interfaces.

- Both ASCII Serial and IP supported
- Custom string signals
- Custom string commands
- Easy integration to any BMS

| Application | Order Code | Point Versions |
|---|---|---|
| BACnet → ASCII | | |
| BACnet Client to ASCII Server | IN700485***0000 | 100, 250, 600, 1200 & 3000 P.V. |
| KNX → ASCII | | |
| KNX to ASCII Server | IN701KNX***0000 | 100, 250, 600, 1200 & 3000 P.V. |

# BACnet Protocol Translators

## General features for BACnet

Intesis Protocol Translators for BACnet perform as a BACnet/IP Server or BACnet MS/TP slave, allowing BACnet controllers to send subscription requests (COV) to read or write its internal communication objects.

- BTL certified
- BACnet/IP and MS/TP
- BBMD and foreign Device
- Notification Classes

| Application | Order Code | P.V. - Point Versions<br>D.V. - Device Versions |
|---|---|---|
| KNX ↔ BACnet | | |
| KNX to BACnet Server | IN701KNX***0000 | 100, 250, 600, 1200 & 3000 P.V. |
| LonWorks → BACnet | | |
| LonWorks to BACnet Server | INBACLON***0000 | 100, 250, 600, 1200 & 3000 P.V. |
| Modbus ↔ BACnet | | |
| Modbus Client to BACnet Server | IN700485***0000 | 100, 250, 600, 1200 & 3000 P.V. |
| DALI 2 → BACnet | | |
| DALI to BACnet/IP & MS/TP Server | IN703DAL0640000 | 1 Channel |
| DALI to BACnet/IP Server | IN704DAL1280000 | 2 Channels |
| DALI to BACnet/IP Server | INBACDAL0640500 | 1 Channel |
| M-Bus → BACnet | | |
| M-Bus to BACnet/IP & MS/TP Server | INBACMEB***0000 | 10, 20, 60 & 120 D.V. |
| M-Bus to BACnet/IP Server | INBACMEB0*00100 | 20 & 50 D.V. |
| BACnet → BACnet | | |
| BACnet MS/TP to BACnet/IP Router | INBACRTR0320000 | 32 D.V. |
| PROFINET ↔ BACnet | | |
| BACnet - PROFINET Server | INBACPRT1K20000 | 1200 P.V. |
| EtherNet/IP ↔ BACnet | | |
| BACnet - EtherNet/IP Server | INBACEIP1K20000 | 1200 P.V. |

# KNX Protocol Translators

## General features for KNX

A Protocol Translator with KNX connects directly to the KNX TP-1 bus carrying the same configuration and operational characteristics as any other KNX device.

- Standard KNX Datapoint Types
- Extended group adresses
- Sending and listening addresses
- Ri flag: Read on initialization flag

| Application | Order Code | P.V. - Point Versions / D.V. - Device Versions |
|---|---|---|
| **BACnet ◀▶ KNX** | | |
| BACnet Client to KNX | IN701KNX***0000 | 100, 250, 600, 1200 & 3000 P.V. |
| **Modbus ◀▶ KNX** | | |
| Modbus Client to KNX | IN701KNX***0000 | 100, 250, 600, 1200 & 3000 P.V. |
| Modbus RTU to KNX | INKNXMBM1000200 | 100 P.V. |
| **DALI ▶ KNX** | | |
| DALI to KNX | INKNXDAL0640200 | 64 D.V. |
| **M-Bus ▶ KNX** | | |
| M-Bus to KNX | INKNXMEB***0000 | 10, 20, 60 & 120 D.V. |

# Modbus Protocol Translators

## General features for Modbus

The Modbus Protocol Translators act as TCP Servers (Ethernet connection) and/or Modbus RTU slaves (serial EIA232, EIA485).

- Modbus TCP and RTU simultaneously
- Coils, holding registers and bitfields supported
- Multiple data formats
- Big-endian or Little-endian

| Application | Order Code | P.V. - Point Versions / D.V. - Device Versions |
|---|---|---|
| **BACnet ◀▶ Modbus** | | |
| BACnet Client to Modbus Server | IN700485***0000 | 100, 250, 600, 1200 & 3000 P.V. |
| **KNX ◀▶ Modbus** | | |
| KNX to Modbus Server | IN701KNX***0000 | 100, 250, 600, 1200 & 3000 P.V. |
| **DALI ▶ Modbus** | | |
| DALI to Modbus TCP & RTU Server | IN703DAL0640000 | 1 Channel |
| DALI to Modbus TCP Server | IN704DAL1280000 | 2 Channels |
| DALI to Modbus TCP Server | INMBSDAL0640500 | 1 Channel (NEW) |
| **M-Bus ▶ Modbus** | | |
| M-Bus to Modbus TCP & RTU Server | INMBSMEB***0000 | 10, 20, 60 & 120 D.V. |
| M-Bus to Modbus TCP Server | INMBSMEB0*00100 | 20 & 50 D.V. (NEW) |
| **Modbus ▶ Modbus** | | |
| Modbus RTU to Modbus TCP router | INMBSRTR0320000 | 32 D.V. |
| **OCPP ▶ Modbus** | | |
| OCPP to Modbus Server | INMBSOCP***0100 | 1 & 20 Chargers |

# Air conditioning interfaces

Intesis owns a wide portfolio of reliable interfaces for HVAC control, developed with the support and collaboration of the HVAC makers, certified from the main protocols and for all markets. The interfaces are developed with the goal of reducing buildings energy consumption and improve user's comfort.

**BOSCH**

**Midea®**

**DAIKIN**

**MITSUBISHI ELECTRIC**

**FUJITSU**

**MITSUBISHI HEAVY INDUSTRIES, LTD.**

**Haier**

**Panasonic**

**Hisense**

**SAMSUNG**

**HITACHI**

**TOSHIBA**

**LG**

# Intesis — The right choice for HVAC integration

In 2006, Intesis launched the first certified product to integrate expansion air conditioning units into KNX. Today, after many years of experience and more than 1 million HVAC units integrated around the world, Intesis can offer a wide range of Intesis AC Interfaces for integrating air conditioners from major brands into all commonly used building automation protocols.

### Energy efficient
HVAC systems account for a major part of the energy costs in a building. With the Intesis AC Interfaces, these can be controlled for optimal energy usage, enabling significant savings.

### Easy to use
Thanks to the smart scanning functionality, connected AC units can be detected automatically.

### Reliable
All developments are based strictly on AC manufacturers' specifications, with subsequent validation and approval by the AC manufacturers to ensure the right compatibility with their AC units.

### Trusted
AC Interfaces from Intesis are trusted by system integrators all over the world, covering all major protocols needed within building automation.

## Intesis AC Interfaces — key features

### One to one
All the info from one indoor unit directly to one AC Interface.

### Multi-unit
Control multiple indoor units from a single AC Interface.

### Brand specific products
Specific solutions for all major air conditioning brands.

### Direct connection
Save costs by using AC Interfaces that connect directly to the AC bus without any intermediate interface devices.

### Universal IR solution
Supports any AC brand on the market that uses infrared (IR) remotes.

### AC units scan
Save configuration time with the powerful scanning functionality.

**1 MILLION** devices can't be wrong
Intesis

Our expertise packaged in the best solution for you!

# HVAC gateways
# Multiple indoor unit control

## Available applications

## NEW 700 Series Air
## Intesis common platform for HVAC integration

700 Series Air is the new platform concept for Intesis AC Interfaces.
This concept enables interfaces for multiple HVAC Brands and Building Automation protocols in the same hardware so, the user can pair the combination using Intesis MAPS. The process is called late configuration.

### Benefits

- Match your hardware with your HVAC system application with just a few clicks.
- Exchangeable AC brands and system Protocols combinations.
- Common configuration tool for all of them: Intesis MAPS.
- Hardware series for the major AC manufacturers and standard protocols in the market.
- Enable energy efficiency functions by calculating the individual consumption of each indoor unit.

### Product features

**Stock-Friendly**
All the possible combinations in one product.

**3 Binary Inputs**
For Energy Saving purposes.

**User-friendly configuration**
Easy to set up with Intesis MAPS, our user-friendly configuration tool.

**High capacity**
Up to 128 indoor units depending on the model.

**Certification**
International and local certifications.
Ready to be sold worldwide

## Match the brand with the communication protocol

Having different HVAC brands and Building Automation protocols available on the same hardware, enable multiple integration possibilities. Each HVAC to protocol combination is defined as an application.

Intesis MAPS is the configuration tool that will allow you to select the correct application and match your project's needs. Is an easy process you don't need to plan in advance.

**700series for AC Interfaces Air**

**IN770AIR00*0000**
Intesis multi-brand AC Interface with KNX,
Serial and IP support - Small & Medium

Hisense · HITACHI · Midea · MITSUBISHI ELECTRIC · Panasonic · SAMSUNG
→ BACnet · KNX · Modbus · Home Automation

**IN771AIR00L0000**
Intesis multi-brand AC Interface with KNX,
Serial and IP support - Large

Panasonic
→ BACnet · KNX · Modbus · Home Automation

**IN776MHI00*0000**
Mitsubishi Heavy Industries VRF with KNX,
Serial and IP support - Small, Medium & Large

MITSUBISHI HEAVY INDUSTRIES, LTD.
→ BACnet · KNX · Modbus · Home Automation

**IN775FGL00*0000**
Fujitsu AC interface with KNX,
Serial and IP support - Small & Medium

FUJITSU
→ BACnet · KNX · Modbus · Home Automation

# BACnet interfaces for air conditioners

Intesis offers a large portfolio of BACnet interfaces for integration of specific AC brands, supporting both BACnet/IP and BACnet MS/TP integrations with BTL certified solutions.

Domestic, Commercial and VRF single units

Universal IR

Brand specific controller

Wired remote controller (optional)

BACnet/IP
BACnet MS/TP

## Specific features for one-to-one solutions

■ Fast and easy configuration thanks to a dip switches.
■ External power supply is not required since it is powered by the AC unit itself.
■ Two types of solutions: Brand specific solutions with direct connections supporting the unit's error code data, and a universal solution based on infrared (IR) communication.

## Specific features for multi-unit solutions

■ Provides advanced BACnet functions such as notification class, trend logs or calendars.
■ Controls all connected units from a single BACnet object.
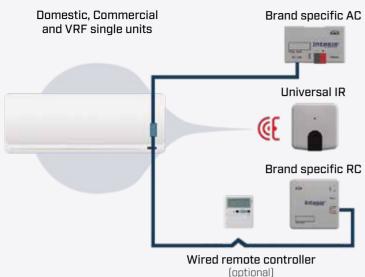
VRF systems

BACnet/IP
BACnet MS/TP

| | Order Code | Indoor Units |
|---|---|---|
| **BOSCH** ▶ BACnet | | |
| Commercial and VRF systems to BACnet/IP or MS/TP | INBACACA004I000 | 4 I.U. |
| **DAIKIN** ▶ BACnet | | |
| AC Domestic units to BACnet/IP or MS/TP | INBACDAI001I000 | 1 I.U. |
| AC Domestic units to BACnet MS/TP | IN485DAI001I000 | 1 I.U. |
| VRV and Sky systems to BACnet MS/TP | IN485DAI001R000 | 1 I.U. |
| VRV and Sky systems to BACnet/IP or MS/TP | INBACDAI001R000 | 1 I.U. |
| **FUJITSU** ▶ BACnet | | |
| RAC and VRF to BACnet MS/TP | IN485FGL001I000 | 1 I.U. *(to CN connector)* |
| VRF systems to BACnet/IP or MS/TP | IN775FGL00*O000 | 16 I.U. (S) & 64 I.U. (M) |
| **Hisense** ▶ BACnet | | |
| VRF systems to BACnet/IP or MS/TP | IN770AIR00*O000 | 16 I.U. (S) & 64 I.U. (M) |
| **HITACHI** ▶ BACnet | | |
| VRF systems to BACnet/IP or MS/TP | IN770AIR00*O000 | 16 I.U. (S) & 64 I.U. (M) |
| Commercial and VRF systems to BACnet/IP or MS/TP | INBACHIT001R000 | 1 I.U. |
| VRF systems to BACnet MS/TP interface | IN485HIT001R000 | 1 I.U. |
| **Midea** ▶ BACnet | | |
| Commercial & VRF to BACnet MS/TP | INBACMID001I100 | 1 I.U. |
| Commercial and VRF systems to BACnet/IP or MS/TP | IN770AIR00*O000 | 16 I.U. (S) & 64 I.U. (M) |
| **MITSUBISHI ELECTRIC** ▶ BACnet | | |
| Domestic, Mr.Slim and City Multi to BACnet/IP or MS/TP | INBACMIT001I000 | 1 I.U. |
| Domestic, Mr.Slim and City Multi to BACnet MS/TP | IN485MIT001I000 | 1 I.U. |
| City Multi systems to BACnet/IP or MS/TP | IN770AIR00*O000 | 50 Groups (S) & 100 Groups (M) |
| **MITSUBISHI HEAVY INDUSTRIES, LTD.** ▶ BACnet | | |
| FD and VRF systems to BACnet/IP or MS/TP | INBACMHI001R000 | 1 I.U. |
| FD and VRF systems to BACnet MS/TP | IN485MHI001R000 | 1 I.U. |
| VRF systems to BACnet/IP or MS/TP | IN776MHI00*O000 | 16 I.U. (S), 64 I.U. (M) & 128 I.U. (L) |
| **Panasonic** ▶ BACnet | | |
| Etherea AC units to BACnet/IP or MS/TP | INBACPAN001I000 | 1 I.U. |
| Etherea AC units to BACnet MS/TP | IN485PAN001I000 | 1 I.U. |
| ECOi and PACi systems to BACnet/IP or MS/TP | INBACPAN001R000 | 1 I.U. |
| ECOi and PACi systems to BACnet MS/TP | INBACPAN001R100 | 1 I.U. |
| ECOi, ECOg and PACi systems to BACnet/IP or MS/TP | IN770AIR00*O000 | 16 I.U. (S) & 64 I.U. (M) |
| ECOi, ECOg and PACi systems to BACnet/IP or MS/TP | IN771AIR00LO000 | 128 I.U. (L) |
| **SAMSUNG** ▶ BACnet | | |
| NASA VRF systems to BACnet/IP or MS/TP | IN770AIR00*O000 | 16 I.U. (S) & 64 I.U. (M) |
| NASA commercial units to BACnet MS/TP | INBACSAM001R100 | 1 I.U. |
| **TOSHIBA** ▶ BACnet | | |
| VRF and Digital systems to BACnet/IP or MS/TP | INBACTOS001R000 | 1 I.U. |
| VRF and Digital systems to BACnet MS/TP | INBACTOS001R100 | 1 I.U. |
| **UNIVERSAL** ▶ BACnet | | |
| Universal IR air conditioner to BACnet MS/TP | IN485UNI001I100 | 1 I.U. |

# KNX interfaces for air conditioners

For the last decade, Intesis AC Interfaces for KNX have been the reference when it comes to integrate air conditioning systems into KNX projects. Specific solutions are offered for the most popular AC brands, including a universal solution based on infrared communication.

**Domestic, Commercial and VRF single units**

**Brand specific AC**

**Universal IR**

**Brand specific RC**

**Wired remote controller** (optional)

**KNX**

- Touch screen
- HVAC
- Energy management
- Alarms

## Specific features for one to one solutions

- ■ Supports all required DPT objects to be compatible with all KNX thermostats in the market.
- ■ Binary inputs for window contacts or presence detectors available.
- ■ Two types of solutions: Brand specific solutions with direct connections supporting the unit's error code data, and a universal solution based on infrared (IR) communication.

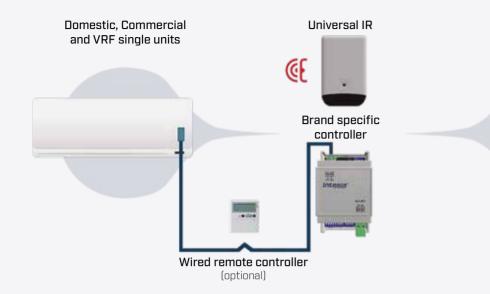## Specific features for multi-unit solutions

- ■ Smooth integration of KNX thermostats thanks to the "virtual temperature" function.
- ■ Covers a wide range of standard DPTs which ensures interoperability with other KNX devices.

**VRF systems**

**KNX**

- Touch screen
- HVAC
- Energy management
- Alarms

| | Order Code | Indoor Units |
|---|---|---|
| **BOSCH** → KNX | | |
| Commercial and VRF systems to KNX | INKNXACA***I000 | 1, 16 & 64 I.U. |
| **DAIKIN** → KNX | | |
| AC Domestic units to KNX | INKNXDAI001I000 | 1 I.U. |
| | INKNXDAI001I100 | 1 I.U. with Binary Input |
| VRV and Sky systems to KNX | INKNXDAI001R000 | 1 I.U. |
| | INKNXDAI001R100 | 1 I.U. with Binary Input |
| **FUJITSU** → KNX | | |
| RAC and VRF to KNX | INKNXFGL001I000 | 1 I.U. with B.I. *(to CN connector)* |
| RAC and VRF systems to KNX | INKNXFGL001R000 | 1 I.U. with B.I. *(to remote controller)* |
| VRF systems to KNX | IN775FGL00*O000 | 16 I.U. (S) & 64 I.U. (M) |
| **Haier** → KNX | | |
| Commercial and VRF systems to KNX | INKNXHAI***C000 | 8, 16 & 64 I.U. |
| **Hisense** → KNX | | |
| VRF systems to KNX | INKNXHIS001R000 | 1 I.U. with Binary Input |
| VRF systems to KNX | IN770AIR00*O000 | 16 I.U. (S) & 64 I.U. (M) |
| **HITACHI** → KNX | | |
| Commercial and VRF systems to KNX | INKNXHIT001R000 | 1 I.U. with Binary Input |
| VRF systems to KNX | IN770AIR00*O000 | 16 I.U. (S) & 64 I.U. (M) |
| Air to Water to KNX | INKNXHIT001A000 | 1 I.U. |
| **LG** → KNX | | |
| VRF systems to KNX | INKNXLGE001R000 | 1 I.U. with Binary Input |
| VRF systems to KNX | INKNXLGE***O000 | 16 & 64 I.U. |
| **Midea** → KNX | | |
| Commercial and VRF systems to KNX | IN770AIR00*O000 | 16 I.U. (S) & 64 I.U. (M) |
| Commercial and VRF systems to KNX | INKNXMID001I000 | 1 I.U. |
| **MITSUBISHI ELECTRIC** → KNX | | |
| Domestic, Mr.Slim and City Multi to KNX | INKNXMIT001I000 | 1 I.U. |
| Domestic, Mr.Slim, City Multi & Lossnay to KNX | INKNXMIT001I100 | 1 I.U. with Binary Input |
| City Multi systems to KNX | IN770AIR00*O000 | 50 Groups (S) & 100 Groups (M) |
| **MITSUBISHI HEAVY INDUSTRIES, LTD.** → KNX | | |
| FD and VRF systems to KNX | INKNXMHI001R000 | 1 I.U. with Binary Input |
| VRF systems to KNX | IN776MHI00*O000 | 16 I.U. (S), 64 I.U. (M) & 128 I.U. (L) |
| **Panasonic** → KNX | | |
| Etherea AC units to KNX unit | INKNXPAN001I000 | 1 I.U. with Binary Input |
| ECOi and PACi systems to KNX | INKNXPAN001R000 | 1 I.U. with Binary Input |
| Air to Water (Aquarea H) to KNX | INKNXPAN001A000 | 1 I.U. |
| ECOi, ECOg and PACi systems to KNX | IN770AIR00*O000 | 16 I.U. (S) & 64 I.U. (M) |
| ECOi, ECOg and PACi systems to KNX | IN771AIR00LO000 | 128 I.U. (L) |
| **SAMSUNG** → KNX | | |
| NASA VRF systems to KNX | IN770AIR00*O000 | 16 I.U. (S) & 64 I.U. (M) |
| **TOSHIBA** → KNX | | |
| VRF and Digital systems to KNX | INKNXTOS001R000 | 1 I.U. with Binary Input |
| VRF systems to KNX | INKNXTOS***O000 | 16 & 64 I.U. |
| **UNIVERSAL** → KNX | | |
| Universal IR air conditioner to KNX | INKNXUNI001I000 | 1 I.U. with 2 Binary Inputs |

# Modbus interfaces for air conditioners

Intesis AC Interfaces for Modbus form one of the largest portfolios on the market for integration of air conditioners into Modbus. The consistent Modbus register mapping used for all AC brands helps shortening the integration time in each project.

Domestic, Commercial and VRF single units     Universal IR     Modbus RTU

Brand specific controller
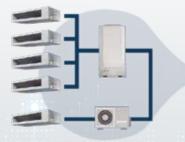
Wired remote controller (optional)

## Specific features for one-to-one solutions

- Consistent register mapping presents a common interface for all AC brands.
- Fast and easy configuration thanks to a dip switch on the product.
- Two types of solutions: Brand specific solutions with direct connections supporting the unit's error code data, and a universal solution based on infrared (IR) communication.

## Specific features for multi-unit solutions

- Supports both Modbus RTU and TCP simultaneously.
- Control all connected AC units from a single Modbus register.
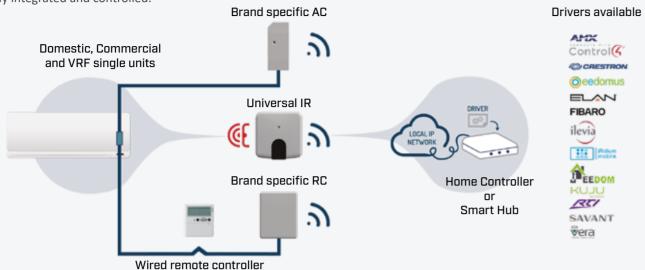
VRF systems     Modbus TCP / Modbus RTU

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| BOSCH | Modbus | Order Code | Indoor Units |
|---|---|---|---|
| Commercial and VRF systems to Modbus RTU | | INMBSACA***I000 | 1, 4, 8 & 32 I.U. |

| DAIKIN | Modbus | | |
|---|---|---|---|
| AC Domestic units to Modbus RTU | | INMBSDAI001I000 | 1 I.U. |
| VRV and Sky systems to Modbus RTU | | INMBSDAI001R000 | 1 I.U. |

| FUJITSU | Modbus | | |
|---|---|---|---|
| RAC and VRF systems to Modbus RTU | | INMBSFGL001R000 | 1 I.U. *(to remote controller)* |
| | | IN485FGL001I000 | 1 I.U. *(to CN connector)* |
| VRF systems to Modbus TCP/RTU | | IN775FGL00*O000 | 16 I.U. (S) & 64 I.U. (M) |

| Hisense | Modbus | | |
|---|---|---|---|
| VRF systems to Modbus RTU | | INMBSHIS001R000 | 1 I.U. |
| VRF systems to Modbus TCP/RTU | | IN770AIR00*O000 | 16 I.U. (S) & 64 I.U. (M) |

| HITACHI | Modbus | | |
|---|---|---|---|
| Commercial and VRF systems to Modbus RTU | | IN485HIT001R000 | 1 I.U. |
| VRF systems to Modbus TCP/RTU | | IN770AIR00*O000 | 16 I.U. (S) & 64 I.U. (M) |

| LG | Modbus | | |
|---|---|---|---|
| VRF systems to Modbus RTU | | INMBSLGE001R000 | 1 I.U. |

| Midea | Modbus | | |
|---|---|---|---|
| Commercial and VRF systems to Modbus RTU | | IN770AIR00*O000 | 16 I.U. (S) & 64 I.U. (M) |
| Commercial and VRF systems to Modbus RTU | | INMBSMID001I000 | 1 I.U. |

| MITSUBISHI ELECTRIC | Modbus | | |
|---|---|---|---|
| Domestic, Mr. Slim and City Multi lines to Modbus RTU | | INMBSMIT001I000 | 1 I.U. |
| City Multi systems to Modbus TCP/RTU | | IN770AIR00*O000 | 50 Groups (S) & 100 Groups (M) |

| MITSUBISHI HEAVY INDUSTRIES, LTD. | Modbus | | |
|---|---|---|---|
| FD and VRF systems to Modbus RTU | | INMBSMHI001R000 | 1 I.U. |
| VRF systems to Modbus TCP/RTU | | IN776MHI00*O000 | 16 I.U. (S), 64 I.U. (M) & 128 I.U. (L) |

| Panasonic | Modbus | | |
|---|---|---|---|
| Etherea AC units to Modbus RTU | | INMBSPAN001I100 | 1 I.U. |
| ECOi and PACi systems to Modbus RTU | | INMBSPAN001R000 | 1 I.U. |
| Air to Water (Aquarea H) to Modbus RTU | | INMBSPAN001A000 | 1 I.U. |
| ECOi, ECOg and PACi systems to Modbus TCP/RTU | | IN770AIR00*O000 | 16 I.U. (S) & 64 I.U. (M) |
| ECOi, ECOg and PACi systems to Modbus TCP/RTU | | IN771AIR00LO000 | 128 I.U. (L) |

| SAMSUNG | Modbus | | |
|---|---|---|---|
| NASA units to Modbus RTU | | INMBSSAM001R100 | 1 I.U. |
| NASA VRF systems to Modbus TCP/RTU | | IN770AIR00*O000 | 16 I.U. (S) & 64 I.U. (M) |
| NON-NASA units to Modbus RTU | | INMBSSAM001R000 | 1 I.U. |

| TOSHIBA | Modbus | | |
|---|---|---|---|
| VRF and Digital systems to Modbus RTU | | INMBSTOS001R000 | 1 I.U. |

| UNIVERSAL | Modbus | | |
|---|---|---|---|
| Universal IR air conditioner to Modbus RTU | | IN485UNI001I100 | 1 I.U. |

# Home Automation interfaces for air conditioners

Intesis Home Automation interfaces have been specifically designed for AC integration into Home Automation systems. The communication is based on a simple ASCII protocol that can be easily implemented as a driver in home controllers or smart hubs. With drivers already available from many Home Automation platforms on the market, air conditioning units can be easily integrated and controlled.

**Brand specific AC**

**Domestic, Commercial and VRF single units**

**Universal IR**

**Brand specific RC**

**Wired remote controller** (optional)

**Home Controller or Smart Hub**

Drivers available

AMX
Control4
CRESTRON
eedomus
ELAN
FIBARO
ilevia
iridium mobile
EEDOM
KUJU
RTI
SAVANT
vera

## Specific features for one-to-one solutions

- Wi-Fi configuration supporting both dynamic or static IPs.
- Auto-discovering of Wi-Fi devices installed in the network.
- Two types of solutions: Brand specific solutions with direct connections supporting the unit's error code data, and a universal solution based on infrared (IR) communication.
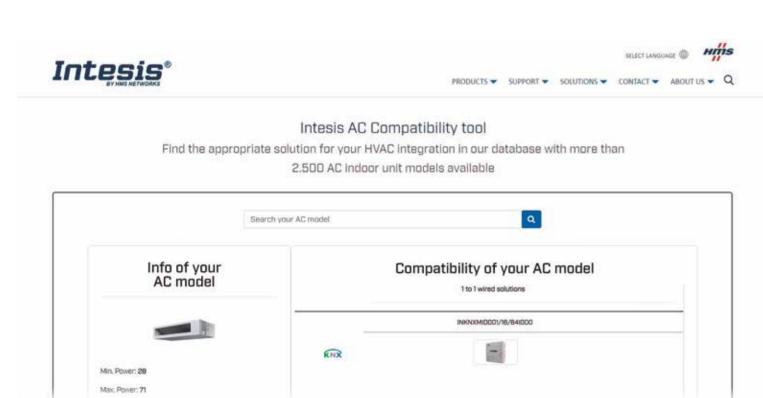
## Specific features for multi-unit solutions

- Integrate up to 128 AC units with a single interface.
- Direct ethernet connection to the home's local IP network.
- All the benefits of having Intesis MAPS as configuration and diagnostic tool.

**VRF systems**

**Home Controller or Smart Hub**

Drivers available

AMX
Control4
CRESTRON
eedomus
ELAN
FIBARO
ilevia
iridium mobile
EEDOM
KUJU
RTI
SAVANT
vera

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| | Home Automation | Order Code | Indoor Units |
|---|---|---|---|
| **DAIKIN** | | | |
| AC Domestic units to Home Automation | | INWMPDAI001I000 | 1 I.U. |
| VRV and Sky systems to Home Automation | | INWMPDAI001R000 | 1 I.U. |
| **FUJITSU** | | | |
| RAC and VRF systems to Home Automation | | INWMPFGL001R000 | 1 I.U. (to remote controller) |
| | | INWMPFGL001I000 | 1 I.U. (to CN connector) |
| VRF systems to Home Automation | | IN775FGL00*O000 | 16 I.U. (S) & 64 I.U. (M) |
| **Hisense** | | | |
| VRF systems to Home Automation | | IN770AIR00*O000 | 16 I.U. (S) & 64 I.U. (M) |
| **HITACHI** | | | |
| VRF systems to Home Automation | | IN770AIR00*O000 | 16 I.U. (S) & 64 I.U. (M) |
| **LG** | | | |
| VRF systems to Home Automation | | INWMPLGE001R000 | 1 I.U. |
| **Midea** | | | |
| Commercial & VRF systems to Home Automation | | IN770AIR00*O000 | 16 I.U. (S) & 64 I.U. (M) |
| **MITSUBISHI ELECTRIC** | | | |
| Domestic, Mr.Slim and City Multi to Home Automation | | INWMPMIT001I000 | 1 I.U. |
| City Multi systems to Home Automation | | IN770AIR00*O000 | 50 Groups (S) & 100 Groups (M) |
| **MITSUBISHI HEAVY INDUSTRIES, LTD.** | | | |
| FD and VRF systems to Home Automation | | INWMPMHI001R000 | 1 I.U. |
| Domestic units to Home Automation | | INWMPMHI001I000 | 1 I.U. |
| VRF systems to Home Automation | | IN776MHI00*O000 | 16 I.U. (S), 64 I.U. (M) & 128 I.U. (L) |
| **Panasonic** | | | |
| Etherea AC units to Home Automation | | INWMPPAN001I000 | 1 I.U. |
| ECOi and PACi systems to Home Automation | | INWMPPAN001R000 | 1 I.U. |
| ECOi, ECOg and PACi systems to Home Automation | | IN770AIR00*O000 | 16 I.U. (S) & 64 I.U. (M) |
| ECOi, ECOg and PACi systems to Home Automation | | IN771AIR00LO000 | 128 I.U. (L) |
| **SAMSUNG** | | | |
| NASA VRF systems to Home Automation | | IN770AIR00*O000 | 16 I.U. (S) & 64 I.U. (M) |
| **TOSHIBA** | | | |
| VRF and Digital systems to Home Automation | | INWMPTOS001R000 | 1 I.U. |
| **UNIVERSAL** | | | |
| Universal IR air conditioner to Home Automation | | INWMPUNI001I000 | 1 I.U. |

# More than 2.500 compatible indoor unit models



## AC Compatibility Tool

The new AC compatibility tool provides a fast and reliable way to check the compatibility of air conditioning units with Intesis interfaces.

Forget the time-consuming task of searching an AC unit's reference into an endless compatibility document. Thanks to the search engine of the new web-based tool, get the answer you are looking for with a click.

**Search Engine**
Type the first letters of your AC reference and get suggestions to make the search even easier.

**Updated information**
We can ensure updated information thanks to the ease of maintenance of the tool.

**Compatible AC units**
More than 2500 models already in our database. New units are included every day!

**The support behind**
Can't you find your AC unit in the database? Send us a request and we will indicate you the best solution for your AC.

## Intesis helps you to reduce your carbon footprint

Intesis is committed to reduce the $CO_2$ emission of air conditioning units by offering the best integration product portfolio.

For more than 10 years, we have provided gateways to control more than 1 million air conditioning units around the world. The estimated energy consumption from these units is more than 1,7 billion KWh/year. But thanks to our gateways, 509 million kWh are saved, that means 150 million on Kg $CO_2$ savings.

This figure is equivalent to the total $CO_2$ that 652 million PCs generate during an hour, or the same than 6 million trees absorb in one year.

CO2 saved by...
**6,000,000 trees**
in one year

CO2 generated by...
**23,438 European people**
in a year

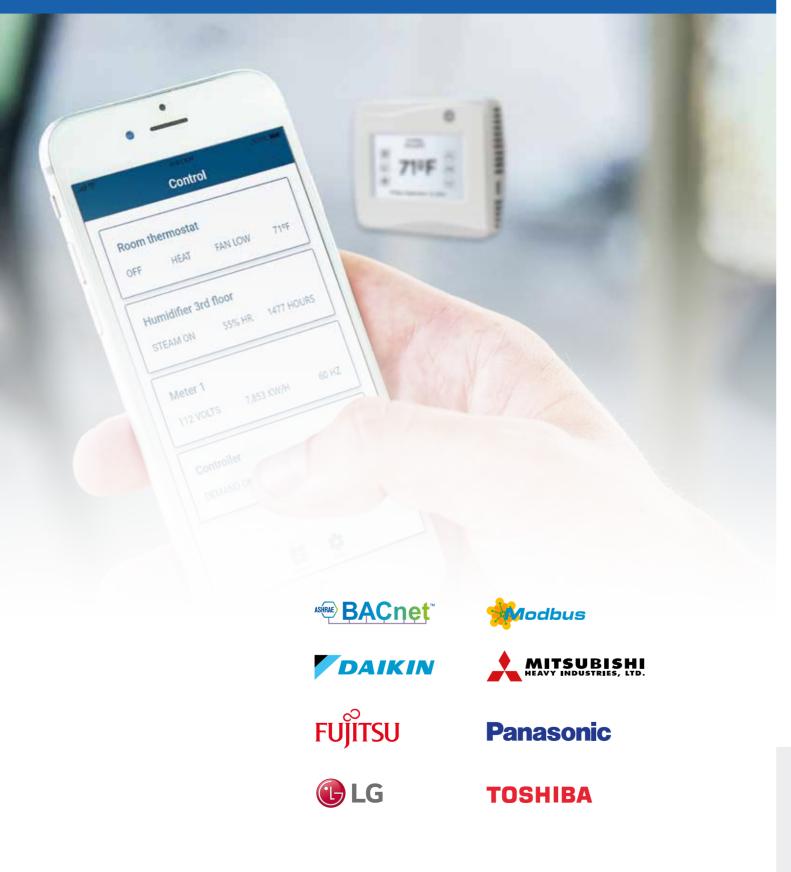CO2 generated by...
**652,173,913 PC working**
during one hour

CO2 generated by...
**340,909 flights**
from London to New York

# Cloud Solutions

Intesis brings extensive experience in developing communication interfaces for HVAC integration, now available on the cloud for convenient remote management. With these platforms, you can easily control and monitor any building from anywhere and at any time.

# Empowering Smart Building Automation

The increasing global adoption of internet technologies has spurred demand in the building automation market for intelligent connectivity solutions.

Intesis meets this demand with their cloud solutions powered by HMS Hub™, enabling customers to securely monitor and control previously unconnected devices from a remote location. These end-to-end solutions are packaged for effortless deployment, encompassing all necessary elements to get started.

### Native application
End-user-oriented Android and iOS App for mobile device management.

### Web dashboard
Professional web based device management tool developed for real-time control and monitoring of the installation.

### Flexible and adaptable
Adaptable cloud solutions for any project size, need and location, such as residential buildings, schools, bank offices, shops, public buildings and more.

### Multi-site projects
Ideal for projects with distributed installations. Allows multiple sites to be controlled from the same dashboard.
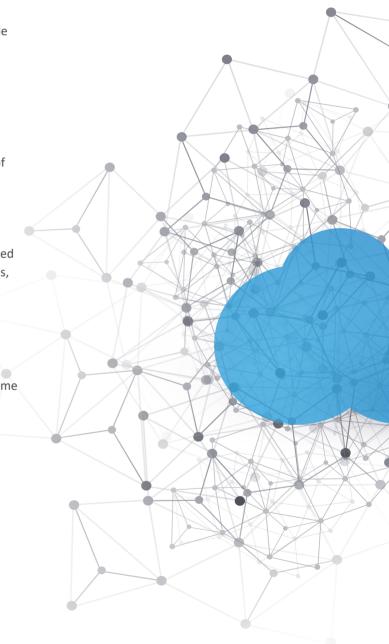
### User and permission management
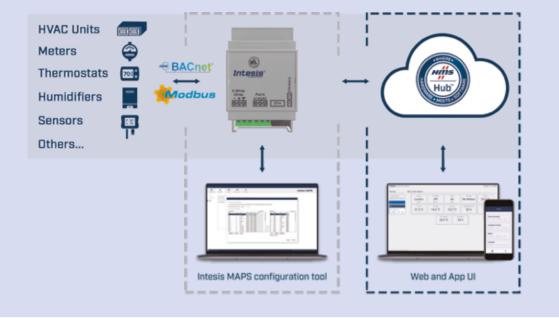Grant access for other users and set permissions based on individual needs.

### Quick installation
Easy-to-install devices and intuitive configuration tools for fast project commissioning.

ASHRAE BACnet™     Modbus

DAIKIN     MITSUBISHI HEAVY INDUSTRIES, LTD.

FUJITSU     Panasonic

LG     TOSHIBA

## Cloud management leads to increased energy efficiency and cost savings

# Intesis ST Cloud Control



HVAC Units
Meters
Thermostats
Humidifiers
Sensors
Others...

BACnet
Modbus

Intesis MAPS configuration tool

Web and App UI

Intesis ST Cloud Control is an HMS cloud-based solution which enables easy monitoring and control of any BACnet or Modbus device by using our end user oriented App and web based dashboard.

Users simply need to install the ST Cloud Control gateway in the desired location and use Intesis MAPS for PC-based configuration. Here, the widgets can be created (e.g., Booleans, Operating Modes, Dimmers, Analog Values, Error Signals, etc.), mapping them with the BACnet objects or Modbus registers of choice.

Once the gateway is configured and assigned to a user, all devices and widgets will appear automatically in the App and web interfaces, presented in a dashboard. Each user is allowed to create their own customized dashboards, in which devices and widgets can be renamed and reorganized according to personal preferences.



# Manage and control any BACnet or Modbus device from an App or web interface

With ST Cloud Control you are able to connect all types of BACnet or Modbus devices to the cloud, for an intuitive and centralized remote device management through an App or a web interface using a common dashboard.

## Gateway features
- BACnet/IP or MS/TP or Modbus TCP/RTU connectivity.
- Up to 32 devices can be connected to each gateway.
- Up to 12 widgets per device.
- Easy device configuration using Intesis MAPS.

## Next level service
- Industrial grade connectivity now for Building Automation.
- Fast and scalable real time edge connectivity over HMS Hub™.
- Full data control and protection.
- Secure and remote updates during the application lifetime.



## System Features
- Monitor and control all devices in an intuitive way.
- Comes with a native iOS and Android App and a web interface.
- Create scenes and interact with multiple concurrent devices.
- Weekly calendar that shows the daily planned installation commands.
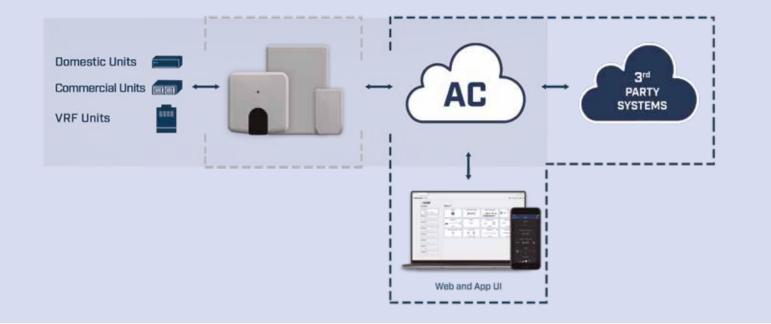- Notifications keep you updated about system status.
- Device sharing and user permissions management.
- Multiple site management from a common dashboard.

| BACnet or Modbus | ST Cloud Control | Order Code | Device Versions |
|---|---|---|---|
| BACnet or Modbus | | INSTCMBG***0000 | 4, 8, 16 & 32 D.V. |

## Make conventional BACnet or Modbus devices smart with Intesis ST Cloud Control

# Intesis AC Cloud Control



Domestic Units
Commercial Units
VRF Units

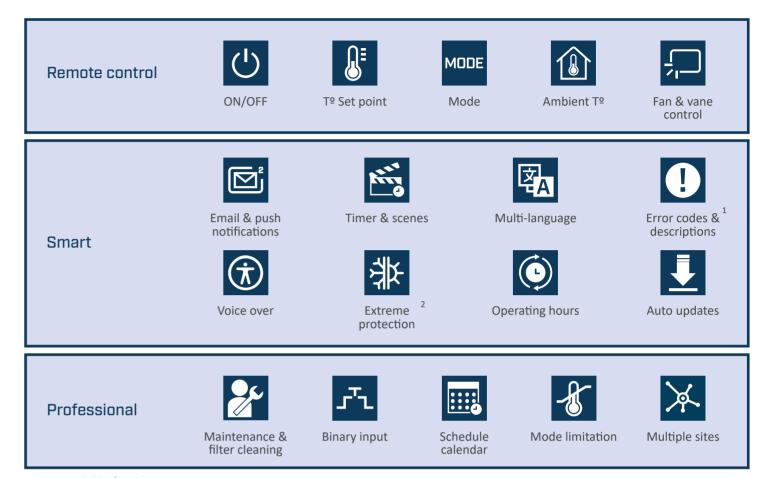3rd PARTY SYSTEMS

AC

Web and App UI

AC Cloud Control is an HVAC IoT solution that allows comfortable and intuitive control of air conditioners and heat pumps from a smartphone, tablet, smart watch or from a simple internet browser.

The AC Cloud Control gateways, developed together with the major AC manufacturers, offer cloud connectivity to a wide range of compatible AC units. No cables are needed for cloud connectivity, as the devices use Wi-Fi technology to bring all the data to the cloud.

The bidirectional communication between Intesis devices and the AC unit, ensures the end user can keep using the manufacturers remote controller if desired, while keeping the cloud system updated with the real status of the HVAC units.

The gateways can be managed using a web-based dashboard, so no additional management tool needs to be be installed. User friendly Android and iOS Apps are available.

## Control the HVAC system remotely and reduce up to 30% of energy

# AC Cloud Control Functionalities

| Remote control | ON/OFF | Tº Set point | Mode | Ambient Tº | Fan & vane control |
|---|---|---|---|---|---|
| Smart | Email & push notifications | Timer & scenes | Multi-language | | Error codes & descriptions [1] |
| | Voice over | Extreme protection [2] | Operating hours | | Auto updates |
| Professional | Maintenance & filter cleaning | Binary input | Schedule calendar | Mode limitation | Multiple sites |

1: not available for the Universal IR gateway
2: only available for the Universal IR gateway

## AC Cloud Control main strengths

**Multiple brands and multiple sites**
Organize any brand and model in three different levels.

**Energy saving and maintenance functionalities**
Special functionalities to help our customers increase energy efficiency.

**Secondary users**
Manage who can monitor and control each unit.

**Professional API for 3rd party integration**
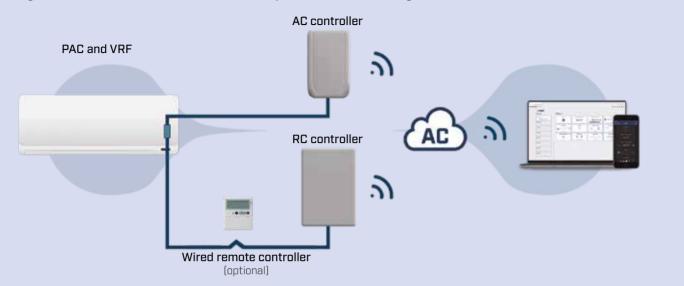Connect your system to Intesis Cloud Solutions and offer bidirectional HVAC control to your customers.

**Email and push notifications**
Be aware of everything that happens in your climate system.

**OEM projects**
Reduce the time to market and maintenance costs, our R&D resources are at your disposal.

# Effortless and Secure Remote AC Management

AC Cloud Control devices are designed to enable remote control of air conditioning units through cloud connectivity. These devices use the local Wi-Fi network to establish a reliable data connection, operating at a frequency of 2.4GHz and compatible with b/g/n. The communication between devices is optimized for IoT, ensuring minimal communication issues.

**PAC and VRF**

AC controller

RC controller

**Wired remote controller**
(optional)

## Specific features for brand specific devices

- ■ Devices designed and developed along with the major AC manufacturers, using the proprietary communication protocol of each manufacturer.
- ■ Offers advanced parameters like error signals, error codes, power consumption*.
- ■ Domestic controllers are directly connected to the internal electronic card, and specifically designed for RAC and domestic lines.
- ■ The VRF and commercial interfaces are connected to the HVAC remote control bus, and specifically designed for PAC and VRF.

## Specific features for universal controller

- ■ Offers compatibility for thousands of AC models.
- ■ Only requires an indoor unit that has an IR receiver working with a standard wireless infrared remote controller.
- ■ The AC feedback is enabled through the embedded IR receiver.
- ■ Allows using the universal and the manufacturer's controller at the same time.
- ■ The Universal controller is specifically designed for PAC, RAC and VRF.

**PAC, RAC and VRF**

**Universal IR**

*Depending on the AC brand.

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| DAIKIN | ▶ AC Cloud Control | Order Code | Indoor Units | |
|---|---|---|---|---|
| AC Domestic units to Wi-Fi (ASCII) | | INWFIDAI001I100 | 1 I.U. | NEW |
| VRV and Sky systems to Wi-Fi (ASCII) | | INWFIDAI001R100 | 1 I.U. | |

| FUJITSU | ▶ AC Cloud Control | | | |
|---|---|---|---|---|
| RAC and VRF systems to Wi-Fi (ASCII) | | INWFIFGL001I100 | 1 I.U. | NEW |
| | | INWFIFGL001R100 | 1 I.U. | |

| LG | ▶ AC Cloud Control | | | |
|---|---|---|---|---|
| VRF systems to Wi-Fi (ASCII) | | INWFILGE001R100 | 1 I.U. | |

| MITSUBISHI HEAVY INDUSTRIES, LTD. | ▶ AC Cloud Control | | | |
|---|---|---|---|---|
| FD and VRF systems to Wi-Fi (ASCII) | | INWFIMHI001I100 | 1 I.U. | NEW |
| Domestic units to Wi-Fi (ASCII) | | INWFIMHI001R100 | 1 I.U. | |

| Panasonic | ▶ AC Cloud Control | | | |
|---|---|---|---|---|
| Etherea AC units to Wi-Fi (ASCII) | | INWFIPAN001I100 | 1 I.U. | NEW |
| ECOi and PACi systems to Wi-Fi (ASCII) | | INWFIPAN001R100 | 1 I.U. | |

| TOSHIBA | ▶ AC Cloud Control | | | |
|---|---|---|---|---|
| VRF and Digital systems to Wi-Fi (ASCII) | | INWFITOS001R100 | 1 I.U. | |

| UNIVERSAL | ▶ AC Cloud Control | | | |
|---|---|---|---|---|
| Universal IR air conditioner to Wi-Fi (ASCII) | | INWFIUNI001I000 | 1 I.U. with Binary Input | |

# Work with HMS.
# The number one choice for Industrial Information & Communication Technology.

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**HMS**

www.intesis.com