



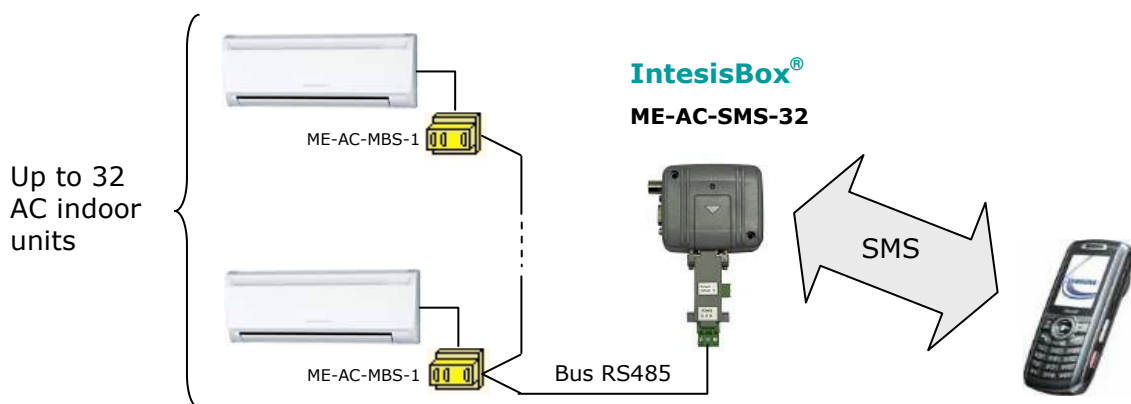
Order code
ME-AC-SMS-32

IntesisBox[®]

SMS - Mitsubishi Electric air conditioners

Controller with SMS interface for monitoring and control Mitsubishi Electric air conditioners.

Control your Mitsubishi Electric air conditioning system from your mobile phone by means of sending/receiving simple SMS messages.



IntesisBox[®] ME-AC-SMS-32 has been designed to monitoring and control Mitsubishi Electric AC indoor units by means of sending and receiving simple SMS messages from any mobile phone or PDA. It is compatible with all models of *Domestic & Mr.Slim* lines. Requires the installation of one ME-AC-MBS-1 interface in each AC indoor unit to control.

The communication with the AC indoor units is over standard RS485 bus, allowing a bus distance of up to 1.200 meters. ME-AC-SMS-32 performs a continuous monitoring of internal operation parameters and alarm status of the AC units, allowing to immediately send an SMS, to one or more recipients, after detection of an alarm in any AC unit.

Security in front of unwanted access: Allows configuring a list of phone numbers with permitted access to the system, any phone that is not in the list can not access the system.

Alarms notification fully configurable: Allows configuring one or more phone numbers (recipients) to notify the alarms, notification of alarms restoration (back to normal), and a maximum quota of alarms to notify per day.

Automatic control of A.C. units: Powerful and flexible automatic management of the A.C. units (Start/Stop, Set Temp and Mode) based on calendar.

Different languages: Language for SMS messages is selectable.

Simple configuration and setup: The interface comes pre-configured from factory; just the number of A.C. units to control must be configured for a simple operation. The entire configuration is done through simple SMS messages.

Description

IntesisBox[®] ME-AC-SMS-32 is an interface that will allow you to monitor and control your Mitsubishi Electric air conditioning installation by means of sending and receiving simple SMS messages.

IntesisBox[®] ME-AC-SMS-32 can only control the indoor units of your installation, and is compatible with all models of Domestic and Mr.Slim series.

IntesisBox[®] ME-AC-SMS-32 communicates with the AC indoor units through RS485 bus, and allows connection to up to 32 AC indoor units and a maximum bus distance of 1200 meters.



It is necessary to install an ME-AC-MBS-1 interface in each AC indoor unit to be controlled, and to configure all these interfaces with a unique address inside the bus (1, 2, 3... , from 1 ascending and consecutively). Consult your IntesisBox provider for details on how to acquire and configure the ME-AC-MBS-1 interfaces.

IntesisBox[®] ME-AC-SMS-32 will allow you to:

Monitor the status of one, some or all the AC indoor units in any moment by simply sending an SMS message from your mobile phone.

Command, i.e. start/stop, change operation mode or set temperature, one, some or all the AC indoor units in any moment by simply sending an SMS message from your mobile phone.

Notify any alarm occurred in the installation to one or various recipients by means of an SMS message sent by the interface, and also the alarm restorations.

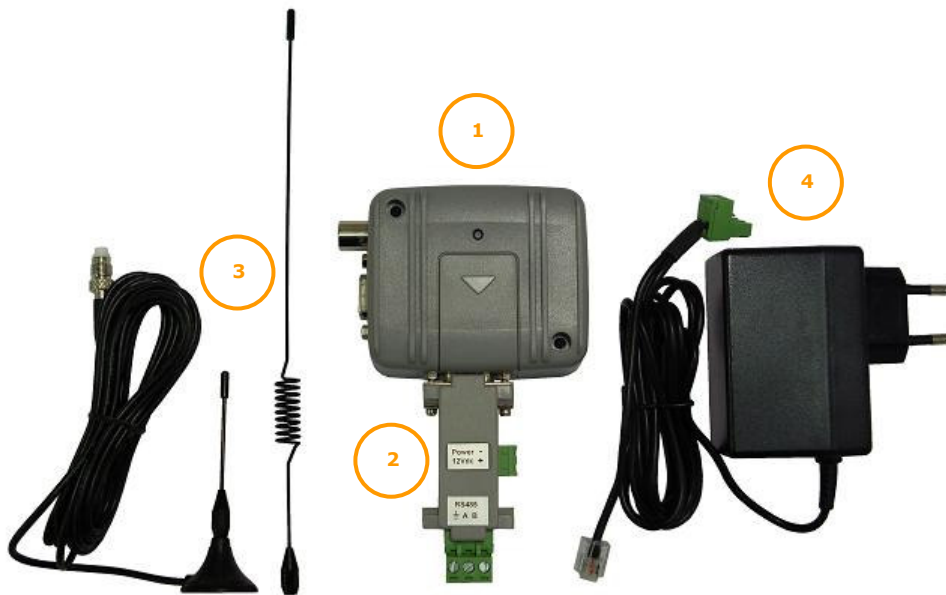
Configure a powerful and flexible automatic management of the AC indoor units. ME-AC-SMS-32 can start/stop, change the operation mode and the setpoint temperature of the AC indoor units automatically based on calendar, in a "day of the week" basis (Monday to Sunday), and also in a specific-day-profile basis that can be freely assigned to any period of time (between two dates).

Restrict access to unauthorized users.

Contents

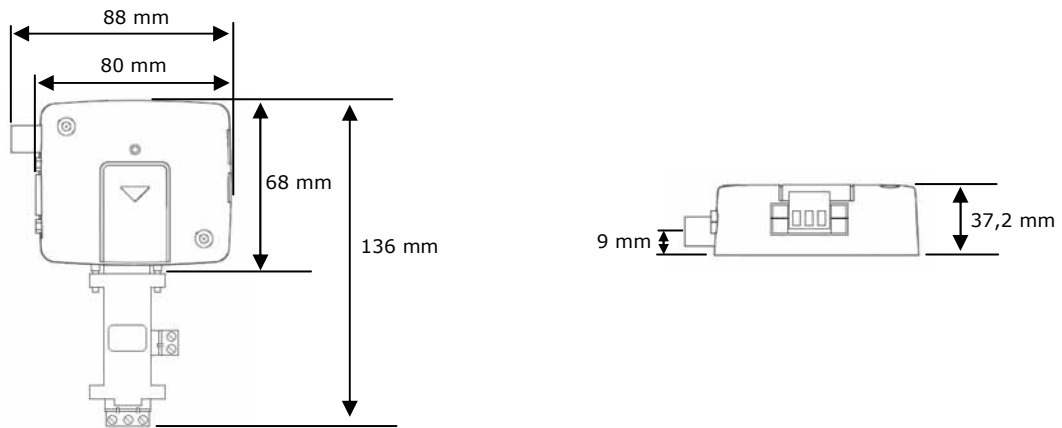
IntesisBox[®] ME-AC-SMS-32 includes the following components:

1. Modem GSM.
2. RS232/RS485 converter.
3. Antenna, with magnetic support and interchangeable rod, incorporating a 3 meters long cable with connector.
4. Power supply 110-230Vac / 50-60Hz.

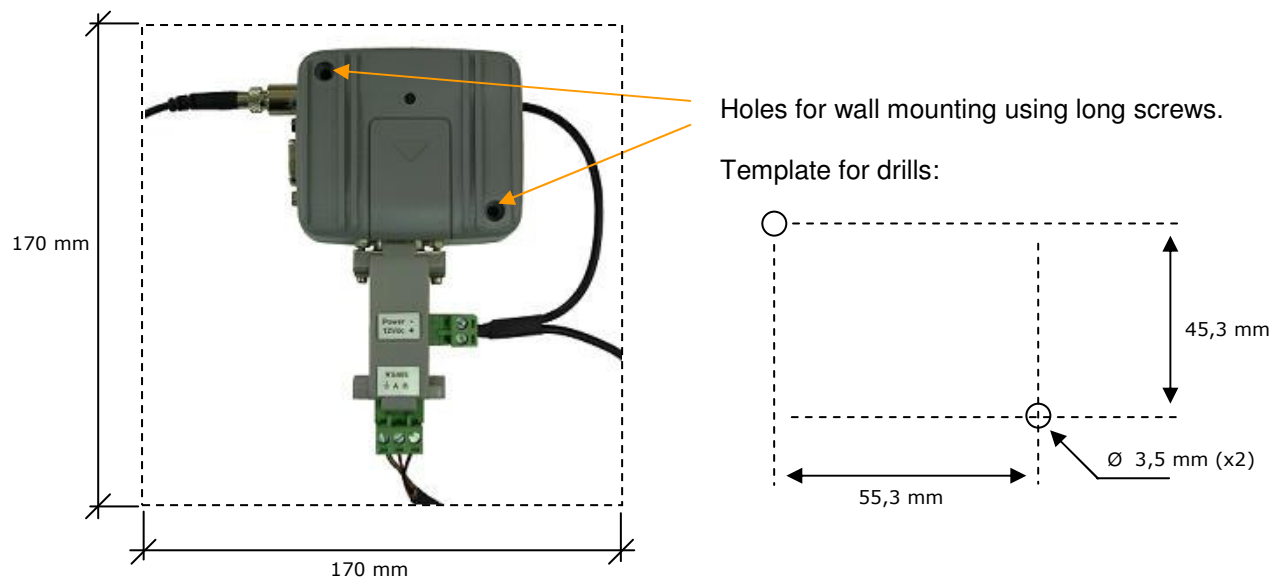


Installation

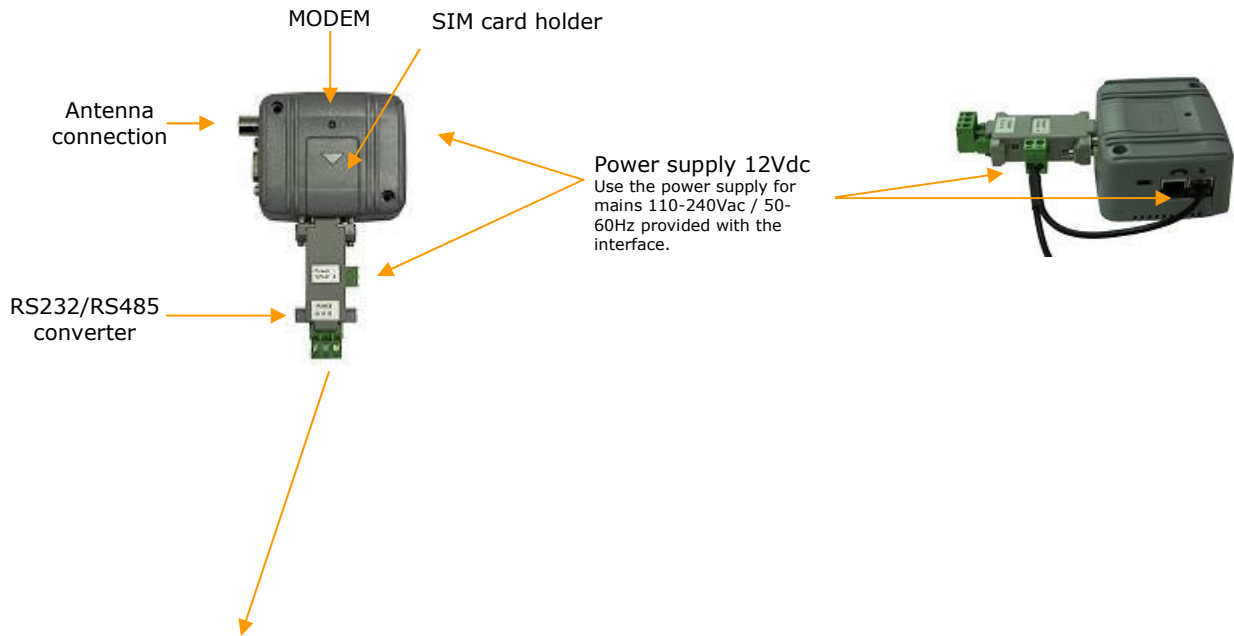
Dimensions:



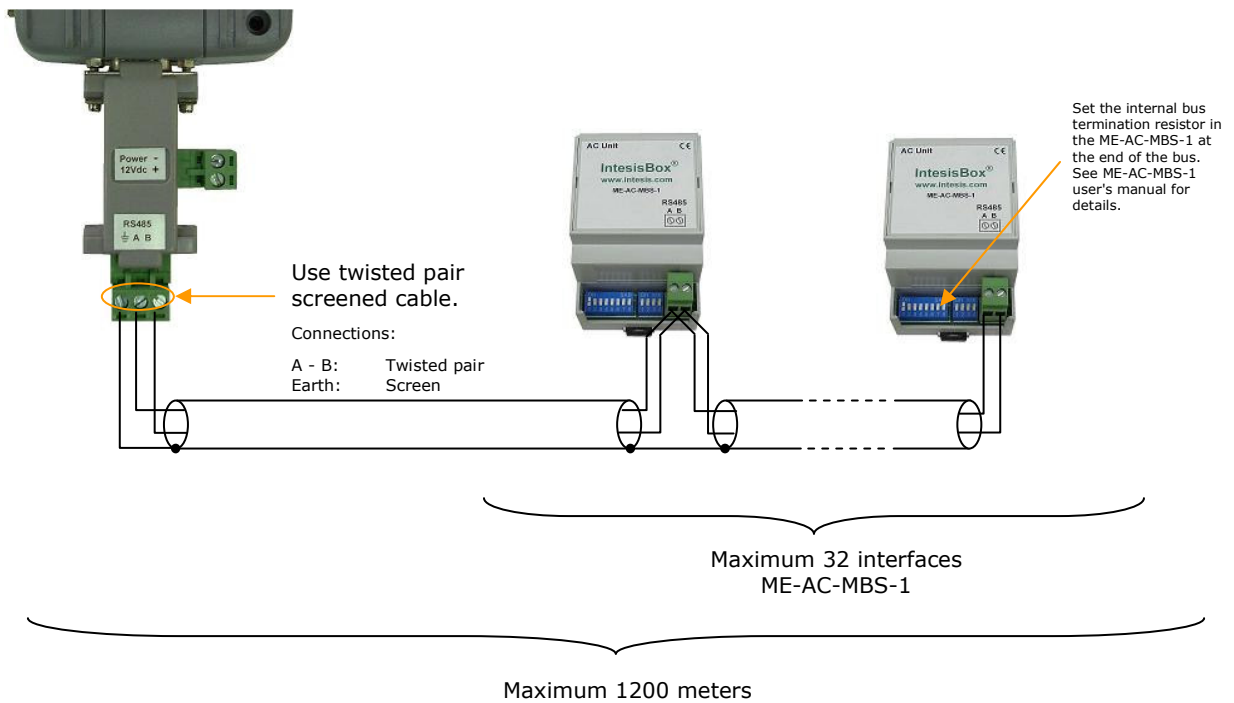
Minimum space recommended for installation of the interface, with space enough for external connections:



Connections



RS485 connection with ME-AC-MBS-1 interfaces



Basic Configuration

The interface is configured through SMS messages sent from any mobile phone, messages must be sent to the phone number assigned to the SIM card into the interface.

It is only necessary to configure in the interface the number of AC units to be controlled, the rest of basic configuration comes preset from factory. To configure in the interface the number of AC units, just send to it an SMS with the following command:

CONF_DISP x

Where **x** is the number of AC units of the installation (1 to 32). As commented before, do not forget to set appropriately the bus addresses of the ME-AC-MBS-1 interfaces, from 1, ascending, consecutively, and uniquely.

The interface comes from factory configured in Spanish language, to change the language use the command:

CONF_LNG x Where **X** is: **0** for English, **1** for Spanish, **2** for Catalan.

Basic Functionality

1) To consult the status of one, some or all the AC units, send to the interface an SMS with the command:

Aa

Where **a** is the AC unit number (1 to 32). The interface allows to consult the status of some AC units by sending a single SMS, for example send the command **# A1 A5 A10** if you want to consult AC units 1, 5 and 10, or send **# A0** if you want to consult the status of all the AC units.

In response to this command the interface will answer (in one or various SMS depending on the volume of information to send) the required information. The number of parameters per AC unit sent in response to this command is configurable, by default are the following:

| Parameter | Values | Description | Example |
|----------------|-----------------------------|-----------------------------------|---------|
| OnOff | On...Off | State (On/Off) | On |
| Mode | Cool..Heat...Fan... Auto | Mode (Cool, Heat, Dry, Auto, Fan) | Cool |
| Set Temp. | 18..30 °C | Set Temperature | 22°C |
| Ambient Temp. | 0..60 °C | Ambient Temperature | 22°C |
| Fan speed | 0..3 | Fan Speed | High |
| Func.Hours | 0..65535 | Functioning Hours of the AC unit | 0 |
| OnOff Calendar | Yes..No | control by calendar activated | No |
| Error | None...65535 | Error code of the AC unit | None |

2) To execute orders in one, some, or all the AC units, send an SMS with the command:

Aa Dd Mm Ttt

Where:

- **a** is the AC unit number (1 to 32). The interface can execute orders in more than one AC unit by sending a single SMS, for example specify **A1 A5 A10** if you want to execute the order in AC units 1, 5 and 10, or specify **A0** to execute the order in all the AC units.
- **d** is the State of the unit (0=Off, 1=On). This parameter is optional, if it is not specified then the state of the AC unit will not be modified.
- **m** is the Operation Mode (0 or A => Auto, 1 or H => Heat, 2 or D => Dry, 3 or F => Fan, 4 or C => Cool). This parameter is optional, if it is not specified then the operation mode of the AC unit will not be modified.
- **tt** is the Set Temperature in °C (18..30). This parameter is optional, if it is not specified then the setpoint temperature of the AC unit will not be modified.

In response to this command the interface will answer (in one or various SMS depending on the volume of information to send) with the current status of the units after the execution of the order (if it is an order for all the units then there will be no response of the interface). These are some examples of SMS messages with commands of orders:

| Command | Description |
|----------------|---|
| # D1 M4 T20 A1 | On AC unit 1 in Cool Mode and Set Temp=20°C |
| # D1 MC T20 A1 | The same as above |
| # d1 m4 t20 a1 | The same as above |
| # D0 A1 A3 | Off AC units 1 and 3 |
| # T22 A0 | 22 °C to all AC units |
| # A0 D0 | Off all AC units |
| # D0 A1 | Off AC unit 1 |
| # A1 D1 A2 | On AC units 1 and 2 |

3) To enable the interface to notify the alarms occurred in the system, one or more recipients must be configured, to do so send an SMS with the command:

CONF_NALAR x...x

Where:

x...x is the phone number recipient of the alarms. The interface can send the alarms to more than one recipient, just specify all the desired recipient's phone numbers separated by space in the command, for example **# CONF_NALAR 609010203 609010204**, the format of the phone numbers can be national (i.e. 609010203), international (i.e. +34609010203), or short numbers of GSM Corporate Telephony Service provided by some GSM network providers (i.e. Movistar Corporativo in Spain).

Later you can:

Add a number to the list of recipients, use the command with the modifier +, i.e. **# CONF_NALAR + 609010205**

Delete a number from the list, use the command with the modifier -, i.e. **# CONF_NALAR - 609010205**

Consult the numbers currently in the list, use the command **# CONF_NALAR ?**

Full Functionality

| Monitoring and controlling the air conditioning system | | | |
|--|--|---|---|
| Function | Related Commands | Description | Examples |
| Consult the status of AC units | #A | Command to consult the status of the AC units, of one, some or all the units. | # A1 # A2 A10 # A0 |
| Execute orders in the AC units | # A D M T | Command to execute orders in the AC units, i.e. On/Off, selection of the operation mode, and change of the setpoint temperature, in one, some or all the units. | # A1 D1 MC T22 # A1 A2 D1 # A0 D0 |
| Automatic management of the AC units based on calendar | | The interface allows configuring an automatic management of the AC units based on calendar (On/Off, select the operation mode and the setpoint temperature). This management can be in a day-of-the-week basis (the same management for all Mondays, Tuesdays, etc.) or in a special-day-profile basis that can be later assigned to any period between two dates. This functionality comes disabled from factory. See below the commands related to enable and configure it. | |
| Reception of the system alarms | | The interface can notify the alarms occurred in the AC units to one or more recipients, and also can notify the restoration of alarms. A maximum number of notifications per day can also be configured. This functionality comes disabled from factory. See below the commands related to enable and configure it. | |
| Configuration of the interface | | | |
| Function | Related Commands | Description | Examples |
| Consult the commands accepted by the interface | # HELP | Returns the list of commands accepted by the interface | # HELP |
| Selection of language | # CONF_LNG | Configuration of the language used by the interface | # CONF_LNG 0 |
| Number of AC units to be controlled | # CONF_DISP | Configuration of the number of AC units connected to the RS485 bus, to be controlled by the interface | # CONF_DISP 10 |
| Internal parameters per AC unit offered by the interface | # CONF_PAR | Configuration and consultation of the internal parameters per AC unit offered by the interface in response to a consult of status command. | # CONF_PAR P1 P2 P5 # CONF_PAR P0 # CONF_PAR ? |
| Automatic management of the AC units based on timetable and calendar | # CONF_HOR # CONF_ASG # CONF_NUM | Configuration of the automatic management of AC units based on timetable and calendar. This management can be in a day-of-the-week basis (the same management for all Mondays, Tuesdays, etc.) or in a special-day-profile basis that can be later assigned to any period between two dates | # CONF_HOR 1 # CONF_HOR + WD10 M0 T24 A1 ON08:00:00 OFF19:00:00 # CONF_ASG + SA01/06/2008 EA30/09/2008 WD10 # CONF_NUM 609010203 |
| List of phone numbers with access to the interface | # CONF_ACCESS # SPC_CLRLIST | Configuration and consultation of the list of phone numbers with access to the interface functions | # CONF_ACCESS 609010203 # CONF_ACCESS - 609010204 # CONF_ACCESS ? # SPC_CLRLIST |
| Alarms notification | # CONF_NALAR # CONF_RALAR # CONF_MAXALAR | Configuration of the alarms notification, recipients, and alarms restorations, as well as the maximum number of notifications allowed per day | # CONF_NALAR 609100203 609100204 # CONF_RALAR 1 # CONF_MAXALAR 20 |

Alarm Codes

These are the possible alarm codes, referent to the AC units, offered by the interface.

| Code | Description |
|------|--|
| 8000 | No error active |
| 8001 | Communication error between ME-AC-MBS-1 and the AC indoor unit. Revise connection. |
| 1102 | Discharge Temperature high |
| 1108 | Internal thermostat detector working (49C) |
| 1110 | Outdoor unit fail |
| 1300 | Pressure low |
| 1302 | Pressure high (High pressure probe working 63H) |
| 1503 | Protection against freeze or battery high temperature |
| 1504 | Protection against freeze or battery high temperature |
| 1504 | Over heating protection |
| 1509 | High pressure error (ball valve closed) |
| 1520 | Super heating anomaly due to low temp. of discharge. (TH4) |
| 2500 | Erroneous operation of drain pump |
| 2502 | Erroneous operation of drain pump |
| 2503 | Drain sensor anomaly (DS) |
| 4030 | Serial transmission error |
| 4100 | Compressor pause due to excess of current (initial block) |
| 4101 | Compressor pause due to excess of current (overload) |
| 4102 | Phase detection opened |
| 4103 | Anti-phase detection |
| 4108 | Phase opened in phase L2 or connector 51CM opened |
| 4118 | Error in the anti-phase detector (electronic board) |
| 4124 | Connector 49L opened |
| 4210 | Cut due to over-current of compressor |
| 4220 | Voltage anomaly |
| 4230 | Radiator panel temperature anomaly (TH8) |
| 5101 | Ambient temperature probe anomaly (TH1), indoor unit |
| 5102 | Liquid probe anomaly (TH2) |
| 5102 | Cond/Evap probe anomaly (TH5) |
| 5104 | Error detection in discharge temperature |
| 5105 | Outdoor probe error TH3 |
| 5106 | Outdoor probe error TH7 |
| 5107 | Outdoor probe error TH6 |
| 5110 | Outdoor probe error TH8 |
| 5202 | Connector 63L opened |
| 5300 | Current probe error |
| 6600 | MNET duplicated address definition |
| 6602 | MNET Line transmission hardware error |
| 6603 | MNET BUS busy |
| 6606 | MNET Line transmission error |
| 6607 | MNET transmission error |
| 6607 | MNET without ack |
| 6608 | MNET transmission error |
| 6608 | MNET without response |
| 6831 | IR remote control transmission error (reception error) |
| 6832 | IR remote control transmission error (transmission error) |
| 6840 | Transmission error with the indoor/outdoor unit (reception error) |
| 6841 | Transmission error with the indoor/outdoor unit (transmission error) |
| 6844 | Error in inter-connection cable in the indoor/outdoor unit, indoor unit number deactivated (5 min or more) |
| 6845 | Error in inter-connection cable in the indoor/outdoor unit (cabling error, disconnection) |
| 6846 | Initial timer deactivated |
| 8010 | Communication error between ME-AC-SMS-32 and ME-AC-MBS-1. Revise connection. |
| 8011 | CRC error in communication between ME-AC-SMS-32 and ME-AC-MBS-1. Revise connection. |
| 8012 | Frame too short in communication between ME-AC-SMS-32 and ME-AC-MBS-1. Revise connection. |
| 8013 | Frame too long in communication between ME-AC-SMS-32 and ME-AC-MBS-1. Revise connection. |
| 8100 | Internal error in ME-AC-SMS-32, in the communication objects. Reset the device. |

Technical data

| | |
|-------------------------------------|---|
| Envelope | Plastic. Dimensions: 88 x 136 x 37,2 mm. |
| Colour | Grey. |
| Power supply | External power supply for 110-230Vac / 50-60Hz 15W (euro plug) is supplied. |
| Mounting | Wall |
| RS485 port | 1 x Standard RS485 bus (master) with bus fail safe biasing. |
| LED indicators | 1 x Operating status. |
| GSM networks compatibility | Quad-Band GSM 850/900/1800/1900 MHz. |
| GSM output power | - Class 4 (2 W) for EGSM850 & EGSM900. - Class 1 (1 W) for GSM1800 & GSM1900. |
| SIM card compatibility | SIM card interface 3 V, 1.8 V. |
| Console port | RS232(DCE). DB9 female. Only used for operation monitoring and maintenance under the indications of Intesis Software. |
| Configuration | Via SMS messages. |
| Firmware | Allows firmware upgrades "over-the-air". |
| Operational temperature range | -30°C to +75°C. |
| Operational relative humidity range | 5% to 95%, non condensation. |
| Protection | IP20 (IEC60529). |
| RoHS conformity | Conforms to RoHS directive (2002/95/CE). |
| Certifications | CE |