# ■ IntesisBox<sup>®</sup>-KNX Mitsubishi Electric G-50A/GB-50A TCP/IP XML

Gateway for integration of Mitsubishi Electric City Multi air conditioning systems into KNX TP-1 (EIB) systems.

Two models are available for this gateway, with the following **Order Codes**:

- **ME-AC-KNX-15**. Model supporting up to 15 City Multi groups.
- ME-AC-KNX-100. Model supporting up to 100 City Multi groups.



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### 1. Description

#### 1.1 Introduction

*IntesisBox<sup>®</sup>-KNX Mitsubishi Electric G50* is a communication gateway for the integration of Mitsubishi Electric City Multi air conditioning systems into KNX TP-1 (EIB).

This integration requires the Mitsubishi Electric City Multi AC system be equipped with the Mitsubishi Electric G-50A or GB-50A gateway **with XML option**. This gateway from Mitsubishi Electric offers the signals of the City Multi AC system through XML protocol. Every G50 (G-50A or GB-50A) allows access to the signals of up to 50 City Multi indoor units and 50 groups, no matter the number of outdoor units installed. In the G50, the group is the control unit, every group can have from 1 to 16 associated indoor units. This integration supervise and control groups, not indoor units, although if only one indoor unit is associated to every group then you can supervise and control indoor units individually.

This G50 gateway is supplied by Mitsubishi Electric. The difference between the G-50A and GB-50A is that the first incorporates display and keyboard and the second just blind cover. At integration level, both allow the same functionality. Contact your nearest Mitsubishi Electric distributor for more details about G-50A and GB-50A. In this document we will refer to this two gateway models (G-50A and GB-50A) as just G50.

Property	Description / Status
Drive	Start/Stop
	Read/Write: ON, OFF
Mode	Operation Mode
	Read/Write: COOL, DRY, FAN, HEAT, AUTO, HEAT RECOVERY,
	LC_AUTO, BYPASS
	Read: AUTO HEAT, AUTO COOL
SetTemp	Temperature Set Point (only integer numbers allowed)
	Read/Write: For COOL or DRY Mode:1930 °C, for HEAT Mode:
	1728 °C, for AUTO Mode:1928 °C)
AirDirection	Air output direction (Vane Position)
	Read/Write: HORIZONTAL, MID1, MID2, VERTICAL, SWING
FanSpeed	AC fan speed or LOSSNAY
	Read/Write: HIGH, MIDH, MIDL, LOW
RemoCon	Prohibition for General control from the local panel
	Read/Write: PROHIBIT, PERMIT
DriveItem	Prohibition for ON/OFF control from the local panel
	Read/Write: CHK_ON, CHK_OFF
ModeItem	Prohibition for Mode control from the local panel
	Read/Write: CHK_ON, CHK_OFF
SetTempItem	Prohibition for Set Point control from the local panel
	Read/Write: CHK_ON, CHK_OFF
FilterItem	Prohibition for Filter Reset control from the local panel
	Read/Write: CHK_ON, CHK_OFF
Ventilation	Operational status for LOSSNAY or OA
	Read/Write: HIGH, LOW, OFF

The following list shows the available signals to integrate per every group (of the 50 possible) of the G50:



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FilterSign	Status for Eilter Dirty
The Sign	
	Read: ON, OFF
	Write: RESET
ErrorSign	Error status
_	Read: ON, OFF
	Write: RESET
InletTemp	Ambient Temperature
	Read: 0.0 to 99.9
G50	Communication error with G50
Communication	Virtual signal generated by IntesisBox <sup>®</sup> to indicate the status of the
Error	communication with the G50.
Group	Group communication error
Communication	Virtual signal generated by IntesisBox <sup>®</sup> to indicate that the group is
Error	not configured into the G50.

For more information consult Mitsubishi Electric technical documentation supplied with the G50.

#### 1.2 Functionality

Every one of the mentioned signals have to be associated to an *EIB group address*, with this, all the system is seen as a *one more EIB device*, with the same configuration and functioning characteristics.



IntesisBox-KNX continuously *polls* (read) all the G50's configured signals and maintains the updated status of all of them in its memory ready to be served when requested from EIB.

When a change of status is detected in a Mitsubishi Electric signal, a write telegram is sent to the KNX bus, of the associated *EIB Group*.

When it is received a telegram from the EIB bus, of an *EIB Group address* associated to a Mitsubishi Electric signal, a message is sent immediately to the corresponding G50 to perform the corresponding action in the Mitsubishi Electric system.

In the continuous polling of the G50, if a non response of the G50 is detected, the corresponding virtual signal inside the gateway will be activated indicating communication error with the G50. The same way, there is also a virtual signal per every City Multi group



to indicate communication error with the group, this signal will be normally activated if the group is not configured inside the G50. Note that, although the internal units are not connected physically in the City Multi system, the G50 responds as if they were.

#### 1.3 Limitations

Element	Max.	Notes
Nb of G50	2	Number of independent G50 Gateways
Nb of City Multi groups: Nb of G50 x 50	100	Number of groups of AC indoor units
Nb of EIB Groups	5902	Total number of EIB Groups that can be used in IntesisBox.
Nb of listening addresses	2000	Number of EIB groups that can be used as listening addresses.
Nb of listening addresses per EIB Group.	255	Number of listening addresses that can be associated to an EIB group address.

There are various models of IntesisBox-KNX with different capacity. The limits showed here are for the model with maximum capacity.



### 2. KNX System

In this section, a common description for all IntesisBox-KNX series gateways is given, from the point of view of KNX system which is called from now on *internal system*.

#### 2.1 Description

IntesisBox-KNX connects directly to the EIB bus and behaves as one more device of the KNX system, with the same configuration and functional characteristics as other KNX devices.

Internally, the electronic circuit part connected to the EIB bus is opto-isolated from the rest of the electronics.

IntesisBox-KNX receives, manages and sends all the telegrams related to its configuration to the EIB bus.

On receiving telegrams of EIB Groups associated to the external system (Mitsubishi Electric G50 in this case), the corresponding messages are sent to the external system to maintain both systems synchronised in every moment.

When a change in a signal of the external system is detected, a telegram is sent to the EIB bus (of the associated EIB group) to maintain both systems synchronised in every moment.

The status of the EIB bus is checked continuously and, if a bus drop down is detected, due to a failure in the bus power supply for example, when the EIB bus is restored again, IntesisBox will retransmit the status of all the EIB groups marked as "T" Transmit. Also the Updates of the groups marked as "U" Update will be performed, this last behaviour can be deactivated.



#### 2.2 Points definition

Every signal of the external system (Mitsubishi Electric) to use, has the following EIB properties:

Property	Description
Signal	Signal's Description. Only for informative purposes, allows to identify the signal comfortably.
EIS (DataPoint)	Is the EIB data type used to code the signal's value. It will depend on the type of signal associated in the external system in every case. In some integrations it is selectable, in others it is fixed due to the intrinsic characteristics of the signal.
Group	Is the EIB group to which the signal is associated. It is also the group to which the read (R), write (W), transmit (T) and update (U) actions are applied. Is the sending group.
Listening addresses	They are the addresses that will actuate on the signal, apart of the Group address.
R	Read. If activated, read telegrams of this group will be allowed.
W	Write. If activated, write telegrams of this group will be allowed.
Т	Transmit. If activated, when the signal's value changes, due to a change in the external system, a write telegram of the group will be sent to the EIB bus.
U	Update. If activated, on IntesisBox start-up or after an EIB bus reset detection, read telegrams of the sending group will be sent to the EIB bus, and the value received will be sent to the external system as if it has been received by a write telegram.
Active	If activated, the signal will be active in IntesiBox, if not, the behaviour will be as if the signal is not defined. Allows to deactivate signals without the need of delete them for future use.

These properties are common for all IntesisBox-KNX series gateways. Although every integration may have specific properties according to the type of signals of the external system in every case.



# 3. LinkBoxEIB. Configuration & monitoring tool for intesisBox KNX series.

#### 3.1 Introduction

LinkBoxEIB is a Windows compatible software tool developed specifically to monitor and configure IntesisBox-KNX series gateways. It is possible to configure all external protocols available for IntesisBox-KNX and to maintain different customer's configurations based on a LinkBoxEIB project for every different installation. Maintaining always on hard disk a copy of the last configuration files for every external protocol and customer, that is to say for every project.

From LinkBoxEIB, as well as configure the integration signals list and connection parameters for every external protocol, it is permitted also to select the serial port to use to connect to the gateway and the use of some tools for monitoring and debugging de device. Some of these tools will be explained in this document but only some of them, the rest of available debugging tools and commands will not be explained here because they are for exclusive use under the recommendations of Intesis Software technical support.

LinkBoxEIB allows configuring all IntesisBox-KNX series independently of the external system or protocol used. For every external system, LinkBoxEIB has a specific configuration window. Periodically, new free versions of LinkBoxEIB are released incorporating the latest developed integrations for external systems.

#### 3.2 Project definition

The first step to do in LinkBoxEIB for a new installation is to create the installation's project giving a descriptive name to it. When you create a project, a new folder is created with the name of the project containing the configuration files needed depending on the external protocol selected for the project. It is strongly recommended that you create a new project for every installation, if not, overwriting of configuration files of previous installations using the same external protocol may occur, loosing the configuration data for those previous installations. The projects folder is located in AppFolder\ProjectsEIB, where AppFolder is the installation folder of LinkBoxEIB (by default C:\Program Files\Intesis\LinkBoxEIB). Inside the projects folder, a new folder will be created for every project defined in LinkBoxEIB with the files needed for the project.

When you open LinkBoxEIB, the project selection window will appear inviting you to select a project or create a new one. A demo project for every external protocol supported is provided with the standard installation of LinkBoxEIB. You can create a new project or select a demo project based on the external protocol desired, and create a new one from the demo one selected.



Project/Folder	IntesisBox	Description
🗊 A Mitsubishi 🗊 aa	MitsubishiG50 MitsubishiG50	1 unidad G50 - 2 Grupos de máquinas activados
🗐 Airzone Pruebas	Airzone	
🗐 Demo Airzone	Airzone	
🗐 Demo Mitsubishi	MitsubishiG50	1 unidad G50 - 2 Grupos de máquinas activados
🗐 Pere Airzone	Airzone	
Test MitsuG50	MitsubishiG50	

**Project selection window** 

To create a new project, select a project using the same external protocol you want to use in the new project and push *New* button. You will be prompted to create a copy of the selected project (useful for similar installations) or create a new one.



If you select *Yes* you will be prompted to specify a name and a description for the new project that will be based on the same external protocol than the selected one. If you select *No* you can specify a name, a description and an external protocol to use from the list of available external protocols.

Project	MyCustomerBuilding
Description	Building with KNX - ME G50
IntesisBox	MitsubishiG50



On *Accept*, a new folder will be created inside the projects folder with the name given to the project, this folder will contain the template configuration files if the project is a brand new one, or a copy of the configuration files if it is a copy of a selected one.

A description of the files created for a Mitsubishi Electric G50 protocol based project can be found in section *Files* below in this document.

From all the possibilities of LinkBoxEIB, only changes in configuration for the integration and configuration file generation can be performed while disconnected from the gateway (working off-line), allowing you to do these tasks in the office more comfortably. Before any monitoring or downloading action to the gateway can be performed, the connection between the gateway and the PC running LinkBoxEIB must be established (working on-line). To do so follow these steps:

- 1. Make sure the gateway is powered-up an correctly connected to the KNX-EIB system via the EIB bus and to the Mitsubishi Electric G50's via the Ethernet connection (consult details for connection and pin assignments in section *Connections* of this document).
- 2. Connect a free PC serial port to the gateway's serial port marked as *PC Console*. (Use the standard serial cable supplied with the gateway or make your own cable following the pin assignments specified in section *Connections* in this document).
- 3. Select in LinkBoxEIB the PC serial port used for the connection to the gateway. Use menu Configuration -> Connection.

•
-

4. Check the checkbox *off-line* under the menu bar (it will change automatically to *on-line*) and LinkBoxEIB will ask for INFO about the gateway connected to it via the serial connection, if the connection is ok then the gateway will respond with its identification (this can be monitored in the *IntesisBox Communication Console* window, as showed below).



LinkBoxEIB				
File View Configuration Windows ?				
V On Line	✓ Send	MITSUBISHIG50.LBOX	<u> </u>	Send File
IntesisBox Communication Cons	ole			
🔽 View last 🔽 View bus 😋 🥅	Registrar a fichero			
<pre>&gt;IntesisBox_BIB_MITSUBISHIG50 &gt;Internal:BIB V.1.1.0 2006/09 &gt;Protocol:MITSUBISHIG50.1.0.4 <onchanges>Physical Add:15.15.255 BIB 3 &gt;IP:192.168.100.120 Mask:255.</onchanges></pre>	-1_V.4.0.5_SN321F /15 Intesis Softw 2006/07/04 BUS Ok 255.255.0 Gw:	9111 pare SL		

Once connected to the gateway, all the options of LinkBoxEIB are fully operative.

To monitor the communication between the gateway and the KNX system, select the menu *View -> Bus -> EIB*. The *EIB communication Viewer* window will be opened. This window shows in real time all the communication frames between the gateway and the KNX system as well as debugging messages referent to the internal protocol (KNX) sent by the gateway.

😨 Visor Comunicación EIB	
🔽 View last 🔽 View bus 🗯 🗖 Registrar a fichero	
<pre>rx:b, TX:bc,ff,ff,8,b,e1,0,81,20, rx:b, TX:bc,ff,ff,8,c,e1,0,81,27, rx:b, TX:bc,ff,ff,8,d,e3,0,80,c,9c,b5, rx:8b, TX:2,</pre>	
rx:7, UART:07 TX:2, rx:7, UART:07	
	~

To monitor the communication between the gateway and the external system (*Mitsubishi Electric G50* in this case), select the menu *View -> Bus -> External system*. The *External protocol communication viewer* window will be opened. This window shows in real time all the communication frames between the gateway and the G50s as well as debugging messages referent to external protocol (ME G50) sent by the gateway.



<b>6</b> E	xternal	Protocol Communication Viewer	
<b>▼</b> V	iew last	View bus 🗯	
TX:	G50:1	. Group:1 SetTempItem="CHK_OFF" Data:0	^
TX:	G50:1	. Group:1 FilterItem="CHK_OFF" Data:0	
rx:	G50:1	. Group:1 Drive="OFF" Data:0	
rx:	G50:1	. Group:1 Mode="COOL" Data:0	
rx:	G50:1	Group:1 SetTemp="23" Data:23	
rx:	G50:1	. Group:1 AirDirection="HORIZONTAL" Data:0	
rx:	G50:1	. Group:1 FanSpeed="LOW" Data:0	
rx:	G50:1	. Group:1 RemoCon="PERMIT" Data:0	
rx:	G50:1	Group:1 DriveItem="CHK_OFF" Data:0	
rx:	G50:1	. Group:1 ModeItem="CHK OFF" Data:0	
rx:	G50:1	. Group:1 SetTempItem="CHK_OFF" Data:0	
rx:	G50:1	. Group:1 FilterItem="CHK_OFF" Data:0	
rx:	G50:1	Group:1 Ventilation="OFF" Data:0	
rx:	G50:1	. Group:1 FilterSign="ON" Data:1	
	CE0-1	Crown-1 FrrorGion-"ON" Data-1	
<			>



To configure the integration connection parameters, and the signals list, select menu *Configuration -> IntesisBox*. The *Mitsubishi Electric G50 Configuration* window will be opened.

#### 3.3 Connection configuration

Select the Connection tab to configure the connection parameters.

Three kinds of information are configured using this window, the IP parameters of IntesisBox, the parameters of the KNX interface, and the parameters of the Mitsubishi Electric interface.

IntesisBox IP configuration parameters:

IntesisBox		
LP	•	- 1
<u>NetMask</u>	-	- 2
Gateway		2
	•	- 3

IntesisBox IP Configuration

- 1. Enter the IP address for IntesisBox (supplied by the network administrator).
- 2. Enter the IP NetMask for IntesisBox (supplied by the network administrator).

3. Enter the Default Gateway address (router address) in case IntesisBox is in a different sub network than the G50s (supplied by the network administrator). Leave blank if there is no need of router address.

KNX interface configuration parameters:

EIB			
Physical Address	15.15.255	4	 1

#### **EIB** configuration

1. Enter the physical address desired for IntesisBox inside the KNX network.



Mitsubishi Electric interface configuration parameters:



#### Mitsubishi Electric G50 Configuration

1. List of G50 devices.

Select a device to configure its properties:

- 2. IP address of the G50.
- 3. TCP port, normally 80.
- 4. Descriptive name, optional.
- 5. Polling cadence for G50s, in milliseconds, is the refresh frequency for the G50's signals.
- 6. Polling cycles to validate the return of status for any command sent to Mitsubishi.
- 7. Use the button to automatically define (and insert in the list) the number of G50s to connect to. Take into account that the number of G50s defined must be in accordance with the gateway model used. There are two models, with the following order codes:
  - **ME-AC-KNX-15**. Model supporting up to 15 City Multi groups.
  - **ME-AC-KNX-100**. Model supporting up to 100 City Multi groups.

You can identify the model of your gateway by the Order Code printed in the front label or also by the identification given by the gateway is response to an INFO command, it is something like this:

IntesisBox\_EIB\_MITSUBISHIG50-1... -> this is the basic model (up to one G50, up to 15 City Multi groups).

IntesisBox\_EIB\_MITSUBISHIG50-2... -> this is the extended model (up to two G50s, up to 100 City Multi groups)



### 3.4 Signals configuration

Select the Signals tab to configure the signals list (the IntesisBox's internal points).

nfig	irat	ion Mits	ubishi G5 <mark>0-A/G</mark> B50	-A - Max.G50:2 - Max.GroupsElB:5902 - I	Max.List Address	EIB: 200	) - Max.List. <mark>Address</mark> /	Grou	pEl	B: 21	55
ectio	n Si	ignals		•							
1	G50	Group	Código	Signal	EIS	Group	Listening addresses	B	Tw	T	U Active
1	1	1	100-Communication Er	Communication Error G50	1 - Switching (1 bit)			R		T	0-N/
2	1	া	101-Communication Er	Communication Error Grupo	1 - Switching (1 bit)			B		T	0-Nr
3	1	1	0 - Drive	Start/Stop	1 - Switching (1 bit)			B	W	Т	0-N/
4	1	81	1 - Mode	Functioning mode	14 - Counter (8 bit)			R	W	T	0-N/
15	1	S1	2 · SetTemp	"Temperature set point (in mode COOL or DRY:193	5 - Float (16 bit)			R	W	T	0-N/
16	1	1	3 - AirDir	Direction of the air outlet	14 - Counter (8 bit)			R	W	T	0-N/
22	1	100	4 · FanSpeed	Fan speed of the AC or LOSSNAY	14 - Counter (8 bit)			R	W	Τ	0-N/
27	1	101	5 - RemoCon	General prohibition of the control from the local pane	1 - Switching (1 bit)			R	W	T	0-N/
28	1	া	6 - Driveltem	Prohibition of the ON/OFF control from the local pan-	1 - Switching (1 bit)			R	W	T	0-N/
29	1	া	7 - Modeltem	Prohibition of the Mode control from the local panel	1 - Switching (1 bit)			R	W	Τ	0-N/
30	1	া	8 - SetTempItem	Prohibition of the Setpoint control from the local pane	1 - Switching (1 bit)	(		R	W	T	0-N/
31	1	া	9 - FilterItem	Prohibition of the Filter Reset control from the local p-	1 - Switching (1 bit)			B	W	T	0-N/
32	1	1	10 - Ventilation	Operational status of the LOSSNAY or OA	14 - Counter (8 bit)	(		R	W	T	0-N/
36	1	(in 1997)	11 - FilterSignSts	Filter Dirty status (read)	1 - Switching (1 bit)			R		Τ	0-N/
37	1	া	12 - ErrorSignSts	Error status (read)	1 - Switching (1 bit)			R		T	0-N/
38	1	া	13 - InletTemp	Ambient temperature (read)	5 - Float (16 bit)			R		Τ	0-N/
39	1	া	14 - FilterSignRst	Reset of the Filter Dirty indication (write)	1 - Switching (1 bit)				W		0-N/
40	1	1	15 - ErrorSignRst	Reset of the Error indication for all units (write)	1 - Switching (1 bit)				W		0-N
41	1	2	2 101-Communication Er	Communication Error Grupo	1 - Switching (1 bit)			R		Τ	0-N
42	1	2	2 0 - Drive	Start/Stop	1 - Switching (1 bit)			R	W	T	0-N
43	1	2	2 1 - Mode	Functioning mode	14 - Counter (8 bit)			R	W	Τ	0-N
54	1	2	2 - SetTemp	"Temperature set point (in mode COOL or DRY:193	5 - Float (16 bit)			R	W	T	0-N/
55	1	2	2 3 - AirDir	Direction of the air outlet	14 - Counter (8 bit)			R	W	Τ	0-N
61	1	2	2 4 - FanSpeed	Fan speed of the AC or LOSSNAY	14 - Counter (8 bit)			R	W	T	0-N/
66	1	2	2 5 - RemoCon	General prohibition of the control from the local pane	1 - Switching (1 bit)			R	W	T	0-N/

#### Signals list

- 1. *#.* Signal's number (edit not permitted). Every row in the grid corresponds to a signal (point). This column is used only to enumerate the rows in the grid (signals).
- 2. *G50*. Number of G50 to which corresponds the signal, referenced to the list of G50s defined in Tab *Connection*. Edit not permitted.
- 3. *Group*. City Multi group, it refers to the City Multi group of indoor AC units to which belongs the signal. Every G50 allows access to up to 50 groups. Edit not permitted.
- 4. *Code*. Identifies the different signals available per every City Multi group. An identification code is given to every different signal into the City Multi group, identifying every signal with an individual code. In section 1.1, an explanation of every signal is given. A contextual menu appears using mouse right button click over the column showing all the possible signal codes. Edit not permitted.
- 5. *Signal*. Signal's descriptive name (optional). Useful to identify the signal. The default descriptive name corresponds to the signal's code, but can be edited/modified.
- 6. *EIS*. KNX data type (Data point) to encode the signal's value. See all the possible EIS using the mouse right-button-click menu available on the column. Edit not permitted.
- 7. *Group*. Main EIB group address for the signal. Format: P/I/S or P/S. Features *W*,*R*,*T*,*U* explained below will only apply for this main EIB group address, not for listening addresses (if defined). Is the sending group address.
- 8. *Listening addresses*. EIB group addresses that will be listen by the gateway for this signal, that is to say, if the gateway receives an EIB telegram with destination one of



these listening addresses, then the telegram will be taken into account and the corresponding action will be performed on this signal. Format: P/I/S or P/S, if more than one is entered then they must be separated by comma.

- 9. *R*. Indicates if this signal is allowed to be read from KNX system. Possible values: "R" or blank. "R" means feature activated. Edit using the mouse right-button-click pop-up menu available on the column. Freely configurable, but be cautious (see below).
- 10. *W*. Indicates if this signal is allowed to be written from KNX system. Possible values: "W" or blank. "W" means feature activated. Edit using the mouse right-button-click popup menu available on the column. Freely configurable, but be cautious (see below).
- 11. T. Indicates if this signal will generate a telegram sending to the KNX system following a change of the signal's value, that is to say, any change of value of this signal will be transmitted to the KNX system if this feature is activated. Possible values: "T" or blank. "T" means feature activated. Edit using the mouse right-button-click pop-up menu available on the column. Freely configurable, but be cautious (see below).
- 12. *U*. Indicates if this signal will be updated whenever the gateway starts up or after an EIB bus reset. "U" means feature activated for the main EIB group address (a read of the main EIB group address will be performed in the KNX system for the update). Blank means feature not activated. Edit using the mouse right-button-click pop-up menu available on the column. Freely configurable, but be cautious (see below).
- 13. *Active*. Indicates if the signal is active or not for the integration. Possible values: 0-No, 1-Yes. Edit using the mouse right-button-click menu available on the column.

The columns R, W, T, U and *Active* can be modified using mouse double-click over the desired cell, selecting one or more cells in the same column and using the contextual menu appearing with mouse right button click over the cells selected, or just entering the first letter of the word (R,W,T,U...).

# The values by default for columns R, W, T, U have been tested and are the correct ones for the integration, do not modify this values if you are not sure on how they will affect to the integration's correct functioning.

Some cells in the column *Code* appear in orange colour, you can *Show/Hide* the *Selection/All* the Multibit signals appearing below this main signals, just using the contextual available with the mouse right button click on the column.





If you select Show/Hide *Selection*, new signals appear or disappear under the main signal. These new signals are the *Multibit* signals, and are for the following use. For main signals which may vary between a reduced number of values, for example, 0-1-2-3-4, this signal can be used with EIS6 (Value 8bits), but can be also necessary or convenient actuate on it using simpler objects as for example a switch EIS1 (switching). The new *Multibit* signals (in yellow colour) appearing just below these main signals can be used for this, using simple EIS1 objects. Show/Hide *Selection* can be also performed using mouse double-click over the orange cells.

Show/Hide All affects to all the orange cells in the grid.

Take into account that, although the Multibit signals are showed, they will not be used until they are active (*Active:1-Yes*).

1	G50	Group	Códiao	Signal	EIS	Group	Listening addresses	B	Tw	TIU	Active
1	1	1 1	100-Communication Er	Communication Error G50	1 - Switching (1 bit)			B		T	0-No
2	1	Í 1	101-Communication Er	Communication Error Grupo	1 - Switching (1 bit)			B		T	0-No
3	1	1 01	0 · Drive	Start/Stop	1 - Switching (1 bit)			B	W	Т	0-No
4	1	1	1 · Mode	Functioning mode	14 - Counter (8 bit)			B	W	T	0-No
15	1	1 S	2 - SetTemp	"Temperature set point (in mode COOL or DRY:19.3	5 - Float (16 bit)			B	W	T	0-No
16	1	1 21	3 - AirDir	Direction of the air outlet	14 - Counter (8 bit)			R	W	T	0-No
22	1	8	4 - FanSpeed	Fan speed of the AC or LOSSNAY	14 - Counter (8 bit)			R	W	T	0-No
27	1	1 st	5 - RemoCon	General prohibition of the control from the local pane	1 - Switching (1 bit)			R	W	T	0-No
28	1	( s	6 - Driveltem	Prohibition of the ON/OFF control from the local pan-	1 - Switching (1 bit)			R	W	T	0-No
29	1	( s	7 - Modeltem	Prohibition of the Mode control from the local panel	1 - Switching (1 bit)			R	W	T	0-No
30	1	া া	8 - SetTempItem	Prohibition of the Setpoint control from the local pane	1 - Switching (1 bit)			R	W	T	0-No
31	1	( s	9 - FilterItem	Prohibition of the Filter Reset control from the local p-	1 - Switching (1 bit)			R	W	T	0-No
32	1	S 1	10 - Ventilation	Operational status of the LOSSNAY or OA	14 - Counter (8 bit)			R	W	T	0-No
36	1	( s <b>1</b>	11 - FilterSignSts	Filter Dirty status (read)	1 - Switching (1 bit)			R		T	0-No
37	1	া া	12 - ErrorSignSts	Error status (read)	1 - Switching (1 bit)			R		T	0-No
38	1	া গ	13 - InletTemp	Ambient temperature (read)	5 - Float (16 bit)			R		T	0-No
39	1	া া	14 - FilterSignRst	Reset of the Filter Dirty indication (write)	1 - Switching (1 bit)				W		0-No
40	1	1 11	15 - ErrorSignRst	Reset of the Error indication for all units (write)	1 - Switching (1 bit)			1	W		0-No
41	1	1 2	2 101-Communication Er	Communication Error Grupo	1 - Switching (1 bit)			R		T	0-No
42	1	1 2	2 0 · Drive	Start/Stop	1 - Switching (1 bit)			B	W	T	0-No
43	1	1 2	2 1 - Mode	Functioning mode	14 - Counter (8 bit)			R	W	T	0-No
54	1	1 2	2 · SetTemp	"Temperature set point (in mode COOL or DRY:193	5 - Float (16 bit)			R	W	T	0-No
55	1	1 2	2 3 - AirDir	Direction of the air outlet	14 - Counter (8 bit)			B	W	T	0-No
61	1	1 52	2 4 - FanSpeed	Fan speed of the AC or LOSSNAY	14 - Counter (8 bit)	0		R	W	T	0-No
66	1	1 2	2 5 - RemoCon	General prohibition of the control from the local pane	1 - Switching (1 bit)	0		B	W	T	0-No

The figure below shows the signals table with Multibit signals Hide.



Doc: IntesisBox-KNX Mitsubishi Electric G50 v10 r15 eng.pdf

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The figure below shows the signals table with multibit signals unfolded for one of the main signals.

cac	511 0.	ignalo									
	G50	Group	Código	Signal	EIS	Group	Listening addresses	R	W	TL	J Active
1	1	100 C	100-Communication Er	Communication Error G50	1 - Switching (1 bit)			R		T	0-No
2	1	1	101-Communication Er	Communication Error Grupo	1 - Switching (1 bit)			R		T	0-No
3	1	8	I 0 - Drive	Start/Stop	1 - Switching (1 bit)			R	W	T	0-No
4	1	2	1 · Mode	Functioning mode	14 - Counter (8 bit)			R	W	T	0-No
5	1	13	16 · COOL (0)	COOL	1 - Switching (1 bit)			R	W	T	0-No
6	1	8	17 - DRY (1)	DRY	1 - Switching (1 bit)			R	W	T	0-No
7	1	15	18 - FAN (2)	FAN	1 - Switching (1 bit)			R	W	T	0-No
8	1	13	19 - HEAT (3)	HEAT	1 - Switching (1 bit)			R	W	Ţ	0-No
9	1	1 85	20 - AUTO (4)	AUTO	1 - Switching (1 bit)			R	W	T	0-No
10	1	15	21 - AUTO HEAT (5)	AUTOHEAT	1 - Switching (1 bit)			R	W	T	0-No
11	1	1.5	22 - AUTO COOL (6)	AUTOCOOL	1 - Switching (1 bit)			R	W	T	0-No
12	1	10	23 - HEAT RECOVER'	HEATRECOVERY	1 - Switching (1 bit)			R	W	T	0-No
13	1	25	24 - LC_AUTO (8)	LC_AUTO	1 - Switching (1 bit)			R	W	T	0-No
14	1	15	25 - BYPASS (9)	BYPASS	1 - Switching (1 bit)			R	W	T	0-No
15	1	25	2 · SetTemp	"Temperature set point (in mode COOL or DRY:193	5 - Float (16 bit)			R	W	T	0-No
16	1	1	3 - AirDir	Direction of the air outlet	14 - Counter (8 bit)			R	W	T	0-No
22	1	19	4 - FanSpeed	Fan speed of the AC or LOSSNAY	14 - Counter (8 bit)			R	W	T	0-No
27	1	100	i 5 - RemoCon	General prohibition of the control from the local pane	1 - Switching (1 bit)			R	W	T	0-No
28	1	1	i 6 - Driveltem	Prohibition of the ON/OFF control from the local pan-	1 - Switching (1 bit)			R	W	T	0-No
29	1	2	7 - Modeltem	Prohibition of the Mode control from the local panel	1 - Switching (1 bit)			R	W	T	0-No
30	1	1	18 - SetTempItem	Prohibition of the Setpoint control from the local pane	1 - Switching (1 bit)			R	W	T	0-No
31	1	1	9 - FilterItem	Prohibition of the Filter Reset control from the local p-	1 - Switching (1 bit)			R	W	T	0-No
32	1	105	10 - Ventilation	Operational status of the LOSSNAY or OA	14 - Counter (8 bit)			R	W	T	0-No
36	1	1	11 - FilterSignSts	Filter Dirty status (read)	1 - Switching (1 bit)			R		T	0-No
37	1	0	1 12 - ErrorSianSts	Error status (read)	1 - Switching (1 bit)			B		T	0-No



The figure below shows the signals table with multibit signals unfolded for all of the main signals.

-1	CEO LC	<u>.</u>	C44	Circuit .	FIC	1.Comm	Tristening addresses		1	L T L U	A altica
- 1	1 1 1	P 1	100 Communication Fr	Signal	EIO 1. Cuitabine (1.bit)	Group	Listening addresses	<u></u>	w		Active
-		- 41	101 Communication Er	Communication Error Guine	1 Switching (1 bit)					÷	0 Ma
2	-	-1	0 - Drive	Start/Stop	1 - Switching (1 bit)			B	w	Ť	0-No
3		1	1 Mode	Stativistop	14. Counter (9 bit)				w V	÷	0-No
5		- 1			1 - Switching (1 bit)				w	÷	0-No
0		-	17 DPV (1)	DPY	1 Switching (1 bit)	-			117	÷	0 No
7		-	19 . EAN (2)	EAN	1 - Switching (1 bit)				w	÷	0-No
0		-	19 HEAT (2)	HEAT	1 - Switching (1 bit)			B	w	÷	0.No
9		-	20 - ALITO (4)	AUTO	1 - Switching (1 bit)	-		B	w	÷	0-No
10	-	-	21 - AUTO HEAT (5)		1 - Switching (1 bit)			B	w	Ť	0.No
11	1	201			1 - Switching (1 bit)	-		B	w	Ť	0-No
12	1	34	23 HEAT BECOVER'	HEATBECOVERY	1 - Switching (1 bit)			B	w	Ť	0.No
13	÷.	-	24 - LC AUTO (8)		1 - Switching (1 bit)			B	w	Ť	0-No
14	1	100	25 - BYPASS (9)	BYPASS	1 - Switching (1 bit)	-		B	W	Ť	0-No
15	1	2.1	2 - SetTemp	"Temperature set point (in mode COOL or DBY 19-5	5 - Float (16 bit)			B	w	Ť	0-No
16	1	-	3 - AirDir	Direction of the air outlet	14 - Counter (8 bit)			B	Ŵ	Ť	0-No
17	- 1	1	26 - HOBIZONTAL (D)		1 - Switching (1 hit)			B	w	Ť	0-No
18	- i	81	27 - MID1 (1)	MID1	1 - Switching (1 bit)			B	W	Ť	0-No
19	1	81	28 - MID2 (2)	MID2	1 - Switching (1 bit)			B	W	Ť	0-No
20		34	29 - VEBTICAL (3)	VERTICAL	1 - Switching (1 bit)			B	W	Ť	0-No
21	1	-	30 - SWING (4)	SWING	1 - Switching (1 bit)			B	W	Ť	0-No
22	1	1	4 - FanSpeed	Fan speed of the AC or LOSSNAY	14 - Counter (8 bit)			B	W	T	0-No
23	i	1	31 - LOW (0)	LOW	1 - Switching (1 bit)			B	W	Ť	0-No
24	1	31	32 - MIDL (1)	MIDL	1 - Switching (1 bit)			B	W	T	0-No
25	1	्त	33 - MIDH (2)	MIDH	1 - Switching (1 bit)			B	w	Ť	0.No

By default, all multibit signals are unfolded (showed), if you do not want to use them you can *Hide-All* to reduce the size of the signals list and to work more comfortably.

#### 3.4.1 Remember

- If "T" is not activated, the changes in the external system (Mitsubishi) will not be transmitted to EIB.
- If "R" is not activated, the EIB group address could not be read by Read Requests from EIB.
- If "W" is not activated, no write on the group address could be done from EIB, neither on the links (listening addresses).
- If "U" is activated, after IntesisBox start-up, READ Requests will be sent to EIB to update the sending group.
- The groups defined as just links, will take the EIS of the first linked group.
- The data of the groups read from EIB due to read requests between other EIB devices, will be treated as writes on the groups (standard behaviour BCU1).
- The signals that are inputs to EIB must be configured as: T (mandatory), R (optional).
- The signals that are outputs from EIB must be configured as: W (mandatory), U (optional).
- The signals that are I/O to/from EIB must be configured as: W-T (mandatory), R-U (optional).
- Automatic type conversion is performed by IntesisBox, for example if an EIS5 is received by a group of type EIS1, then it is performed the conversion EIS1=(EIS5<>0), or EIS5=EIS9 and EIS9=EIS5, EIS6=EIS5(0..255), etc.
- It is recommended that listening addresses associated to different groups maintain the same EIS in all the groups, if not, non desired conversions can be performed.
- A write from EIB is propagated to the external system through the group address and also through the listening addresses.
- A write from the external system is NOT propagated to EIB through the listening addresses, but DO update the local sending groups that are used as listening addresses.



- If a sending group is used as listening address with other local sending groups, a write from the external system will update the sending group but not the listening addresses.
- In case of an EIB bus reset, if "UpdateOnResetoErrEIB" is activated in the file MitsubishiG50.ini (located in the project folder), then it will be forced an update of all the groups configured as "U" and the status of the external system signals is reset to force an update in the direction "towards EIB".

#### 3.4.2 Restrictions

- It is allowed group numbers in format P/I/S, P/S or directly the group number coded.
- It is not allowed duplicated sending groups (column Group).
- Group 0 is not allowed, it is used for signals without sending group.
- NO signal is allowed with none of R-W-T-U flags activated.
- Empty groups are allowed, but only if they have just W activated and one or more listening addresses.
- Duplicated groups in the same listening address field are not allowed.
- It is not allowed a listening address that is the same as the sending group (circular reference).
- Listening addresses are not allowed if the flag W is not activated. Without W activated, the listening addresses would not work.
- Only those EIS defined are allowed.

#### 3.4.3 Conventions

- To perform a Filter Reset or an Error Reset of G50 groups, you must write a 1.
- The Multibit properties are executed only writing 1, if a 0 is written, the value (0) will remain in the sending group but will perform no action.
- If an EIS6 is written for example, any value that is greater than the maximum supported by the Mitsubishi Electric associated signal will be limited and the maximum permitted will be used to send to the external system (Mitsubishi Electric).

### 3.5 Saving the configuration and Sending it to the gateway

When the configuration is finished, click on button *Save* to save it to the project folder on hard disk. You will be prompted to generate the configuration file to send to the gateway, if you select *Yes*, the binary file containing the configuration for the gateway will be generated and saved also into the project folder.

Once the configuration has been saved and the configuration file for the gateway has been generated, to send this configuration file to the gateway, click on the button *Send File*. The process of file transmission can be monitored in the IntesisBox Communication Console window. If the file transmission is ok, IntesisBox will reboot automatically with the new configuration loaded.

#### 3.6 Signals viewer

Once the gateway is running with the correct configuration, to supervise the status of the configured signals, select menu *View -> Signals*. The Signals Viewer window will be opened. This window shows all the active gateway's signals with its main configuration parameters and its real time value in the column Value. After a reset of IntesisBox or after sending a



configuration file to the IntesisBox, all the signal's values will be updated automatically in the signals viewer, in case you connect to the IntesisBox when it is already running, you should press the *Update* button to get updated values, press just once the button to update all the signal values, from this moment the signal values will be maintained updated until the connection is closed.

s												
	G50	Group	Cod.	Signal	EIS	Group	Listening add	R	W	T	U	Value
1	1	1	100-Communication Er	Error comunicación G50	1 - Switching (1 bit)	1/0/100		R		T		C
2	1	1	101-Communication Er	Error comunicación Grupo	1 - Switching (1 bit)	1/0/16		R		Τ		0
3	1	1	0 - Drive	Marcha/Paro	1 - Switching (1 bit)	1/0/0	1/0/200,1/0	R	W	Τ		0
4	1	1	1 - Mode	Modo de funcionamiento	14 - Counter (8 bit)	1/0/1		R	W	Τ		0
5	1	1	16 - COOL (0)	COOL	1 - Switching (1 bit)	01/01/00		R	W	Τ		1
6	1	1	17 · DRY (1)	DRY	1 - Switching (1 bit)	01/01/01		R	W	Τ		C
7	1	1	18 - FAN (2)	FUN	1 - Switching (1 bit)	01/01/02		R	W	Τ		0
8	1	1	19 - HEAT (3)	HEAT	1 - Switching (1 bit)	01/01/03		R	W	Τ		0
9	1	1	20 - AUTO (4)	AUTO	1 - Switching (1 bit)	01/01/04		R	W	Τ		0
10	1	1	21 - AUTO HEAT (5)	AUTOHEAT	1 - Switching (1 bit)	01/01/05		R	W	Τ		0
11	1	1	22 - AUTO COOL (6)	AUTOCOOL	1 - Switching (1 bit)	01/01/06		R	W	Τ		0
12	1	1	23 - HEAT RECOVER'	HEATRECOVERY	1 - Switching (1 bit)	01/01/07		R	W	Τ		0
13	1	1	24 · LC_AUTO (8)	LC_AUTO	1 - Switching (1 bit)	01/01/08		R	W	Τ		0
14	1	1	25 - BYPASS (9)	BYPASS	1 - Switching (1 bit)	01/01/09		R	W	Τ		0
15	1	1	2 · SetTemp	Consigna de temperatura (En COOL o DF	5 - Float (16 bit)	1/0/2		R	W	Τ		23
16	1	1	3 - AirDir	Dirección de la salida de aire	14 - Counter (8 bit)	1/0/3		R	W	Τ		0
17	1	1	26 - HORIZONTAL (0)	HORIZONTAL	1 - Switching (1 bit)	01/02/00		R	W	Τ		1
18	1	1	27 - MID1 (1)	MID1	1 - Switching (1 bit)	01/02/01		R	W	Τ		0
19	1	1	28 - MID2 (2)	MID2	1 - Switching (1 bit)	01/02/02		R	W	Τ		0
20	1	1	29 - VERTICAL (3)	VERTICAL	1 - Switching (1 bit)	01/02/03		R	W	Τ		C
24	-	-	DO COMMICIÓN	CONTROL 1	H. C. ALLAND (H. LA)	NOV.COV.FO		n	1.1	т	1	0

The signals viewer can be used although only one system is connected to the IntesisBox, *EIB* or *Mitsubishi Electric G50*, and is very useful for supervision and test.

It is possible to force a specific value to any signal for test purposes, to do so just double click on the row and select the desired value and Accept in the Data Test window. If the signal has W-T activated, its value will be updated a telegram will be sent to EIB indicating the new value, the same way as if it has been received from *Mitsubishi Electric G50*. If the signal has W activated, the new value entered will be sent to the external system, *Mitsubishi Electric G50* in this case, the same way as if it has been received from *EIB*.

AUTOHEAT		
Grupo EIB:01/01/05	EIS:1 - S)	witching (1 bit)
0	Accept	Cancel

This tool is very useful to test any of the systems connected to IntesisBox, EIB and *Mitsubishi Electric G50* without the need to actuate on the real signals.

The signals viewer window has a button to copy to the Windows Clipboard all the contents of the window (in tab separated text format).



#### 3.7 System commands

LinkBoxEIB includes an option to send to IntesisBox a set of system commands for debugging and control purposes; this list is available in the commands list as shown in the figure below. To send a command to IntesisBox just select it from the list, or type it with the correct format, and press *Enter* or click on button *Send*. IntesisBox will act accordingly with the command received; the process can be monitored in the IntesisBox Communication Console window. The use of some of these commands can be critical for IntesisBox normal functioning, having this in mind use only these commands following the recommendations of Intesis Software technical support. A list of the more commonly used commands and the way to use them will be returned by IntesisBox after sending the command HELP.

<b>a</b> 1	inkBoxElB						
File	View Con	figuration Windows ?					
	On Line	HELP	•	Send	MITSUBISHIG50.LBOX	•	Send File
	IntesisBo View last	HELP INFO? OFCHANGES ONCHANGES		fichero			
<u> </u>	BUSINTAL BUSINTTX BUSINTRX BUSINTOF	DEBUG=0 DEBUG=1 DEBUG=2 GP:00/0/000?					
<b>~</b> ~ ~ ~ ~	BUSEXTAL BUSEXTTX BUSEXTRX BUSEXTOF	L					
	RESET~ ( INFO? (S' TIME? (D TIME=YYY HELP	Reset IntesisBox) ystem information) ate/Time read) Y/MM/DD HH:NN:SS (I	ate/Time	write, s	ctrictily forms		
×	GP:00/0/ GP:00/0/	000? (read gro 000=d.d (write gro	up value, up value,	, 00/0/00 , 00/0/00	115/7/255) 115/7/255, d.		



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#### 3.8 Files

LinkBoxEIB saves the gateway configuration in the following files inside the project folder:

PROJECT.INI	Ini file containing general information referent to the project
MITSUBISHIG50.INI	Ini file containing the information referent to the connection
	window and other special adjustments
MITSUBISHIG50.DAT	Text file (tab separated values) with the signals information
	(signals list). This file can be edited (with Excel for example) to
	change the configuration quicker and easier. Later on, when
	selecting Configuration -> IntesisBox in LinkBoxEIB, if the changes
	have been made respecting the correct format, all the changes in
	the configuration done from Excel can be seen in the signals list.
MITSUBISHIG50.LBOX	Binary file created from the information in the files described
	above. This is the file uploaded to the gateway.

It is strongly recommended to back up the project folder containing these files in external media, once the installation process is finished. This way you will be able to do future configuration changes in case of reinstallation of LinkBoxEIB due, for example, to a failure of the hard disk in the PC where LinkBoxEIB was previously installed.

# The configuration cannot be downloaded from the gateway to LinkBoxEIB, only can be uploaded; the upload file MITSUBISHIG50.LBOX does not contain all the integration information, as for example the signals description.

The following adjustment variables can be found in the file MITSUBISHIG50.INI :

[MitsubishiG50] TmConnectG50_s=10 TmResponseG50_s=10 TmPolling_ms=1000	G50 connection waiting time (seconds) G50 response waiting time (seconds) G50 polling cadence (milliseconds)
[EIB] tS_ChekEIB=60	EIB coupler supervision cadence (seconds)

tS_ChekeiB=60	EIB coupler supervision cadence (seconds)
tMS_WaitUpdate=2000	Response waiting time for Read requests (millisec)
tMS_WaitInConect=6000	Waiting time in Connect status (millisec)
UpdateOnResetoErrEIB=1	If =1, after an EIB bus reset, the same process as when
	starting-up will be performed.

Important. Do not modify these variables if you are not sure about the effects it will have, entering incorrect values may lead to malfunctions of IntesisBox.



### 4. Setup process and troubleshooting

#### 4.1 Pre-requisites

It is necessary to have a KNX TP-1 (EIB) system operative and ready to be connected to the EIB port of IntesisBox.

It is necessary to have an Ethernet 10BT network connection near IntesisBox (network hub or switch port) with all Mitsubishi Electric G50 devices connected to this Ethernet network.

Connectors, connection cables, PC for LinkBoxEIB, and network hub or switch are not supplied by Intesis Software for this standard integration. The items supplied by Intesis Software for this integration are:

- IntesisBox-KNX gateway with KNX internal protocol and Mitsubishi Electric G50 external protocol firmware loaded.
- Console cable. Standard DB9F-DB9M cable 1.8 meters long.
- LinkBoxEIB software.
- Product documentation.

#### 4.2 Setup procedure

- 1. Install LinkBoxEIB on your laptop.
- 2. Install IntesisBox in the desired installation site. The mounting can be on DIN rail or on a stable not vibrating surface (DIN rail mounting inside a metallic industrial cabinet connected to ground is recommended).
- 3. Connect the KNX TP-1 (EIB) bus cable to the port marked as **KNX TP-1 (EIB)** of IntesisBox. (See details for this bus cable in section *Connections* of this document).
- 4. Connect the communication cable coming from the network hub or switch to the port marked as **ETH** of IntesisBox. (See details for this communication cable in section *Connections* of this document).
- 5. Power up IntesisBox using a standard power supply 220/125VAC-12VDC/300mA for example.

**WARNING!** In order 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.
- 6. Connect the communication cable coming from the serial port of your laptop PC to the port marked as **PC** of IntesisBox. (See details for this communication cable in section *Connections* of this document).
- 7. Open LinkBoxEIB, create a new project selecting a copy of the one named **DEMO Mitsubishi** and give it the name desired, select the serial port used to connect to



IntesisBox (menu Configuration -> Connection) and switch working mode to *on-line* (checkbox *off-line/on-line*). The IntesisBox identification must appear in the *IntesisBox communication console* window as showed below.

👼 LinkBoxElB	
File View Configuration Windows ?	
On Line     Send MITSUBISHIG50.LBOX	Send File
IntesisBox Communication Console       View last     View bus     Registrar a fichero <inf0?< td="">       &gt;IntesisBox_BIB_MITSUBISHIG50-1_V.4.0.5_SN321P111       &gt;Internal: BIB     V.1.1.0       2006/09/15     Intesis</inf0?<>	
>Protocol:MITSUBISHIG50.1.0.4 2006/07/04 <onchanges &gt;Physical Add:15.15.255 EIB BUS 0k &gt;IP:192.168.100.120 Mask:255.255.255.0 Gw:</onchanges 	

8. Open the *EIB Communication Viewer* window (menu View -> Bus -> EIB) and check that there is communication activity, some TX frames and some other rx frames. This means that the communication with the KNX system is ok. In case there is no communication activity between IntesisBox and the KNX system check that EIB bus is operative and well connected to the IntesisBox.

😨 Visor Comunicación EIB	
view last view bus 🕄 🔽 Registrar a fichero	
<pre>rx:b, TX:bc,ff,ff,8,b,e1,0,81,20, rx:b, TX:bc,ff,ff,8,c,e1,0,81,27, rx:b, TX:bc,ff,ff,8,d,e3,0,80,c,9c,b5, rx:8b, TX:2, rx:7,</pre>	
UART:07 TX:2, rx:7, UART:07	
A STORY MARKET R	~

9. Open the *External Protocol Communication Viewer* window (menu View -> Bus -> External system) and check that there is communication activity, some TX frames and some other rx frames as showed in the figure below. This means that the communication with the Mitsubishi Electric system is ok.



😺 External Pro	otocol Communication Viewer	
🔽 View last 🛛	View bus 🕄	
TX: G50:1 Gr	oup:1 SetTempItem="CHK_OFF" Data:0	^
TX: G50:1 Gr	oup:1 FilterItem="CHK_OFF" Data:0	
rx: G50:1 Gr	oup:1 Drive="OFF" Data:0	
rx: G50:1 Gr	oup:1 Mode="COOL" Data:0	
rx: G50:1 Gr	oup:1 SetTemp="23" Data:23	1000
rx: G50:1 Gr	oup:1 AirDirection="HORIZONTAL" Data:0	<b>1</b>
rx: G50:1 Gr	oup:1 FanSpeed="LOW" Data:0	Land I
rx: G50:1 Gr	oup:1 RemoCon="PERMIT" Data:0	
rx: G50:1 Gr	oup:1 DriveItem="CHK_OFF" Data:0	
rx: G50:1 Gr	oup:1 ModeItem="CHK_OFF" Data:0	
rx: G50:1 Gr	oup:1 SetTempItem="CHK_OFF" Data:0	
rx: G50:1 Gr	oup:1 FilterItem="CHK_OFF" Data:0	
rx: G50:1 Gr	oup:1 Ventilation="OFF" Data:0	
rx: G50:1 Gr	oup:1 FilterSign="ON" Data:1	14.4
*** CED-1 C*	own-1 BrrorCion-"ON" Doto-1	>

In case there is no response from the Mitsubishi Electric G50 devices to the frames sent by IntesisBox, check that they are operative and reachable from the network connection used by IntesisBox, check the IntesisBox's Ethernet interface making pings to its IP address using a PC connected to the same Ethernet network. See details for the communication cable between IntesisBox and Mitsubishi Electric in section *Connections* of this document.



### 5. Connections





### 6. Mechanical & electrical characteristics.







Enclosure	Plastic, type PC (UL 94 V-0). Dimensions: 107mm x 105mm x 58mm.
Colour	Light Grey. RAL 7035.
Power	9 to 30Vdc +/-10% 1.4W.
	24Vac +/-10% 1.4VA.
	Plug-in terminal bloc for power connection (2 poles).
Mounting	Surface.
	Wall.
	DIN rail EN60715 TH35.
Mitsubishi Electric	1 x Ethernet 10BT RJ45.
G50 port	
KNX port	1 x KNX TP1 (EIB) port opto-isolated. Plug-in terminal bloc (2
	poles).
LED indicators	1 x Power.
	2 x KNX port activity (1x, Rx).
	2 x Ethernet port link and activity (LNK, ACT).
	1 X KNX programming/bus. <sup>2</sup>
Push buttons	1 X KNX programming. <sup>2</sup>
Console port	RS232. DB9 female connector (DCE).
Configuration	Via console port. <sup>2</sup>
Firmware	Allows upgrades via console port.
Operational	$-40^{\circ}$ C to $+70^{\circ}$ C
temperature	
Operational	5% to 95%, non condensing
numiaity	
Protection	1P20 (1EC60529).
RoHS conformity	Compliant with RoHS directive (2002/95/CE).

<sup>1</sup> Not operational for the moment. Reserved for future use.

<sup>2</sup> Standard cable DB9male-DB9female 1,8 meters long is supplied with the device for connection to a PC COM port for configuring and monitoring the device. The configuration software, compatible with Windows<sup>®</sup> operating systems, is also supplied.



### 7. Dimensions



Free space recommended to install the device into a cabinet (wall or DIN rail mounting), with space enough for external connections:





### 8. Annexes

#### 8.1 Gateways Mitsubishi Electric G-50A and GB-50A.



G-50A



GB-50A

For more information about these devices, contact your nearest Mitsubishi Electric dealer.

