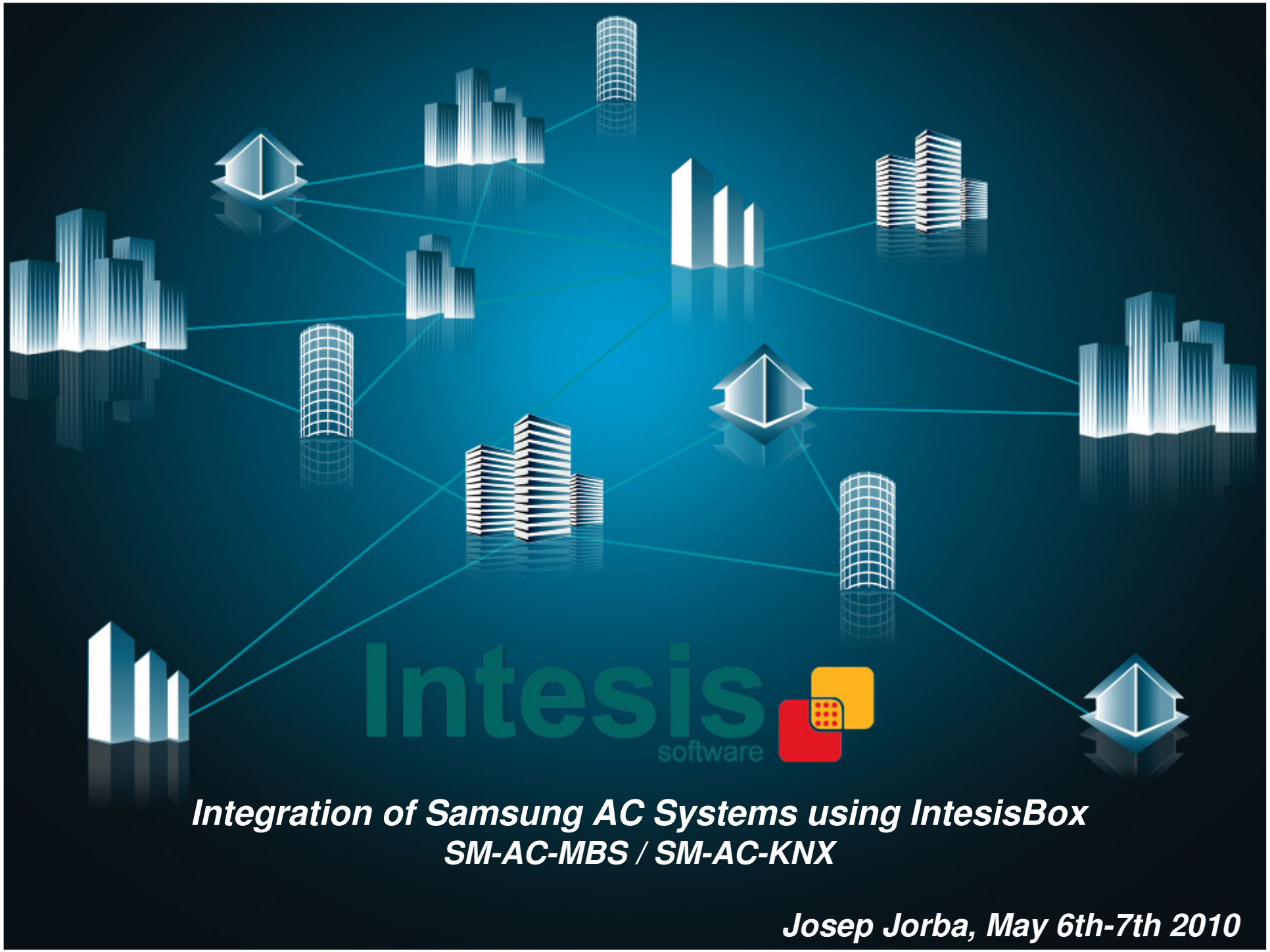


Integration of Samsung AC Systems using IntesisBox

SM-AC-MBS / SM-AC-KNX

Josep Jorba, May 6th-7th 2010

About our company…

- Founded year 2000
- Located in Igualada / 60km from Barcelona, in Spain
- Staff is 11 people (as of 2010Q1) / 8 of them electrical/telecom engineers
- Focus on software for building automation
- Own hardware platforms IntesisBox®
- Core business: gateway / interfacing solutions for building automation
  - Proprietary protocols
  - Open protocols: OPC, Modbus, KNX, BACnet, LonWorks, DALI, enOcean
- Own products and OEM

IntesisBox®

Intesis software

Products for Integration of Samsung Air Conditioning Systems

- SM-AC-MBS-32 (32 Indoor Units / IDUs)
- SM-AC-MBS-64 (64 IDUs)
- SM-AC-MBS-128 (128 IDUs)

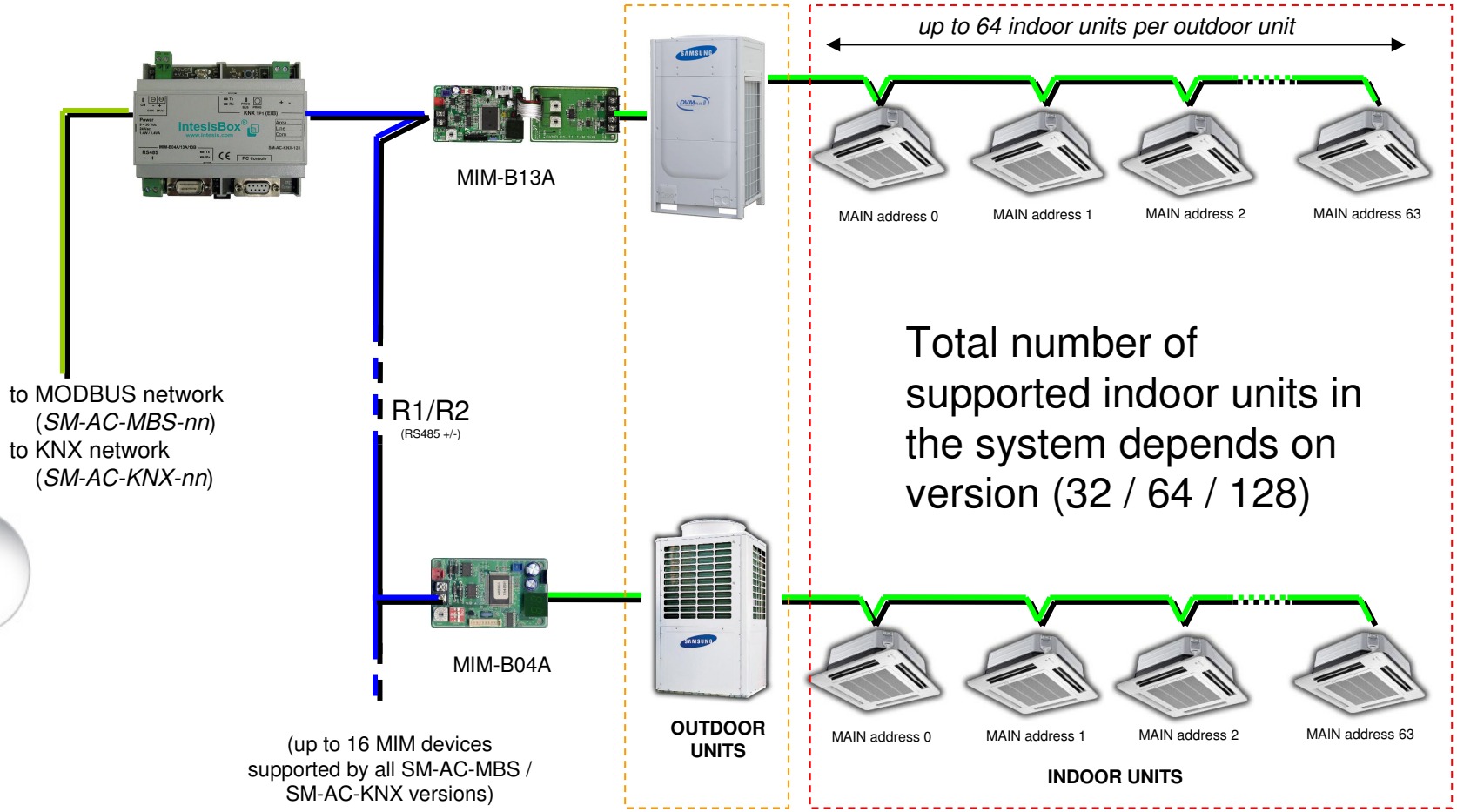
Integration to Modbus systems

- SM-AC-KNX-64 (64 IDUs)
- SM-AC-KNX-128 (128 IDUs)

Integration to KNX systems

Connection of SM-AC-*XXX* to Samsung Air Conditioning System

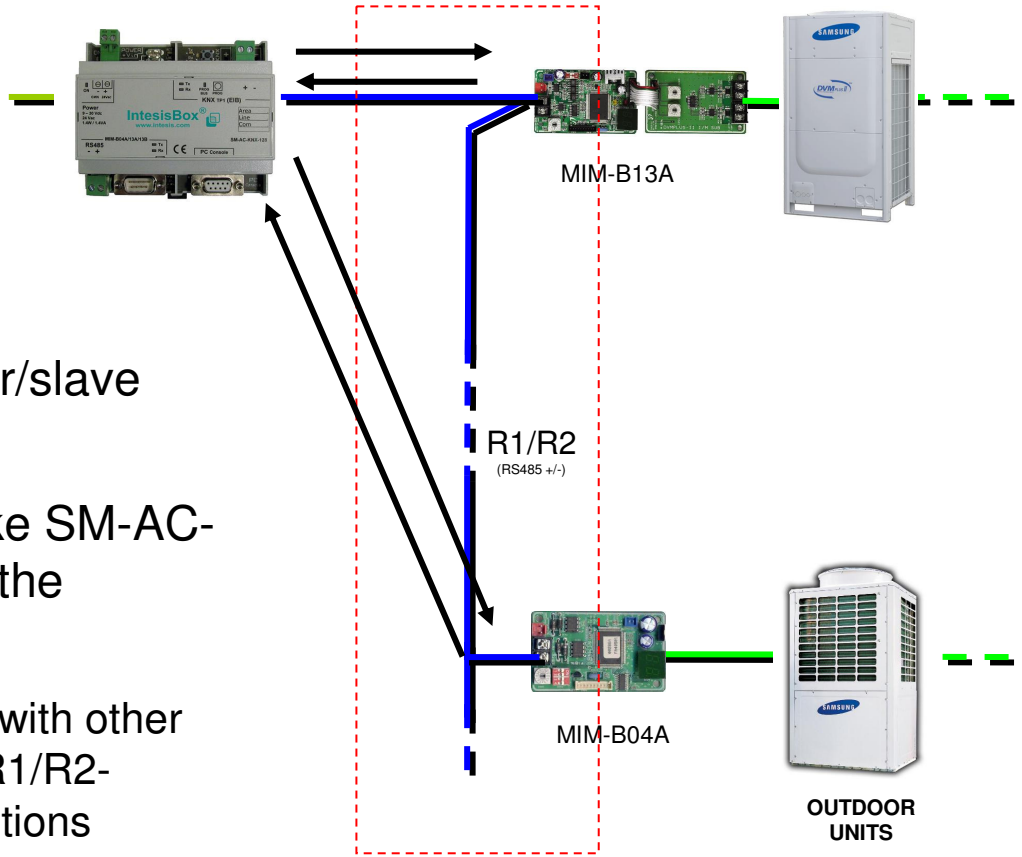
(Done using MIM-B04, MIM-B13A, MIM-B13B interface from Samsung)



Connection of SM-AC-*XXX* to Samsung Air Conditioning System

(Done using MIM-B04, MIM-B13A, MIM-B13B interface from Samsung)

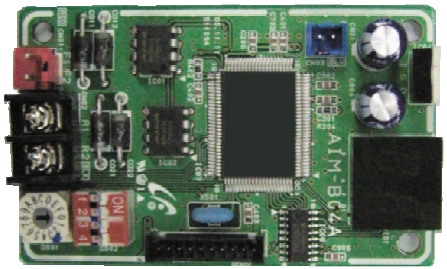
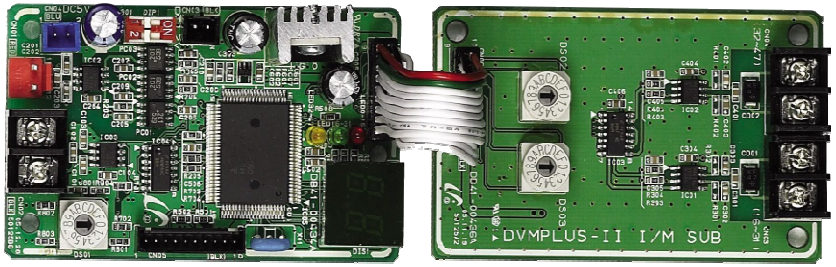
SM-AC-XXX periodically polls MIM modules



- R1/R2 is a master/slave communication
- Only 1 master (like SM-AC-XXX) possible in the system
  - Not compatible with other R1/R2 masters / R1/R2-based control solutions

Interface module MIM-B04A / MIM-B13A / MIM-B13B

- *Interface between SM-AC-MBS / SM-AC-KNX and indoor / outdoor units*

MIM-B04A	MIM-B13A / MIM-B13B
	
DVM **Mini DVM(R22)** **CAC**	**DVM PLUS II/III** **DVM PLUS II/III HR** **FJM, Super FJM** **Mini DVM (R410A)** **ERV**

General features (SM-AC-MBS/SM-AC-KNX)

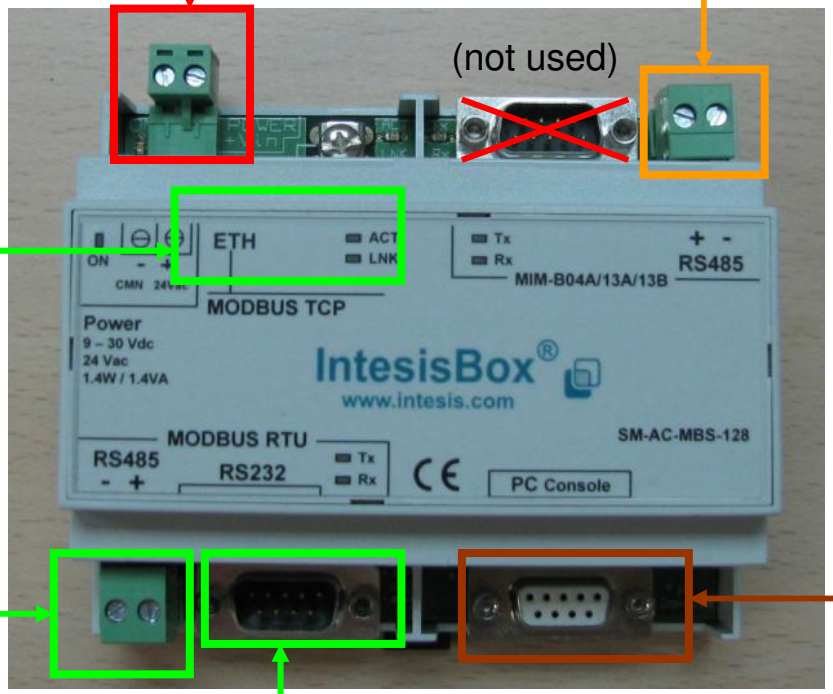
- Power at 9 to 30 VDC / 24 VAC
- Standard enclosure 6-module DIN rail
- Ports electrically isolated between themselves (and from power too)
- The device needs to be configured with a separate PC tool
  - *LinkBoxMB* (Modbus – *SM-AC-MBS*)
  - *LinkBoxEIB* (KNX – *SM-AC-KNX*)
  - Configuration is loaded over a serial port
  - *LinkBoxXXX* configuration tool and serial cable for configuration download provided with the device

General features (SM-AC-MBS/SM-AC-KNX)

- Modbus connectivity - *SM-AC-MBS*
  - *Acts as a modbus slave device*
  - *Modbus RTU (RS232 / RS485)*
  - *Modbus TCP*

- KNX connectivity – *SM-AC-KNX*
  - *KNX TP-1 bus*

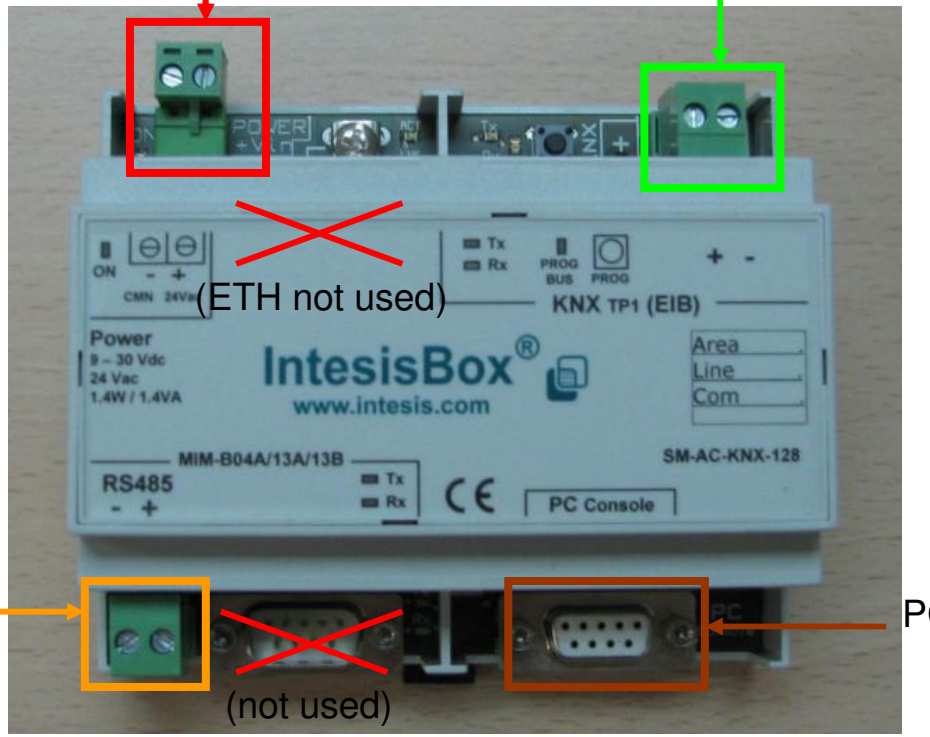
SM-AC-MBS connections



SM-AC-KNX connections

Power supply

KNX TP-1 port



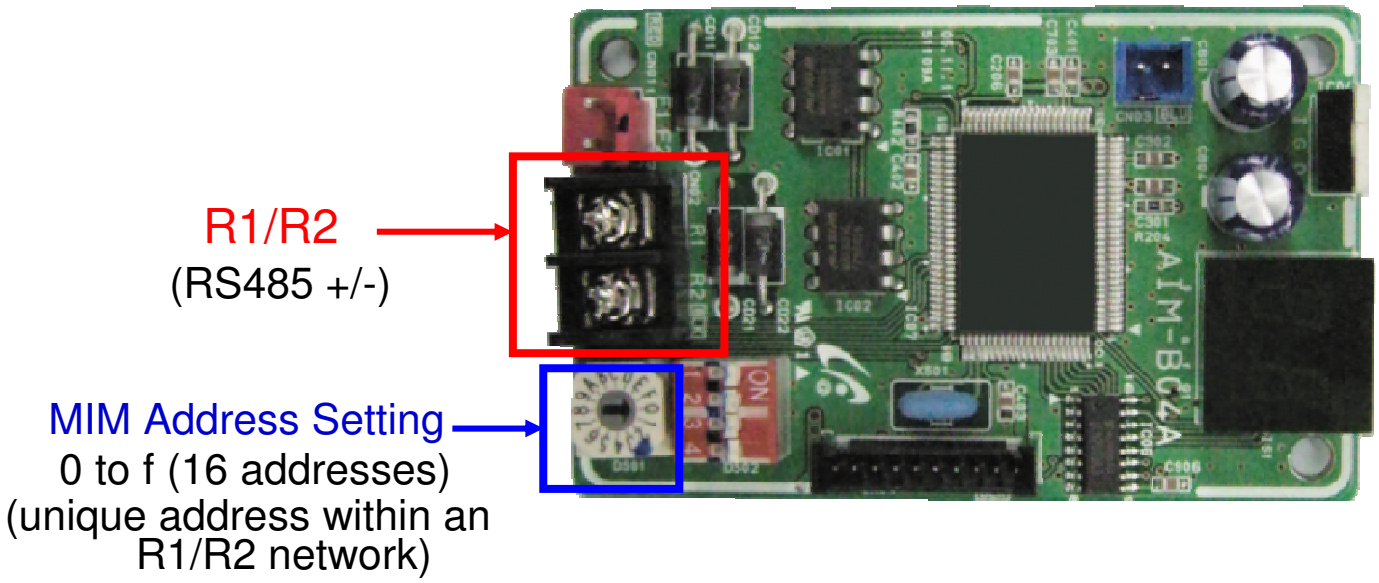
R1/R2 (RS485) port

Interface Module/s (MIM) connection

PC Console port

Configuration download & supervision with *LinkBoxEIB* software

Interface Module (MIM) connections



SM-AC-MBS available signals

For each indoor unit (IDU) x 32 / 64 / 128 (according to version)

Type: Read / Write	Signal description and values
Read-only	AC Unit is present • 0: AC Unit Not Present, 1: AC Unit Present
Read-only	K2 Switch status • 0: K2 Switch On (central control disabled), 1: K2 Switch Off (ready)
R/W	Indoor Unit On/Off • 0: Off, 1: On
R/W	Mode • 0: Cool, 1: Heat, 2: Dry, 3: Fan, 4: Auto
Read-only	Operation Mode (when Mode signal is "4: Auto") • 0: Auto Cooling, 1: Auto Heating
Read-only	Ambient temperature (Celsius value) • -55ºC to 200ºC
R/W	Setpoint temperature (Celsius value) • In Heat Mode: 18ºC to 30ºC • In all other Modes: 16ºC to 30ºC

SM-AC-MBS available signals

For each indoor unit (IDU) x 32 / 64 / 128 (according to version)

Type: Read / Write	Signal description and values
R/W	Fan Direction • 0: Stop, 1: Up/Down, 2: Left/Right, 3: Both
R/W	Fan Speed • 0: Auto, 1: Low, 2: Middle, 3: High
R/W	Remote Controller Restriction • 0: Remote Controller Enabled, 1: Remote Controller Disabled
Read-only	•Filter Alarm • 0: Filter Alarm Not Present, 1: Filter Alarm Present
Read-only	Indoor Unit Error Code • 0: No Error, 100-999: Error Code
Write-only	Filter Reset • 1: Clear Filter Alarm
R/W	Last Command Execution Status • 0: Last Command execution OK (or value has been cleared) • 1: Last Command execution failed

SM-AC-MBS available signals

For each outdoor unit (ODU) x 16 in all versions

Type: Read / Write	Signal description and values
Read-only	MIM Interface is Present • 0: Present, 1: Not present
Read-only	MIM Interface is Ready • 0: Not Ready, 1: Ready
Read-only	Outdoor Unit Compressor Status • 0: Off, 1: On
Read-only	Discharge Temperature (celsius 0ºC to 255ºC)
Read-only	Condout Temperature (celsius value -55ºC to 200ºC)
Read-only	Oil Temperature (celsius value -55ºC to 200ºC)
Read-only	Suction Temperature (celsius value -55ºC to 200ºC)
Read-only	Exterior Temperature (celsius value -55ºC to 200ºC)
Read-only	Outdoor Unit Error Code • 0: No Error, 100-999: Error Code

SM-AC-MBS available signals

Global / general status signals

Type: Read / Write	Signal description and values
Read-only	R1/R2 bus communication error • 0: No Communication Error on R1/R2 • 1: Communication Error on R1/R2
Read-only	Tracking phase status ▪ 0: Tracking phase ended ▪ 1: Tracking is being performed

SM-AC-KNX available signals

For each indoor unit (IDU) x 64 / 128 (according to version)

Property	EIS type	Description and values
On / **Off** (R/W)	1 – Switching (1bit)	**Start/Stop** • 0 – OFF, 1 – ON
Mode (R/W)	14 – Counter (8bit)	**AC Mode** • 0 – COOL, 1 – HEAT, 2 – DRY, 3 – FAN, 4 – AUTO
Mode::Cool (R/W)	1 – Switching (1bit)	0 – Inactive, 1 – Active
Mode::Heat (R/W)	1 – Switching (1bit)	0 – Inactive, 1 – Active
Mode::Dry (R/W)	1 – Switching (1bit)	0 – Inactive, 1 – Active
Mode::Fan (R/W)	1 – Switching (1bit)	0 – Inactive, 1 – Active
Mode::Auto (R/W)	1 – Switching (1bit)	0 – Inactive, 1 – Active
Auto Mode (read-only)	14 – Counter (8bit)	**AC Operating Mode** (when mode is Auto) • 0 – AUTO COOLING, 1 – AUTO HEATING
AutoMode::Cooling	1 – Switching (1bit)	0 – Inactive, 1 – Active
AutoMode::Heating	1 – Switching (1bit)	0 – Inactive, 1 – Active

SM-AC-KNX available signals

For each indoor unit (IDU) x 64 / 128 (according to version)

Property	EIS type	Description and values
Setpoint Temperature (R/W)	EIS 5 – Float (2byte)	**Temperature Set Point** • For HEAT mode:18..30 ºC, for any other mode: 16..30 ºC
Ambient Temperature (read-only)	EIS 5 – Float (2byte)	**Ambient Temperature** • -55ºC to 200ºC
Fan Direction (R/W)	14 – Counter (8bit)	**Air output direction** • 0 – Stop, 1 – Up/Down, 2 – Left/Right, 3 – Both
FanDirection::U/D (R/W)	1 – Switching (1bit)	0 – Inactive, 1 - Active
FanDirection::L/R (R/W)	1 – Switching (1bit)	0 – Inactive, 1 - Active
Fan Speed (R/W)	14 – Counter (8bit)	**AC Fan Speed** • 0 – AUTO, 1 – LOW, 2 – MID, 3 – HIGH
FanSpeed::Auto (R/W)	1 – Switching (1bit)	0 – Inactive, 1 – Active
FanSpeed::Low (R/W)	1 – Switching (1bit)	0 – Inactive, 1 – Active
FanSpeed::Mid (R/W)	1 – Switching (1bit)	0 – Inactive, 1 – Active
FanSpeed::High (R/W)	1 – Switching (1bit)	0 – Inactive, 1 – Active

SM-AC-KNX available signals

For each indoor unit (IDU) x 64 / 128 (according to version)

Property	EIS type	Description and values
Remote Restriction (R/W)	1 – Switching (1bit)	**Remote Control Enablement / Disablement** 0 – Remote control enabled, 1 – Remote control disabled
Error Sign (read-only)	1 – Switching (1bit)	**Error Code / Communication error with the Indoor Unit** 0 – No error present, 1 – Error code present, or communication error with the indoor unit
Error Code (read-only)	10 – Counter (16bit)	**Error Code** 000 – No error, 100 to 999 – Indoor unit error code
Filter Alarm (read-only)	1 – Switching (1bit)	**Filter Alarm Status** 0 – No alarm, 1 – Filter alarm present
Filter Alarm Reset (write-only)	1 – Switching (1bit)	**Filter Alarm Reset** 1 – Filter alarm reset

Global / general status signals

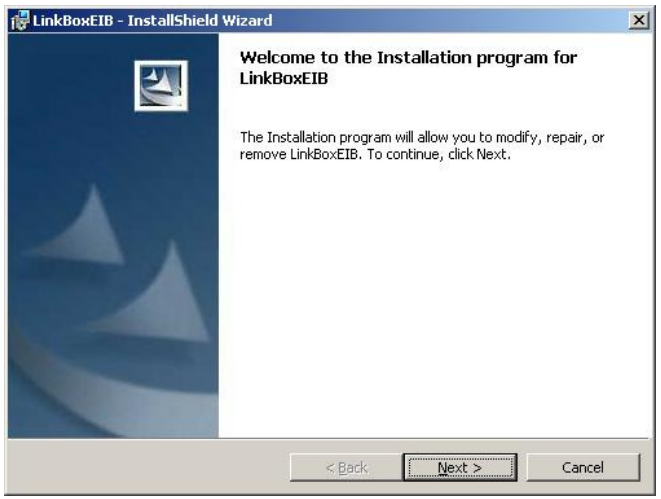
Property	EIS type	Description and values
Communication Error (R/W)	1 – Switching (1bit)	**Communication Error at R1/R2** 0 – No error present / OK, 1 – Communication Error

LinkBoxMB configuration software (SM-AC-MBS)

Latest version on: http://www.intesis.com/down/mb/linkboxmb.html

LinkBoxEIB configuration software (SM-AC-KNX)

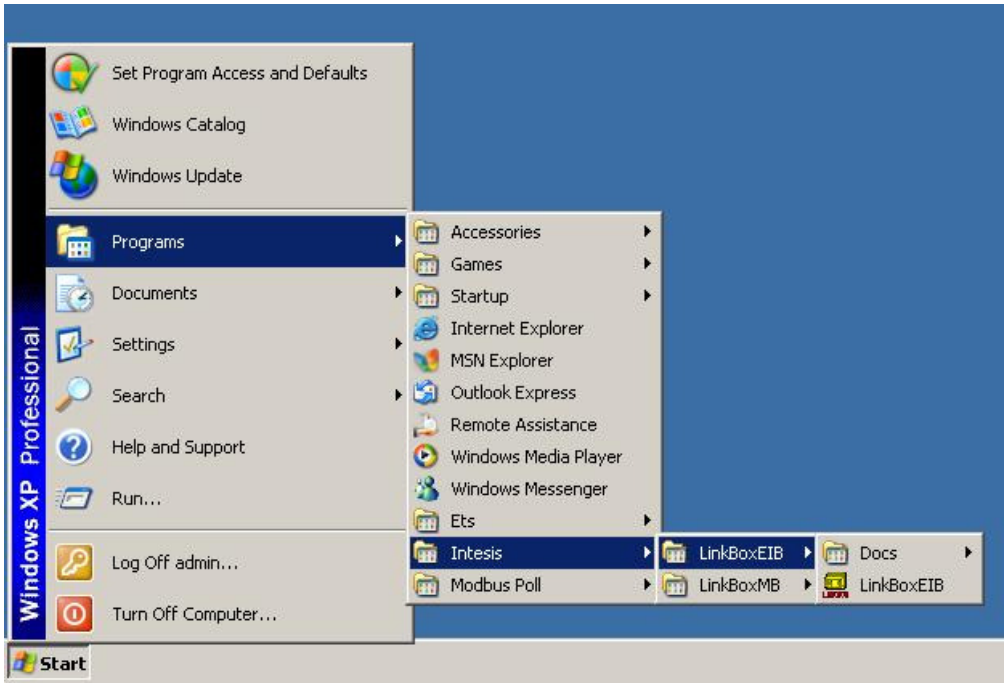
Latest version on: http://www.intesis.com/down/eib/linkboxeib.html



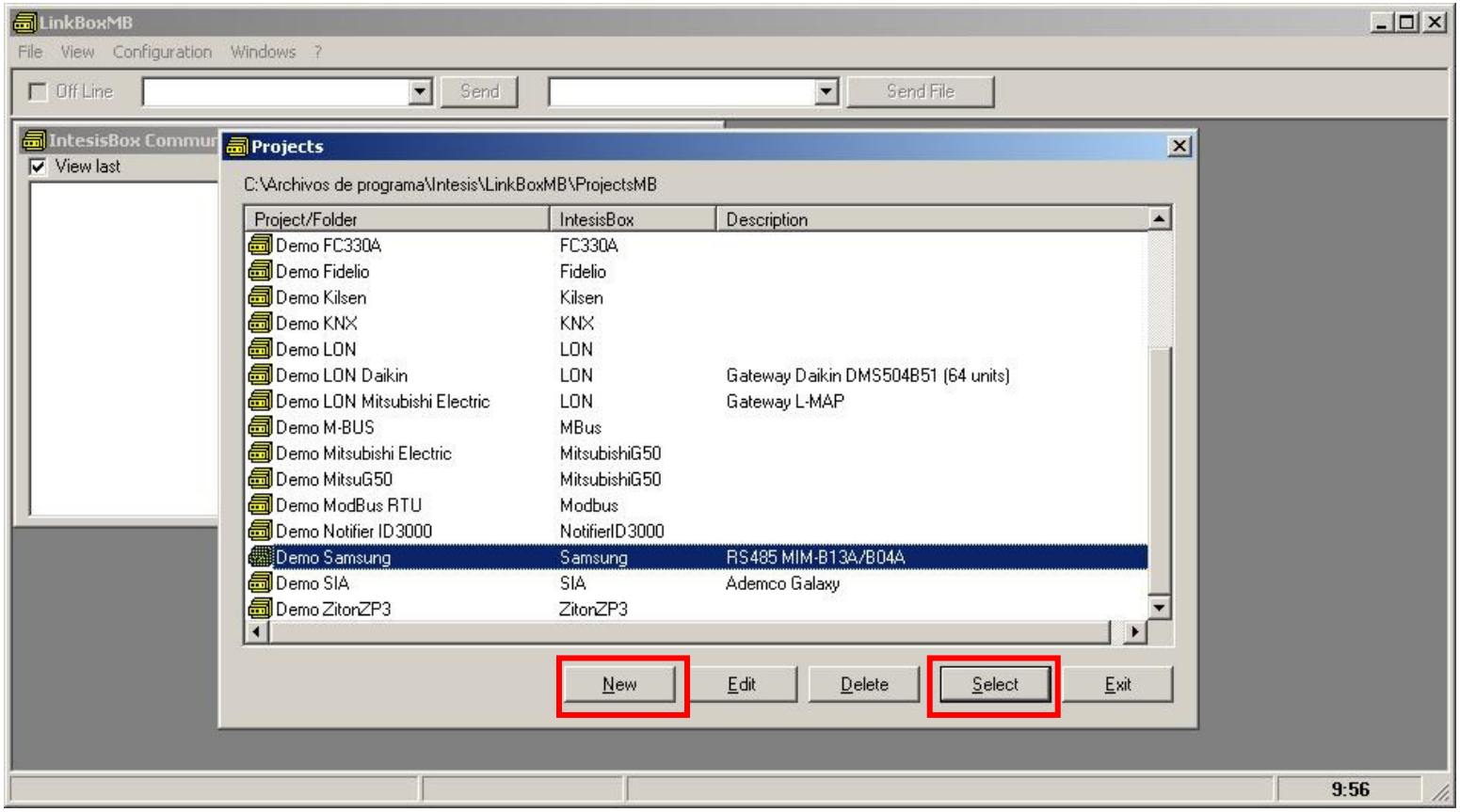
Setup.exe self-installer

- *Installs LinkBoxXXX application & documentation*

LinkBox common tasks (LinkBoxMB and LinkBoxEIB)

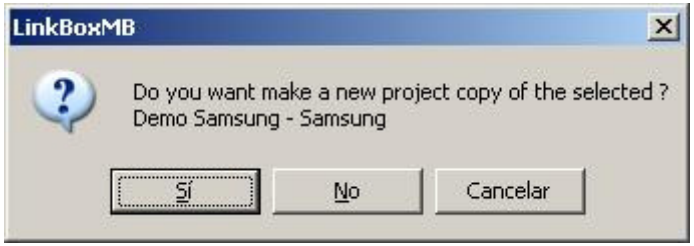


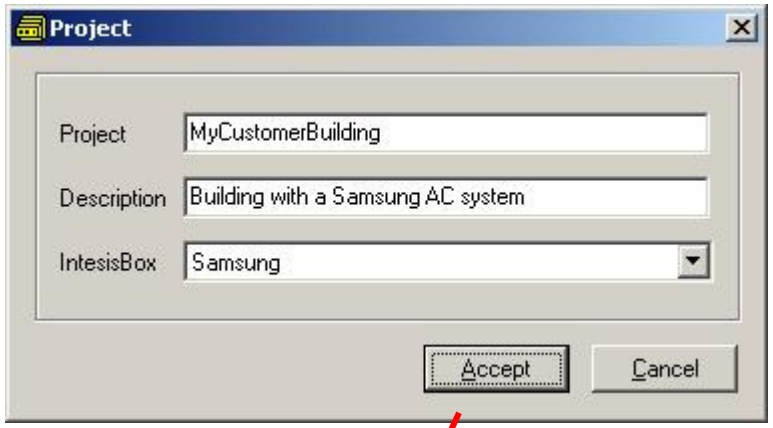
LinkBox common tasks

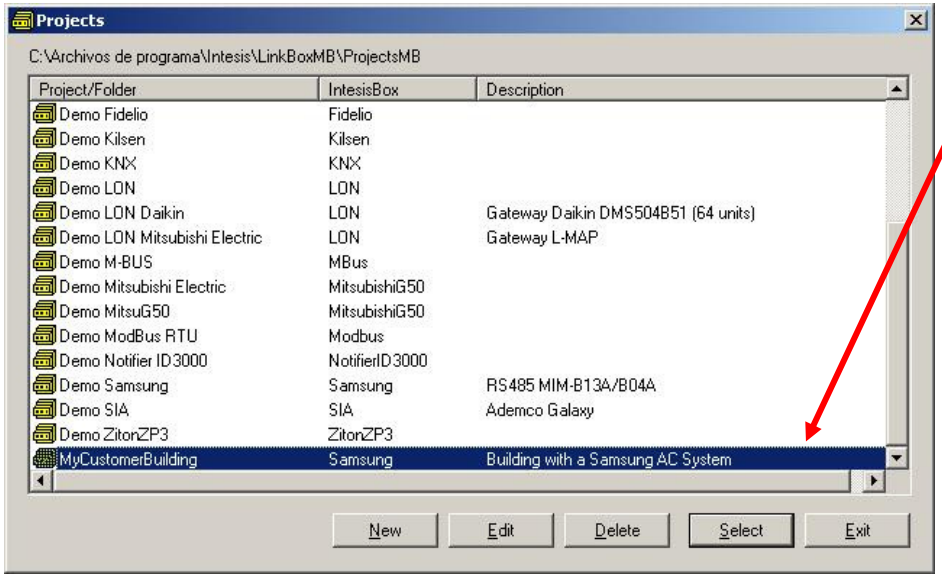


Selecting an existing project.. / creating a New project…

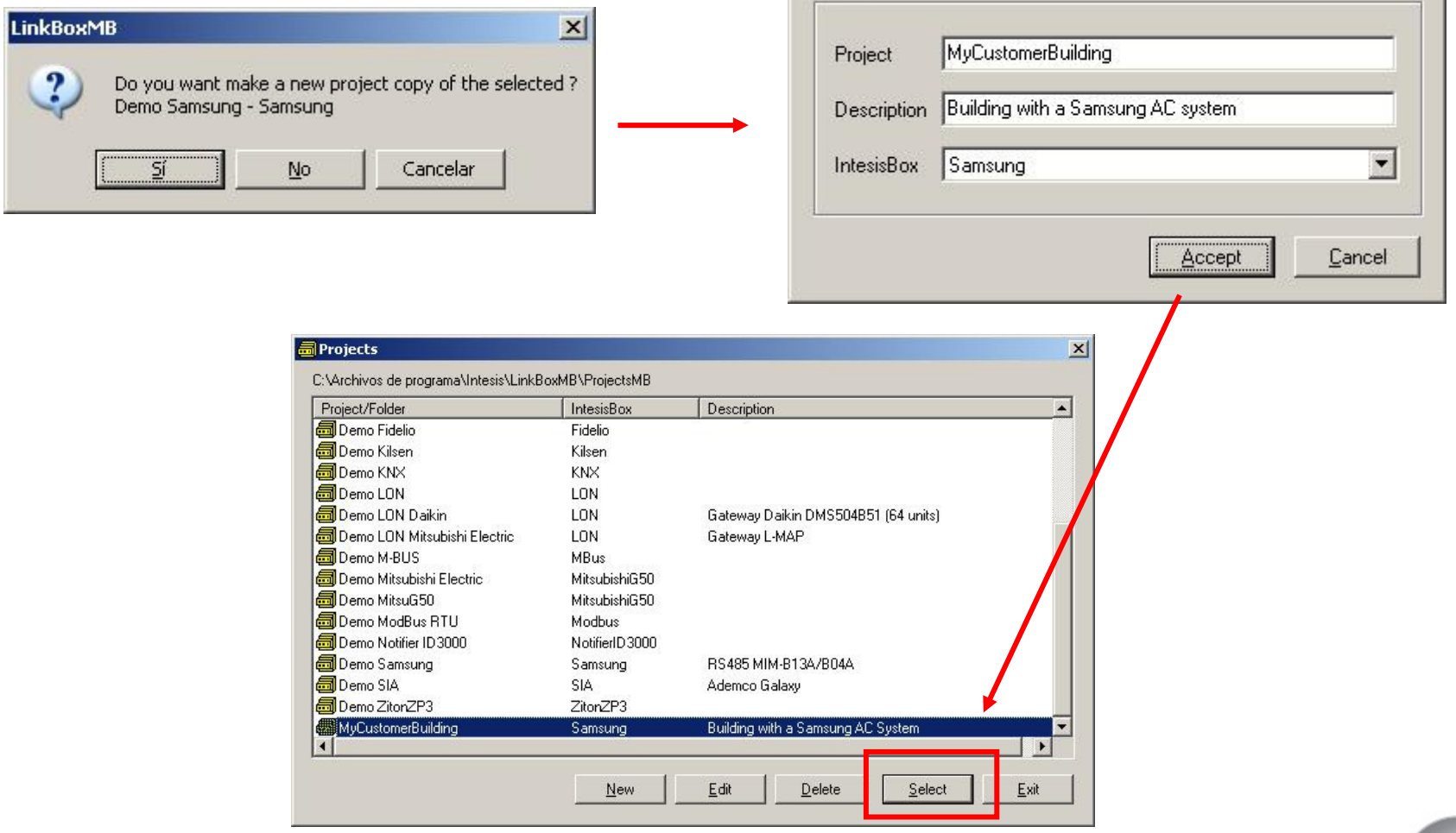
LinkBox common tasks



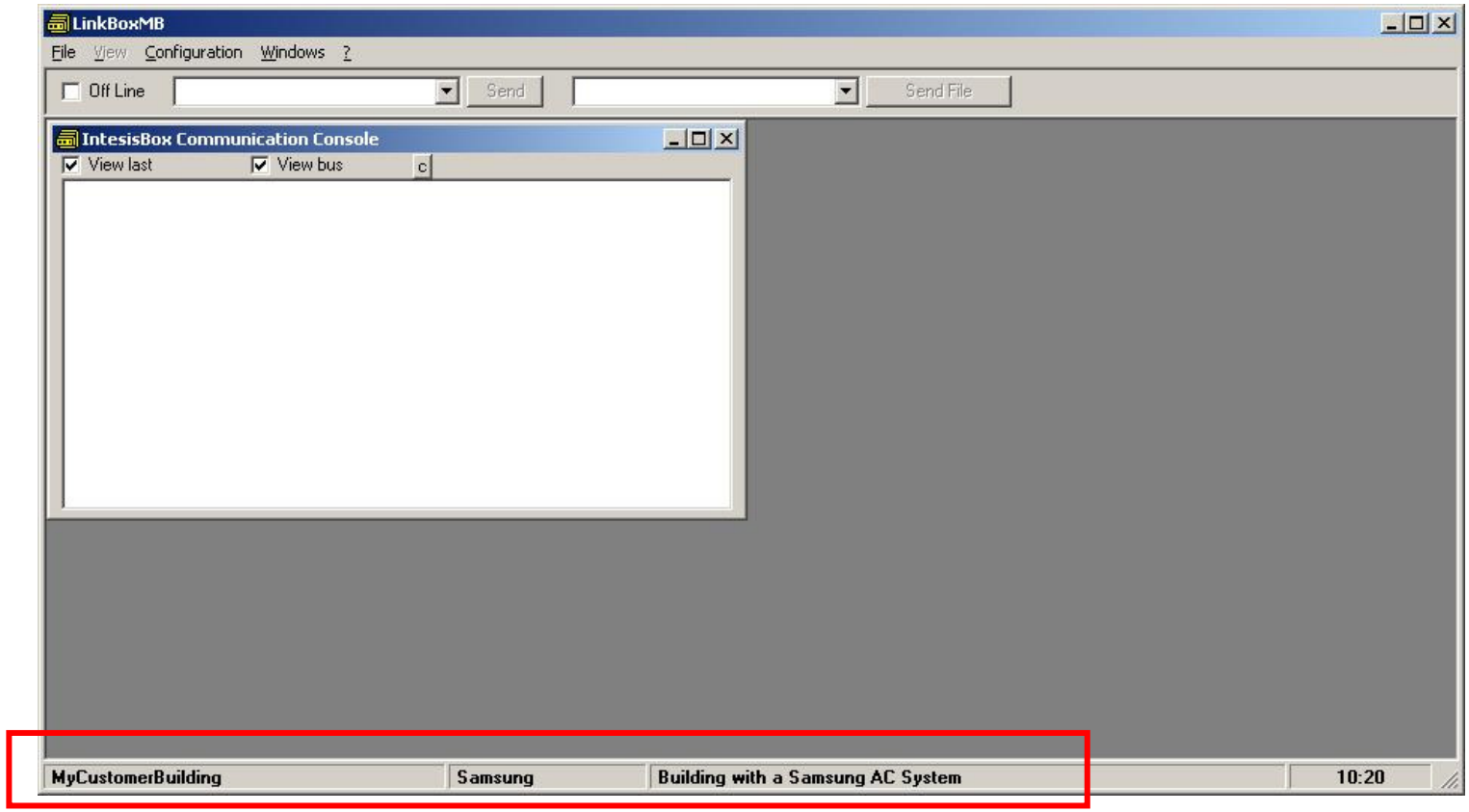




LinkBox common tasks



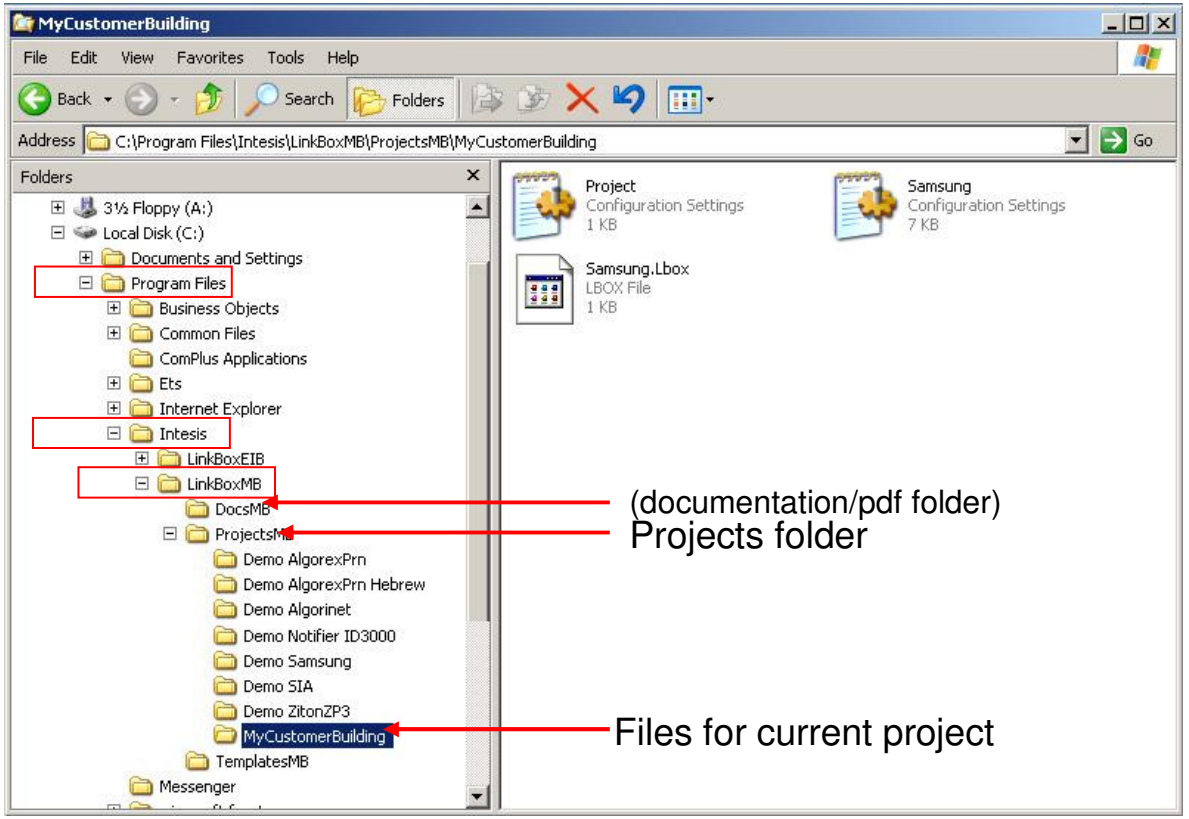
LinkBox common tasks



Current project

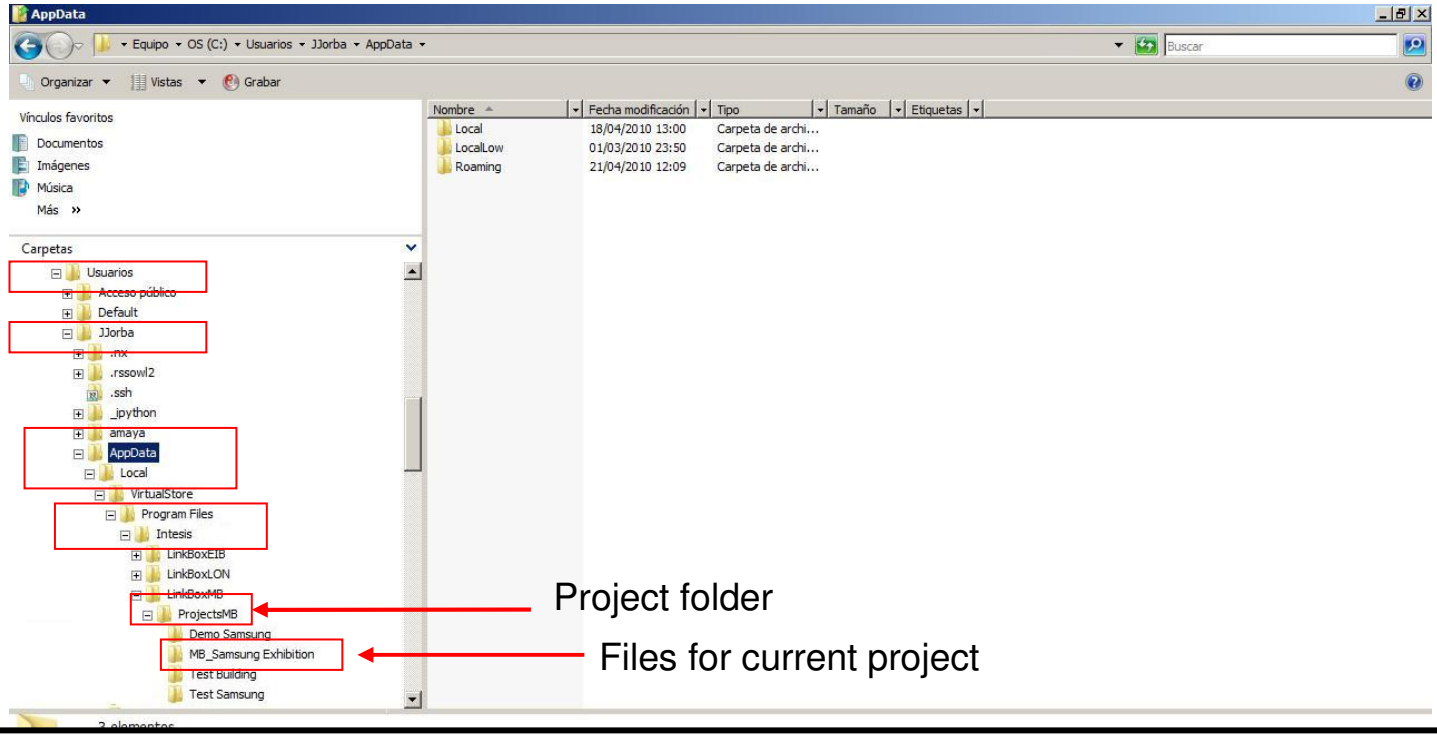
LinkBox common tasks

Project files location in Windows XP



LinkBox common tasks

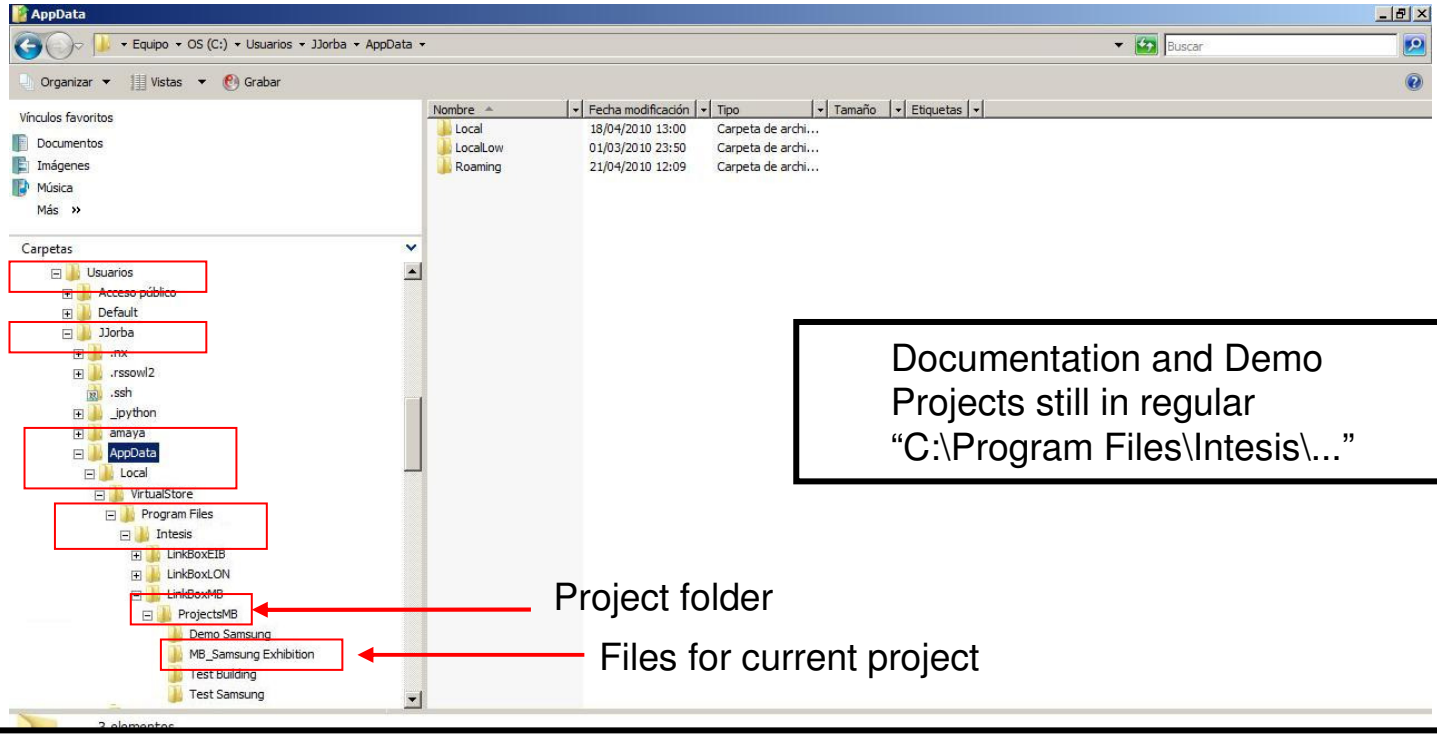
Project files location in Windows Vista or 7



C:\Users\<<your account>>\AppData\Local\VirtualStore\Program Files\Intesis\LinkBoxMB

LinkBox common tasks

Project files location in Windows Vista or 7

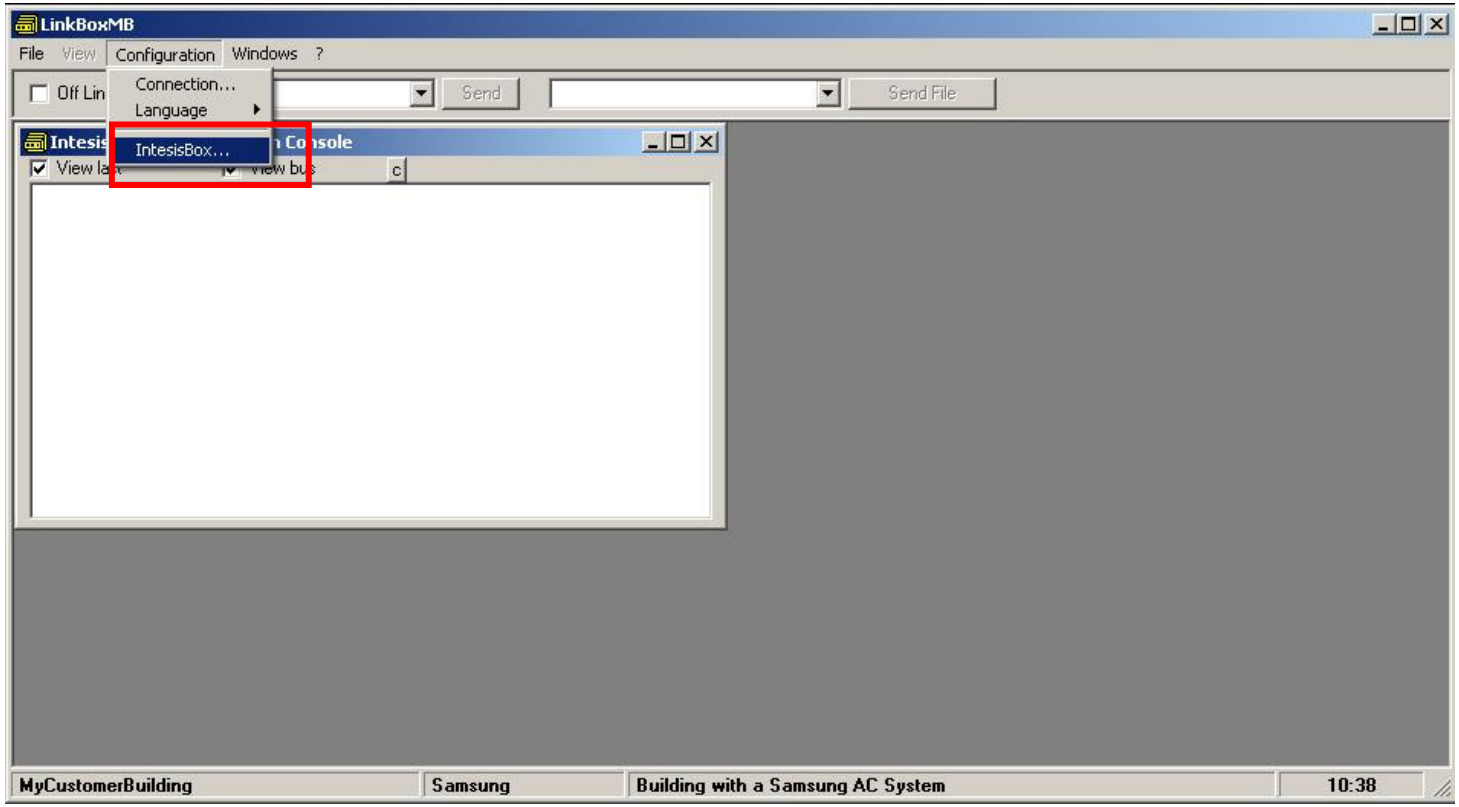


Documentation and Demo Projects still in regular "C:\Program Files\Intesis\..."

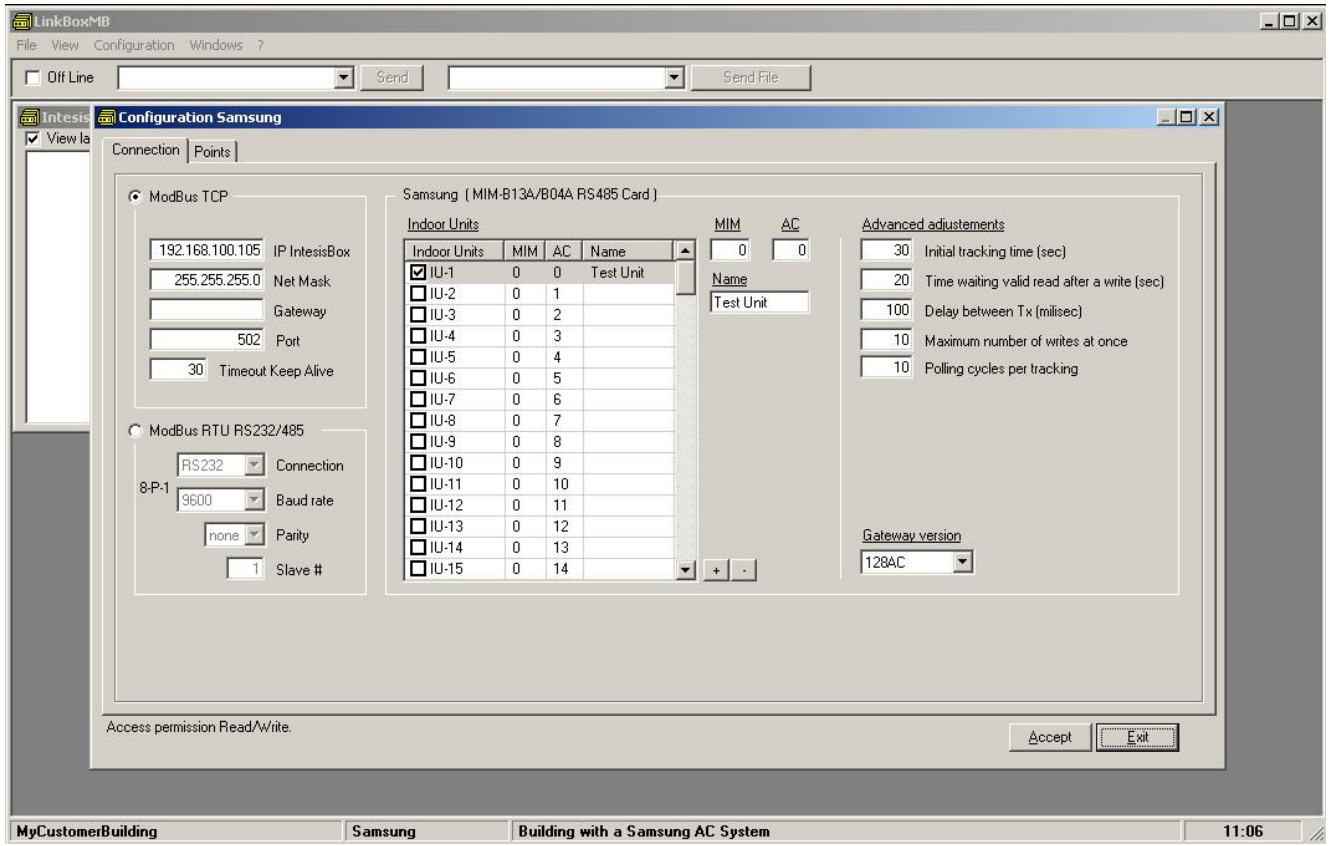
C:\Users\<<your account>>\AppData\Local\VirtualStore\Program Files\Intesis\LinkBoxMB

LinkBox common tasks

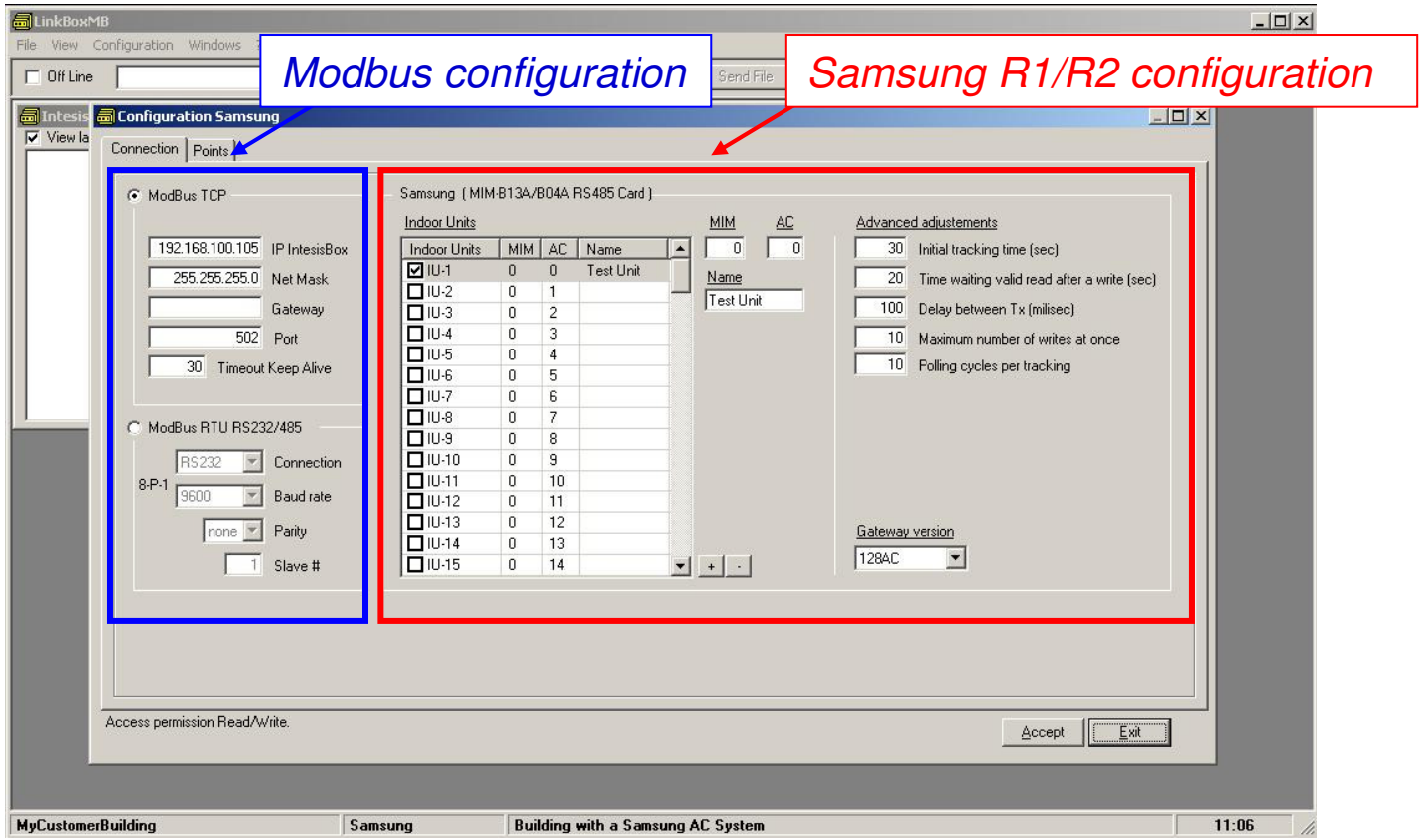
Opening configuration editor window…



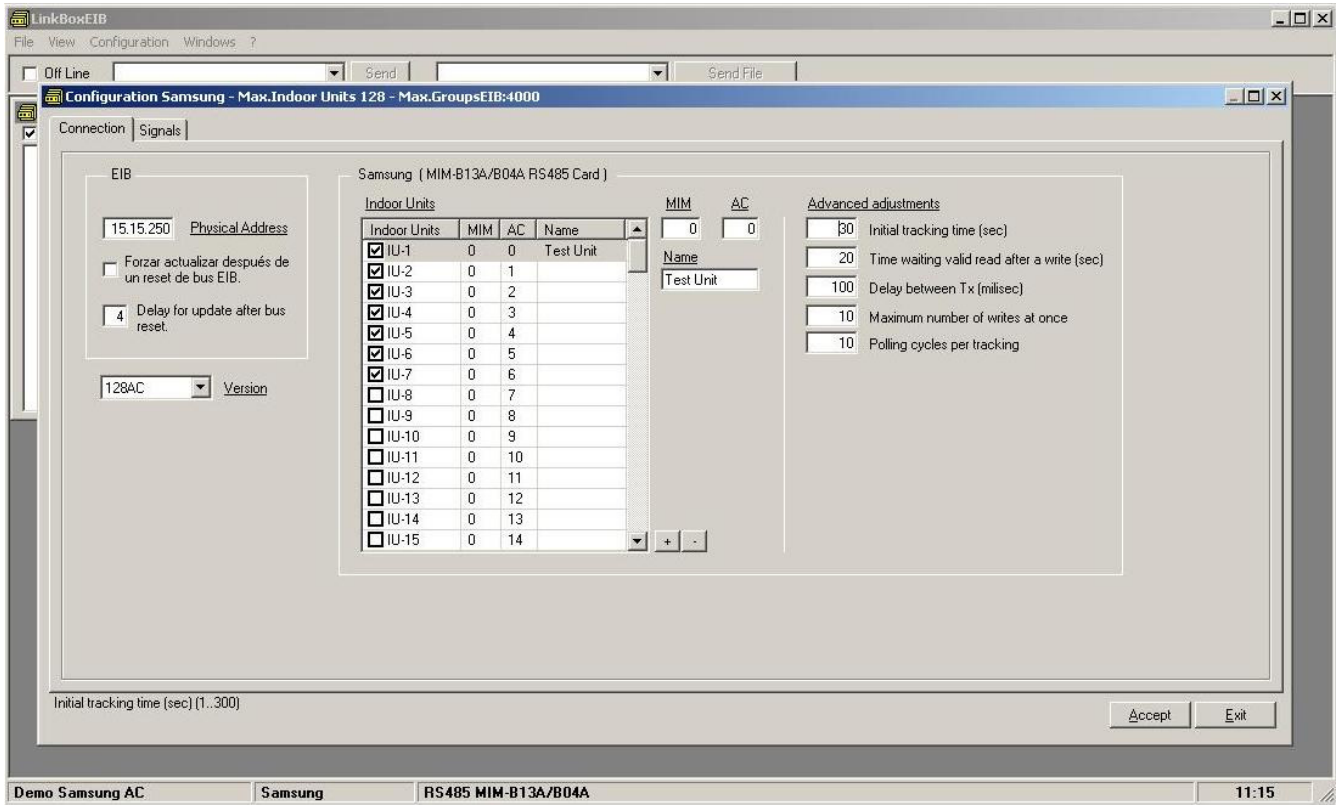
LinkBoxMB configuration window



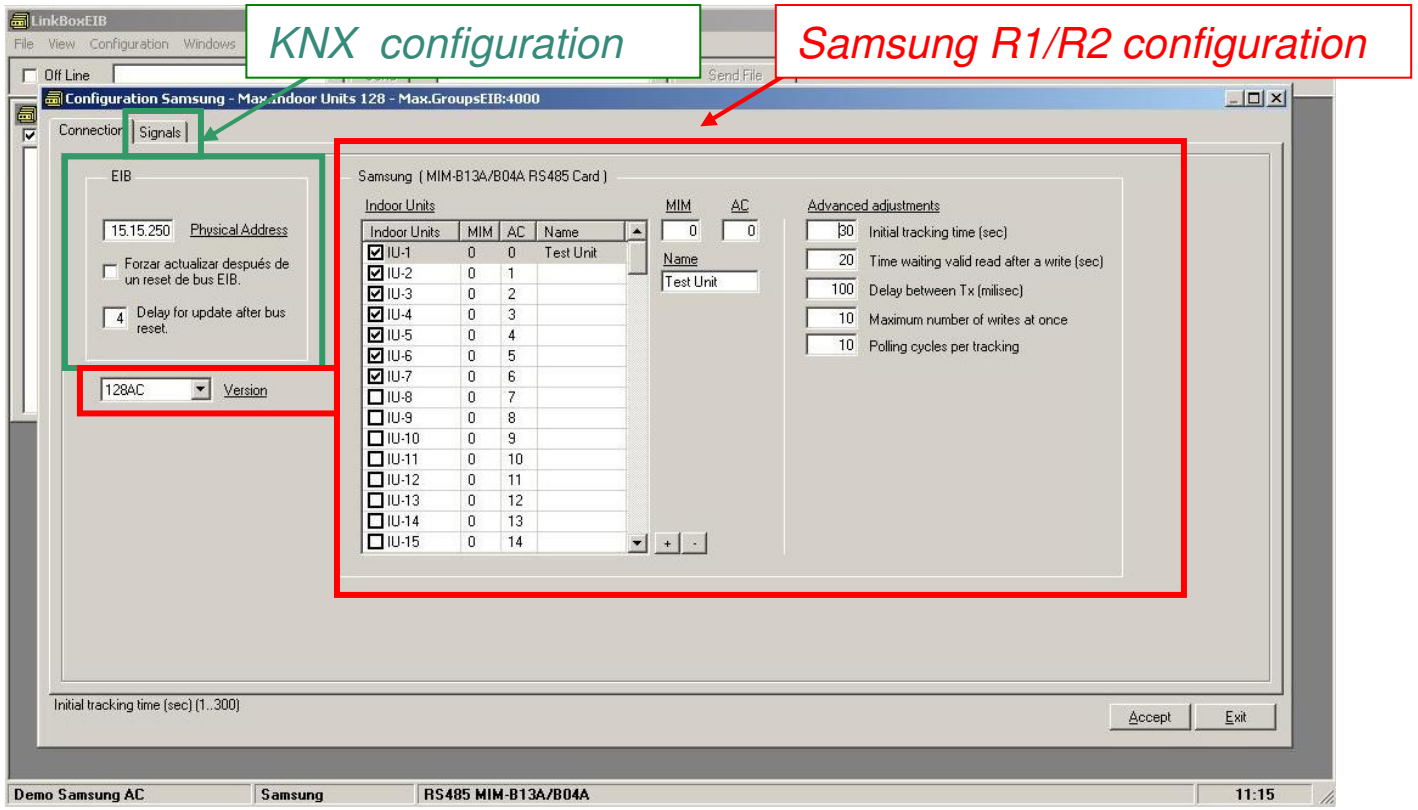
LinkBoxMB configuration window



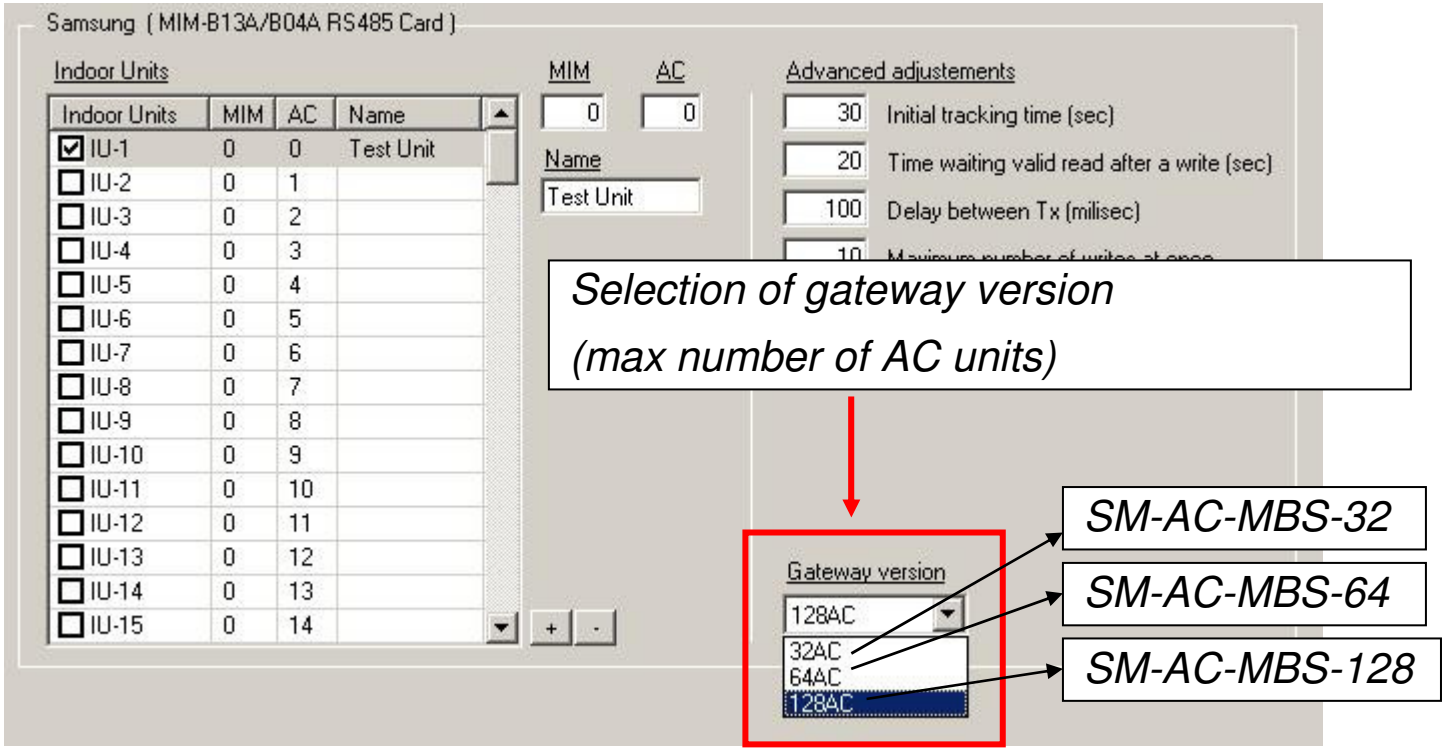
LinkBoxEIB configuration window



LinkBoxEIB configuration window

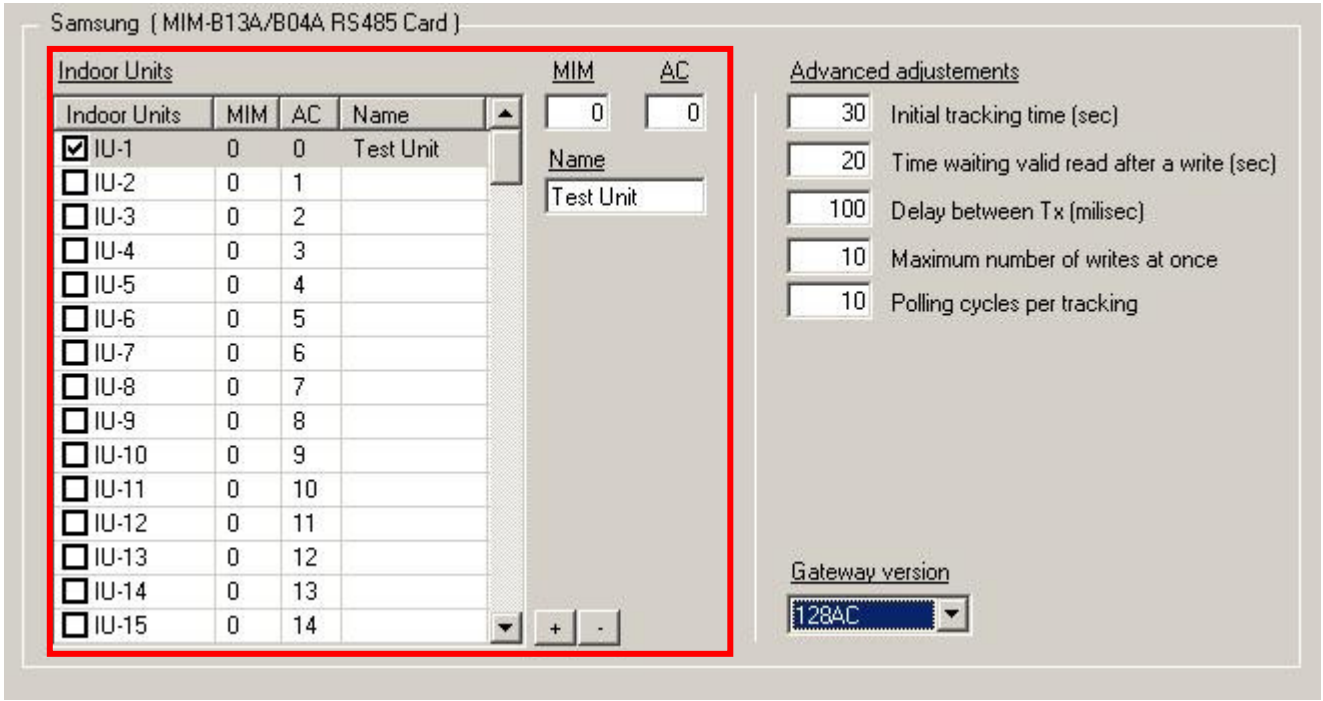


SM-AC-*XXX* model selection in config



Information that Samsung AC installer needs to provide

- MIM addresses (0..15)
- AC Unit Main Addresses (0..63) attached to each MIM / outdoor unit



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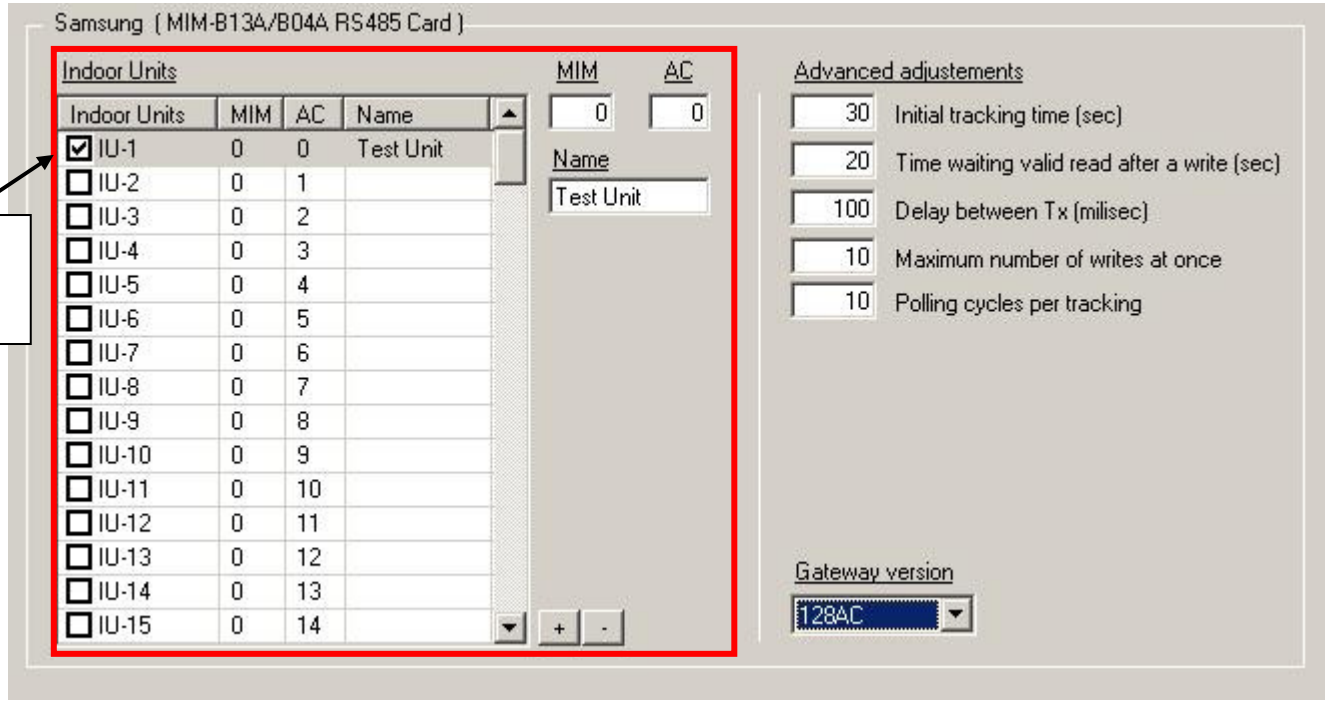
Enable/disable AC unit in config



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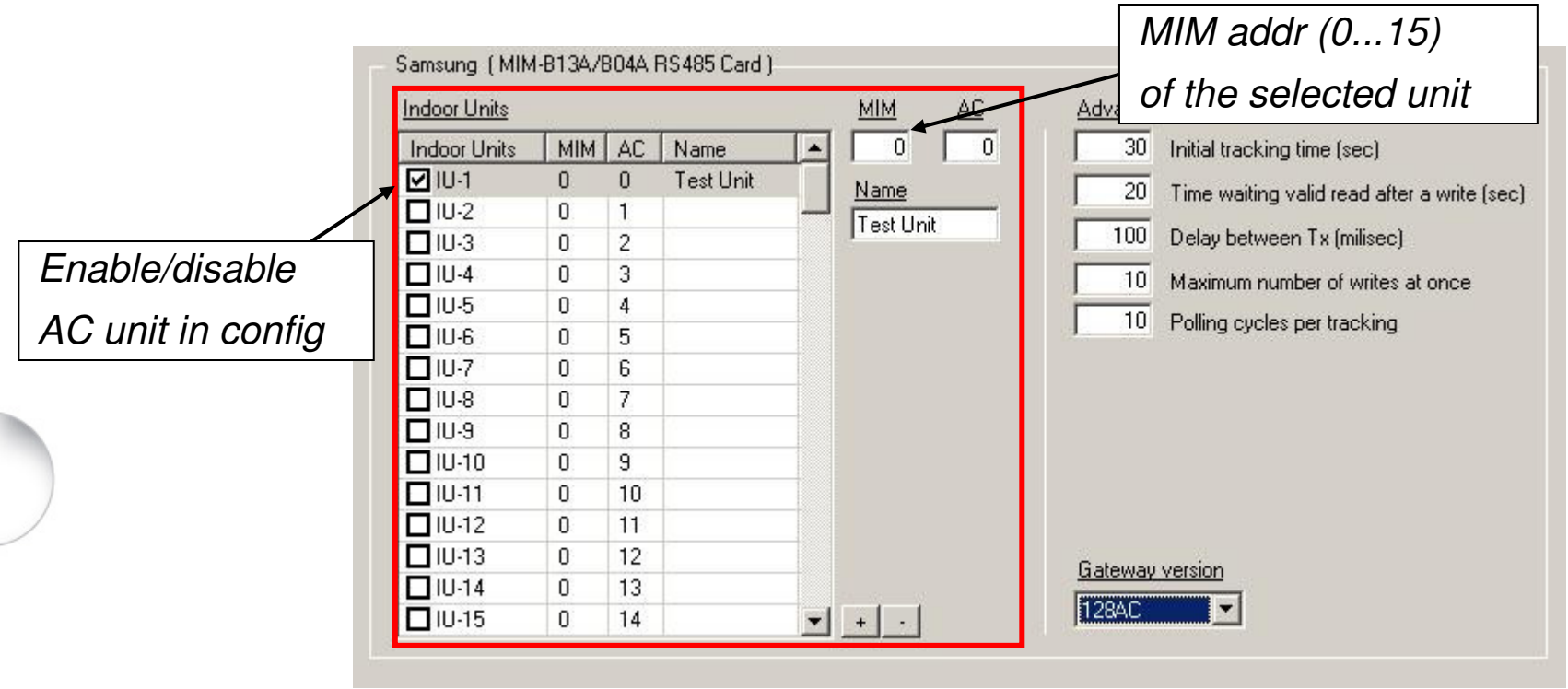

Information that Samsung AC installer needs to provide

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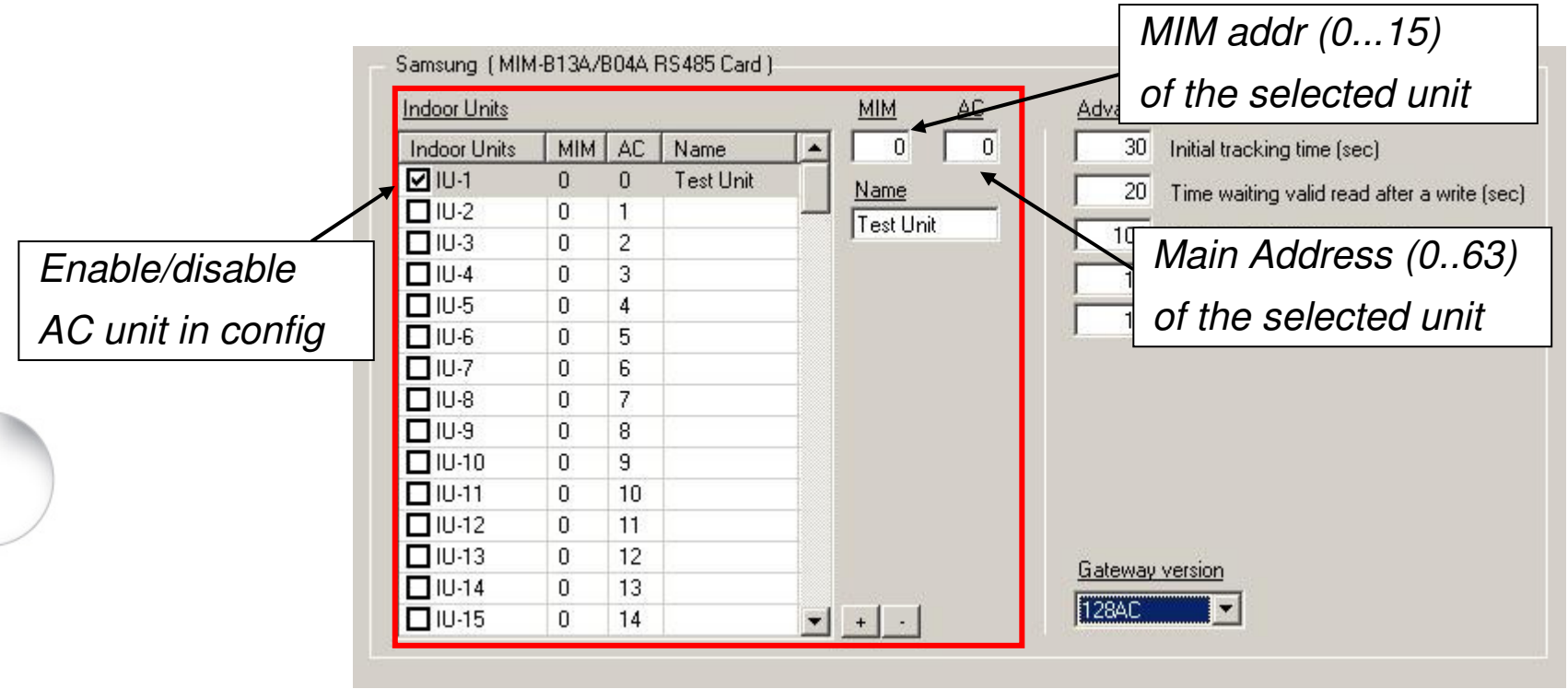

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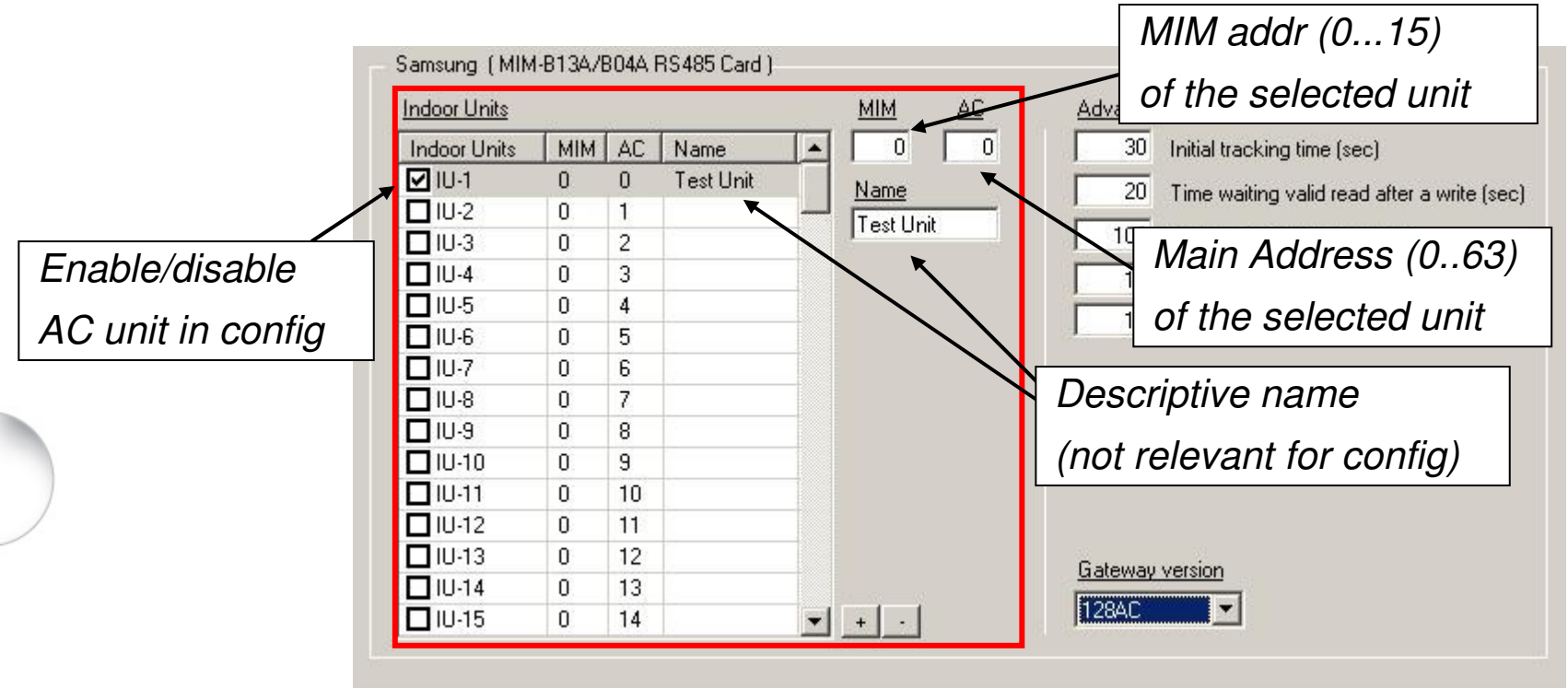

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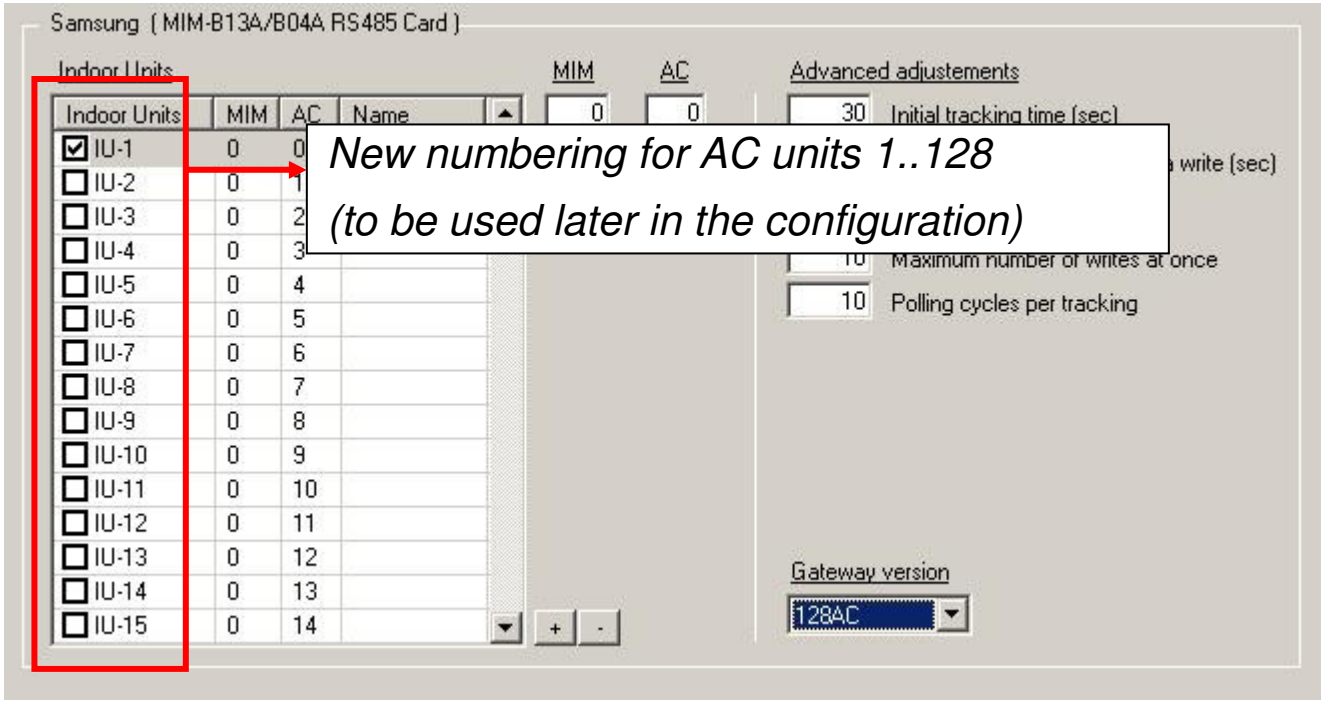
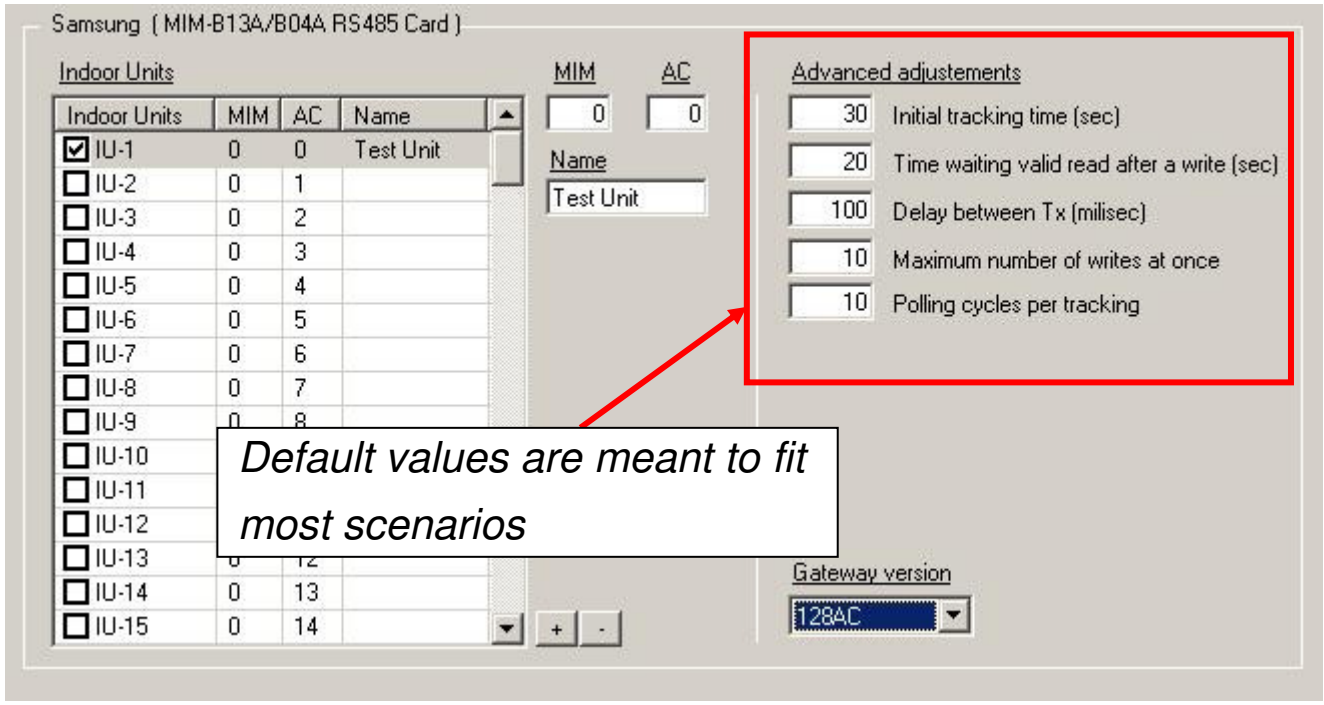
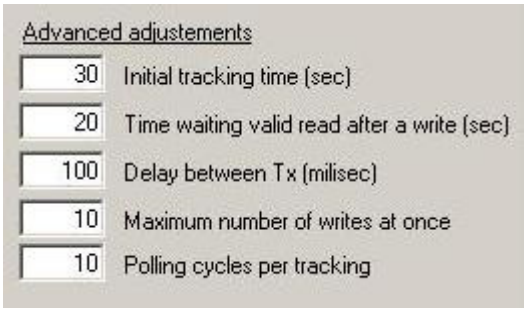


Advanced config parameters for R1/R2



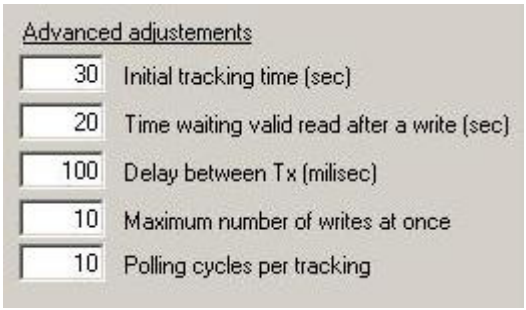
Advanced config parameters for R1/R2

- Initial tracking time (s)
  - *Time performing discovery of MIM devices at start-up*
- Time waiting a valid read after a write (s)
  - *After sending a parameter change to an AC from IntesisBox, during this time, the AC status will be ignored (waiting for the parameter to take effect)*
- Delay between Tx (ms)
  - *Minimum delay between a RX and a TX frame in R1/R2 / minimum bus idle time*

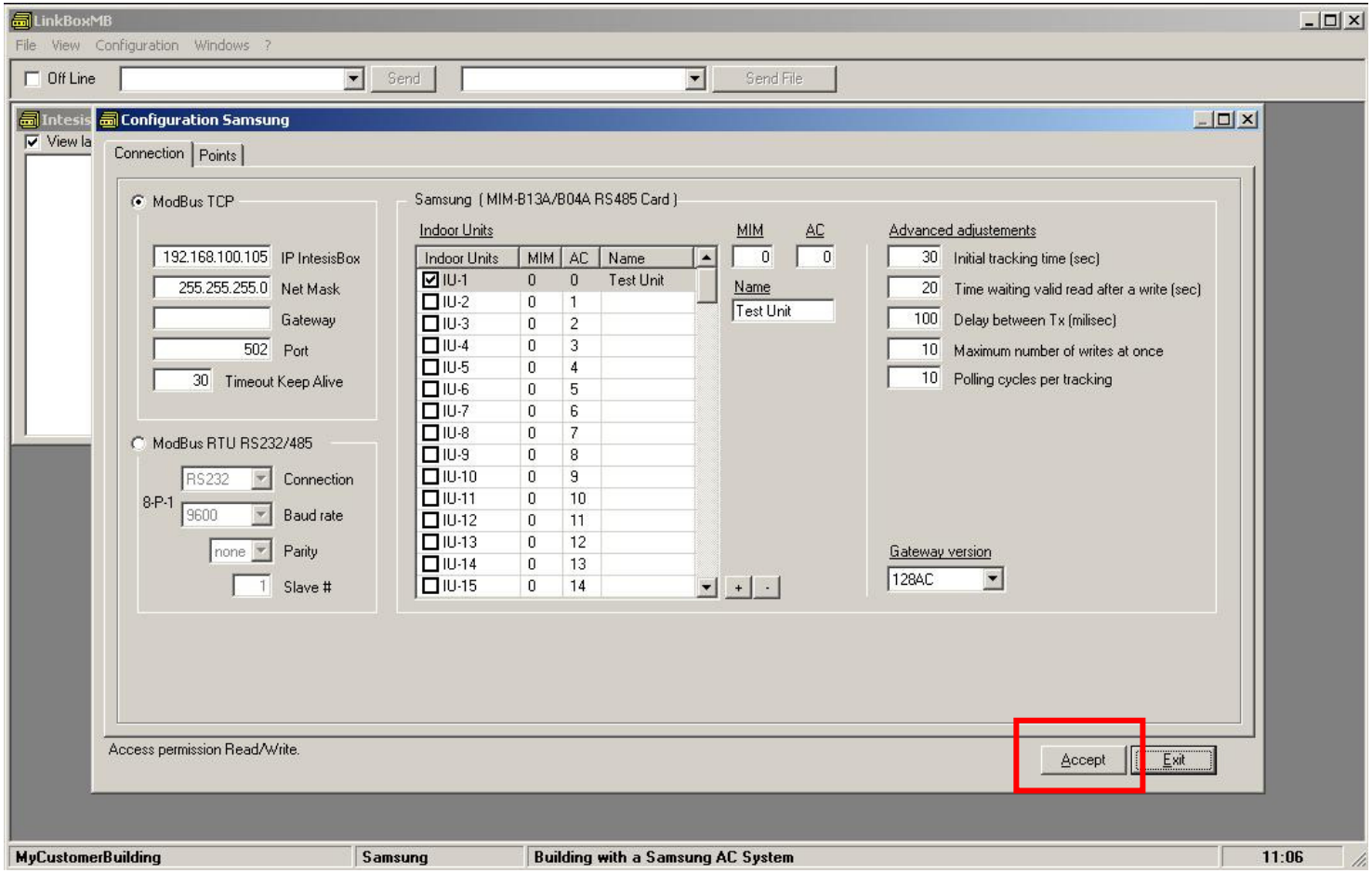


Advanced config parameters for R1/R2

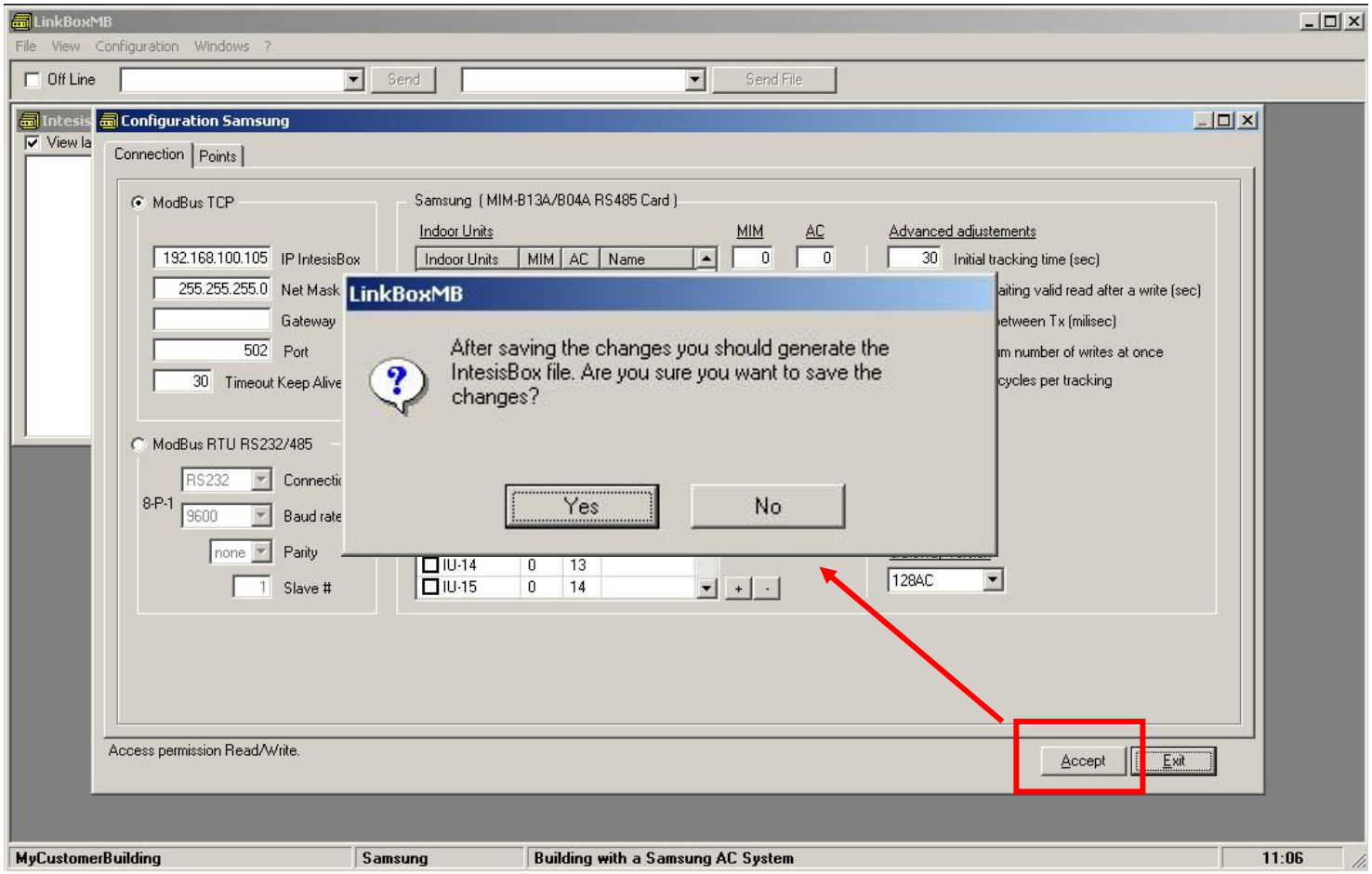
- Maximum number of writes at once
  - *Max number of parameter changes that will be sent to AC units one after the other (to avoid large periods without polling status on large cmd bursts)*
- Polling cycles per tracking
  - *Each N poll cycles, a tracking cycle will be done (for periodic check of MIM status)*



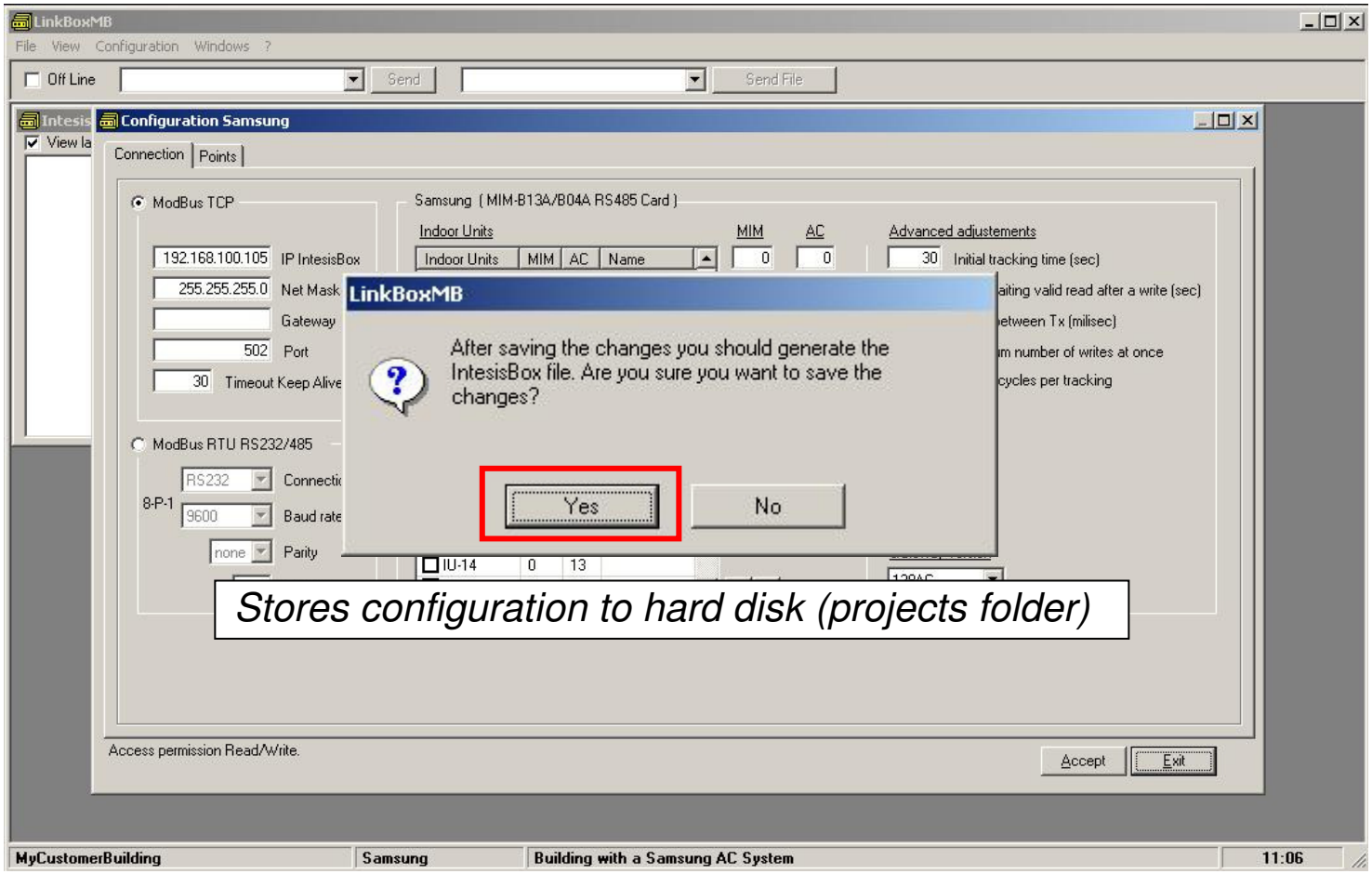
Saving the configuration…



Saving the configuration…

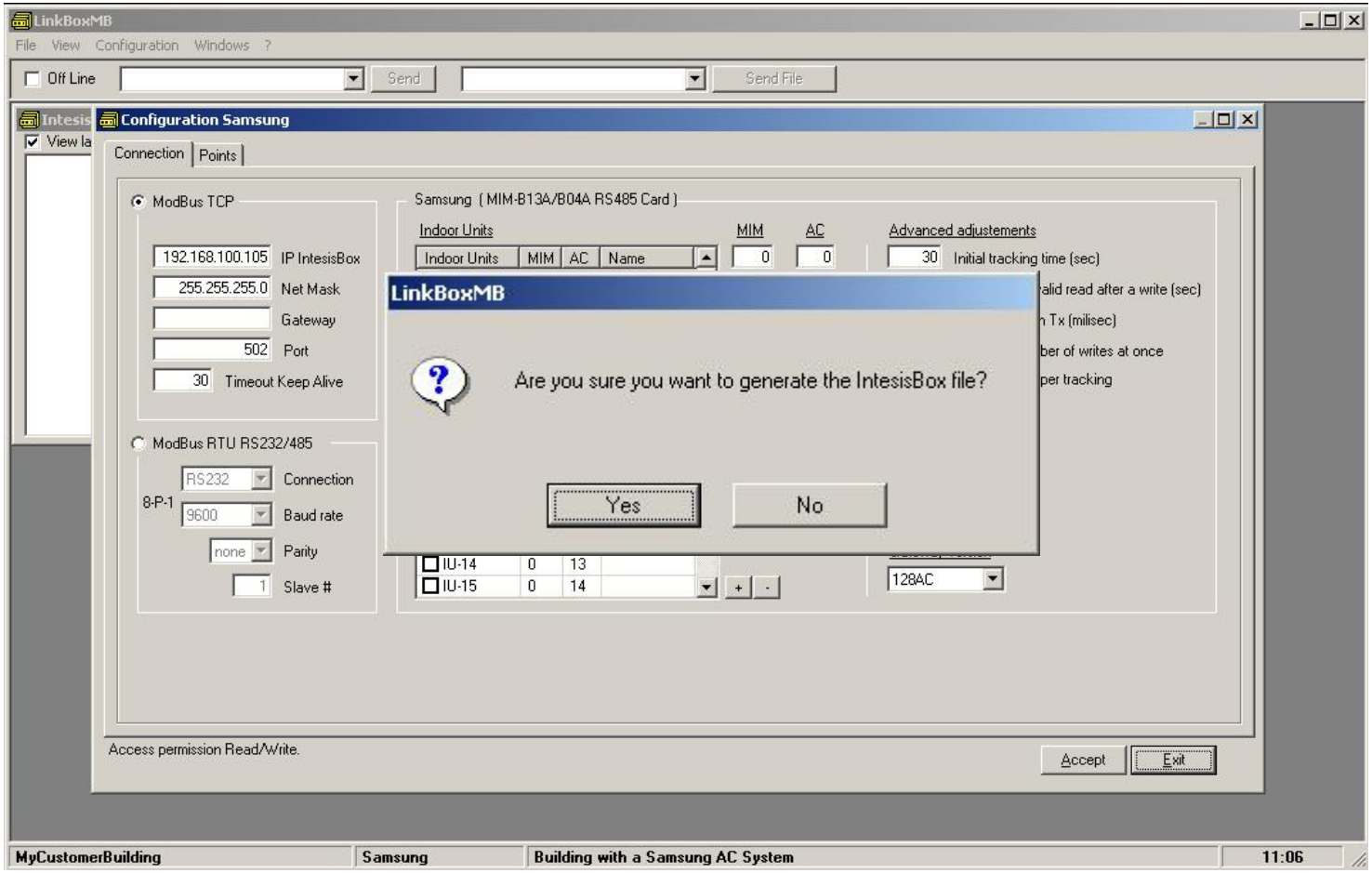


Saving the configuration…

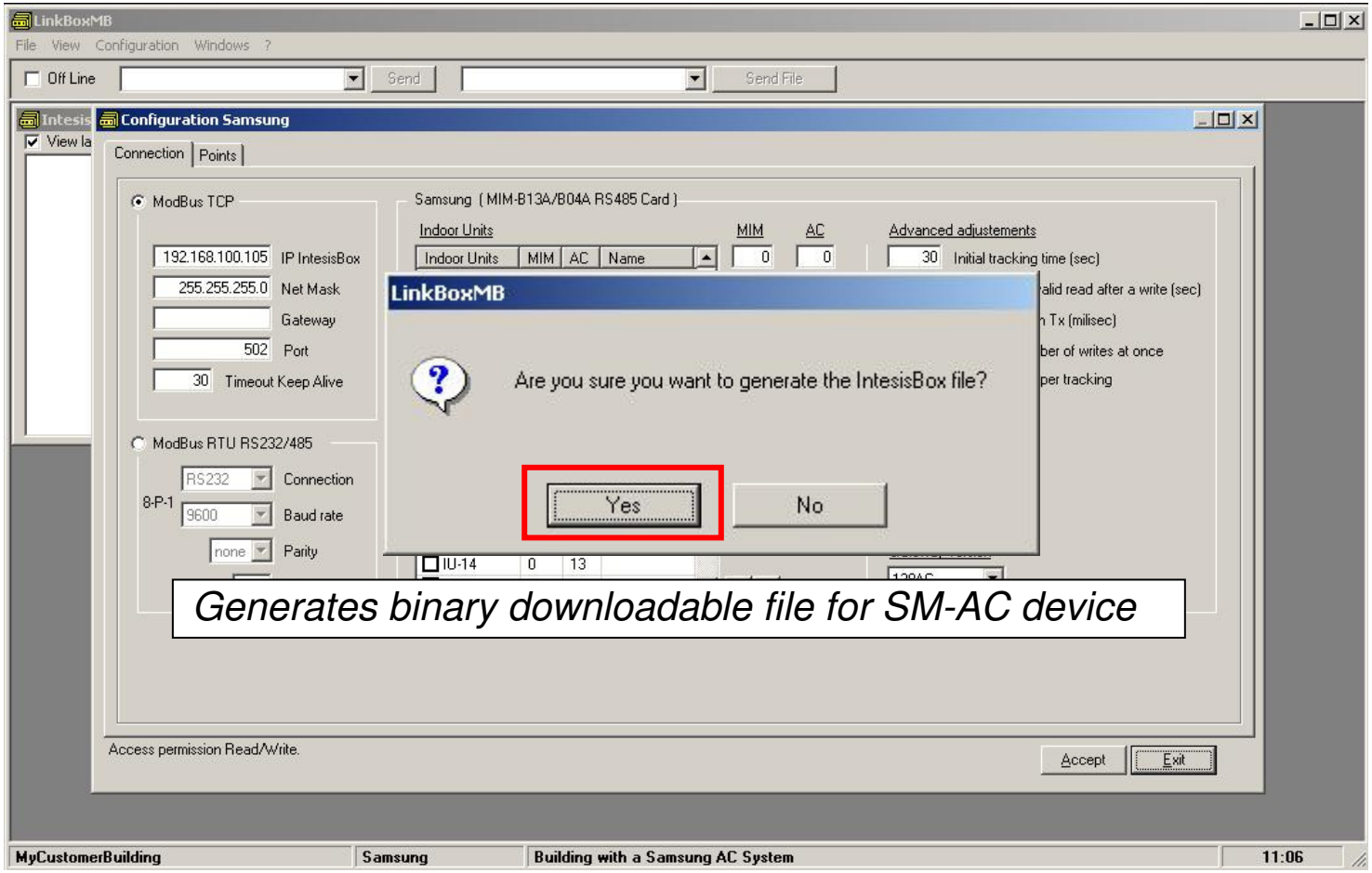


Stores configuration to hard disk (projects folder)

Saving the configuration…

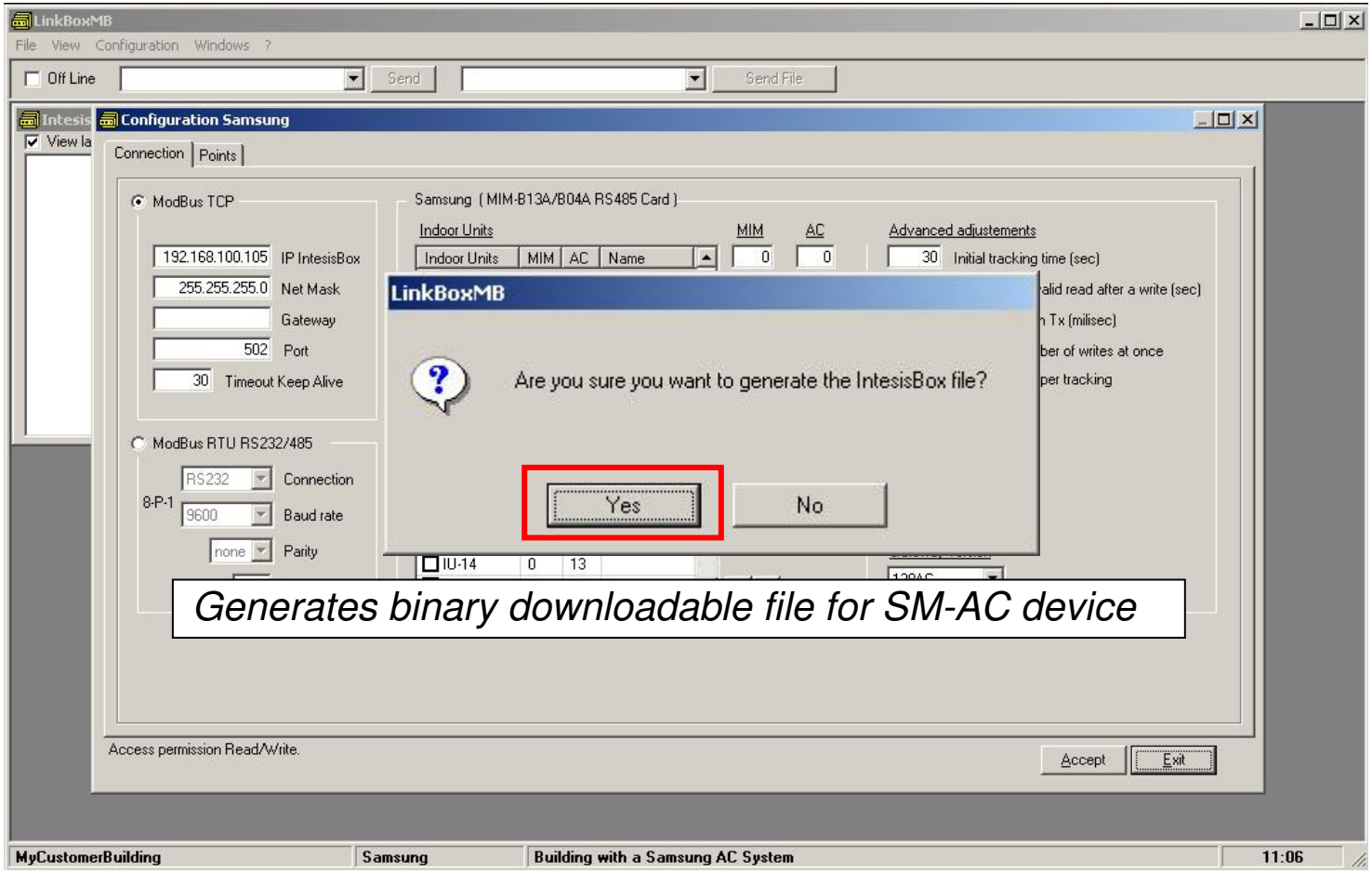


Saving the configuration…



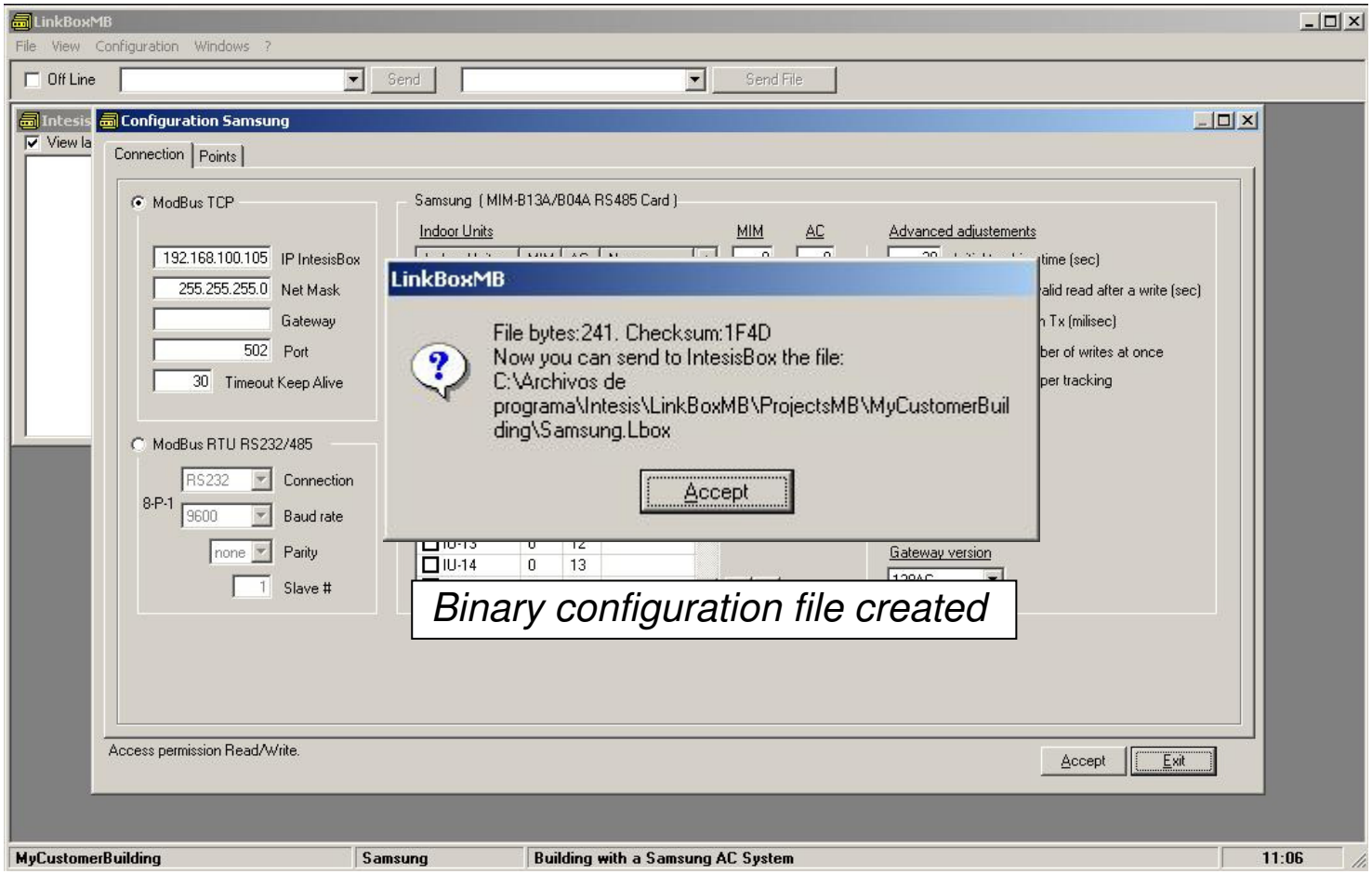
Generates binary downloadable file for SM-AC device

Saving the configuration…

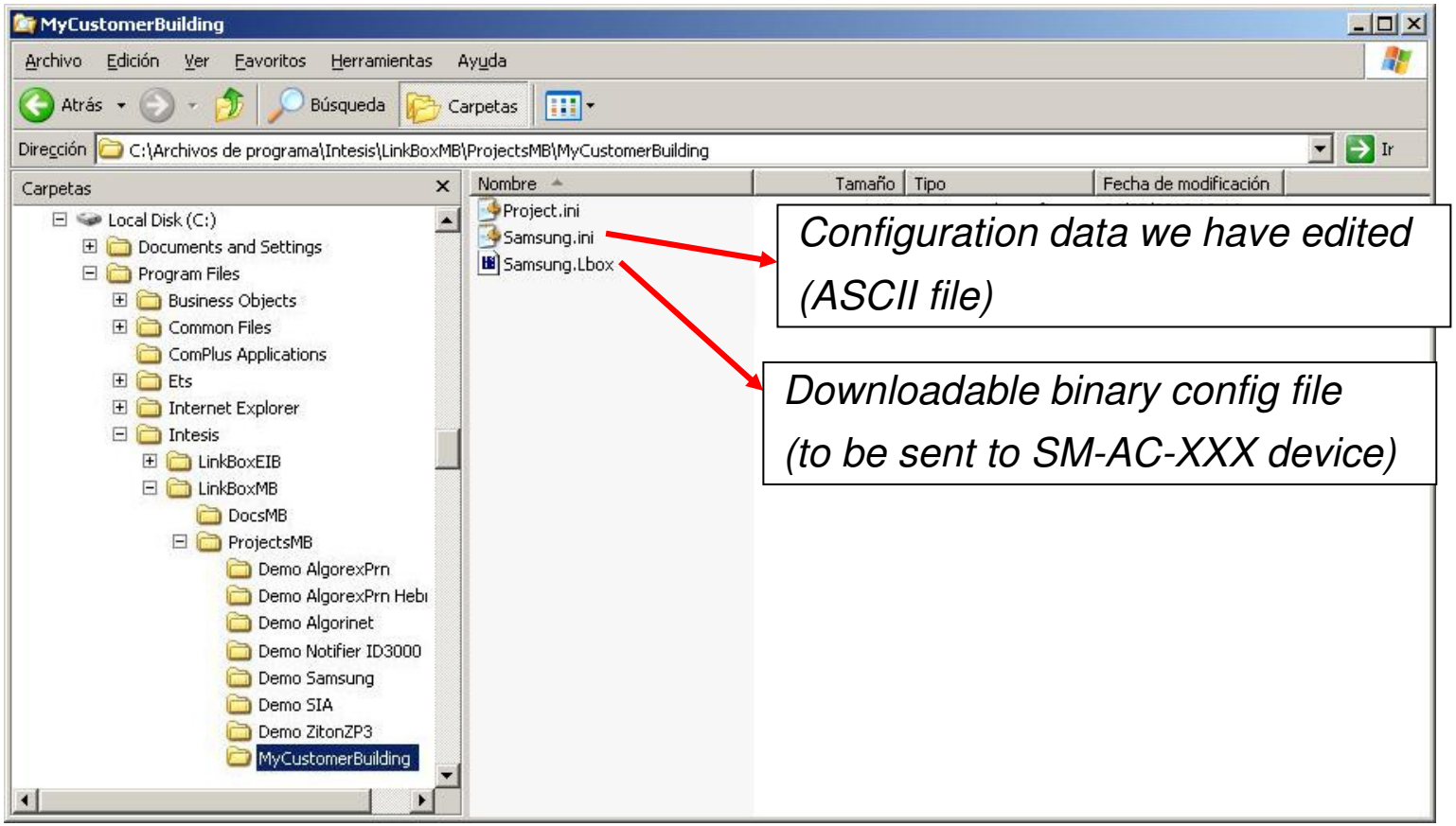


Generates binary downloadable file for SM-AC device

Saving the configuration…

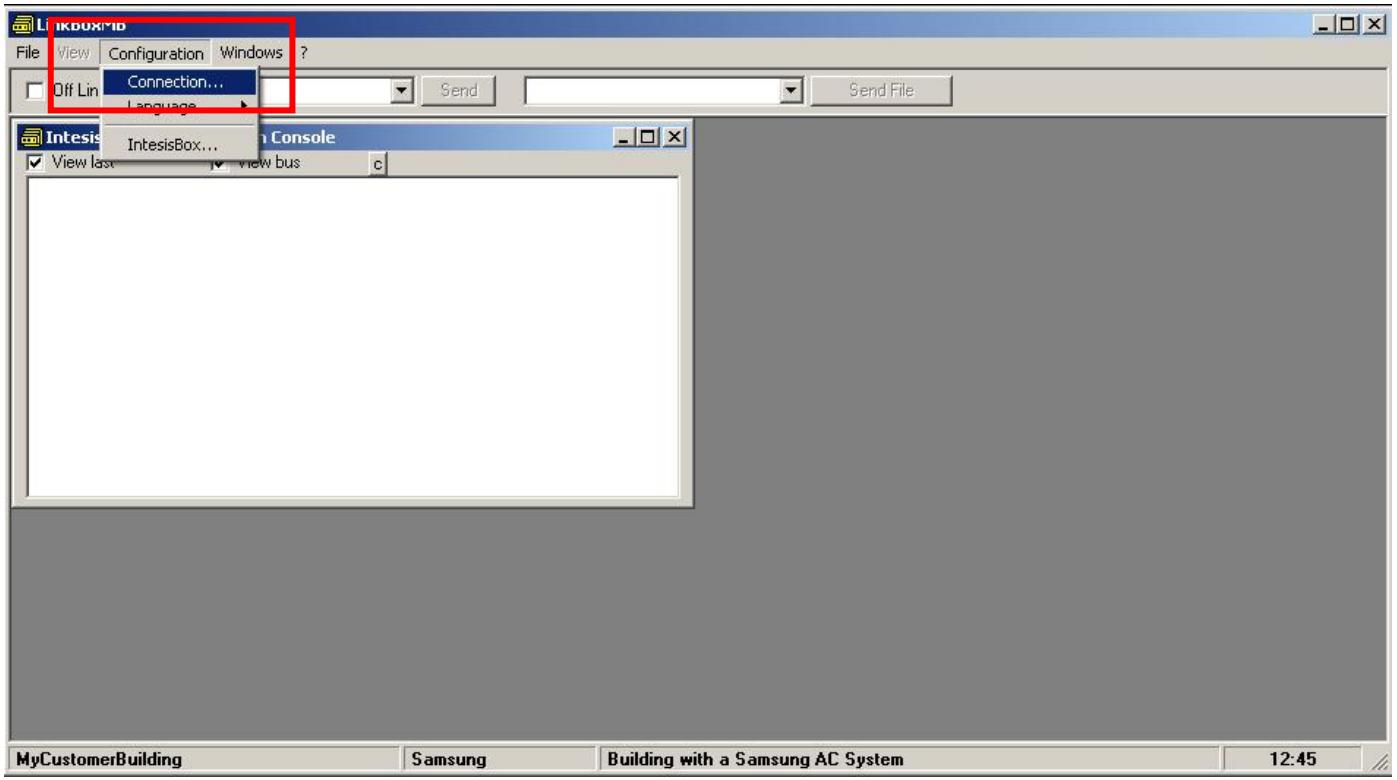


Generated files in the filesystem…



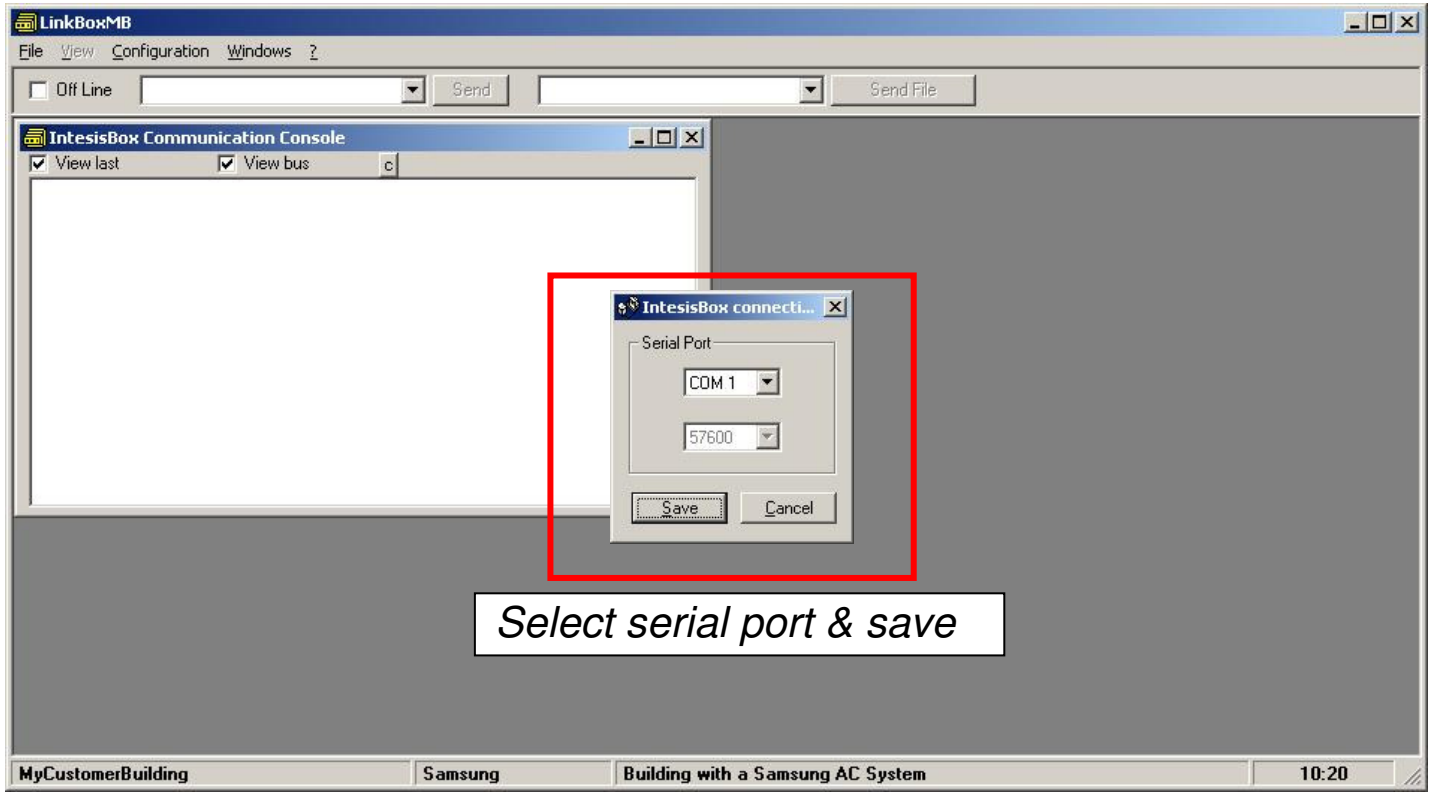
Connecting to SM-AC-XXX device

Serial port setup…



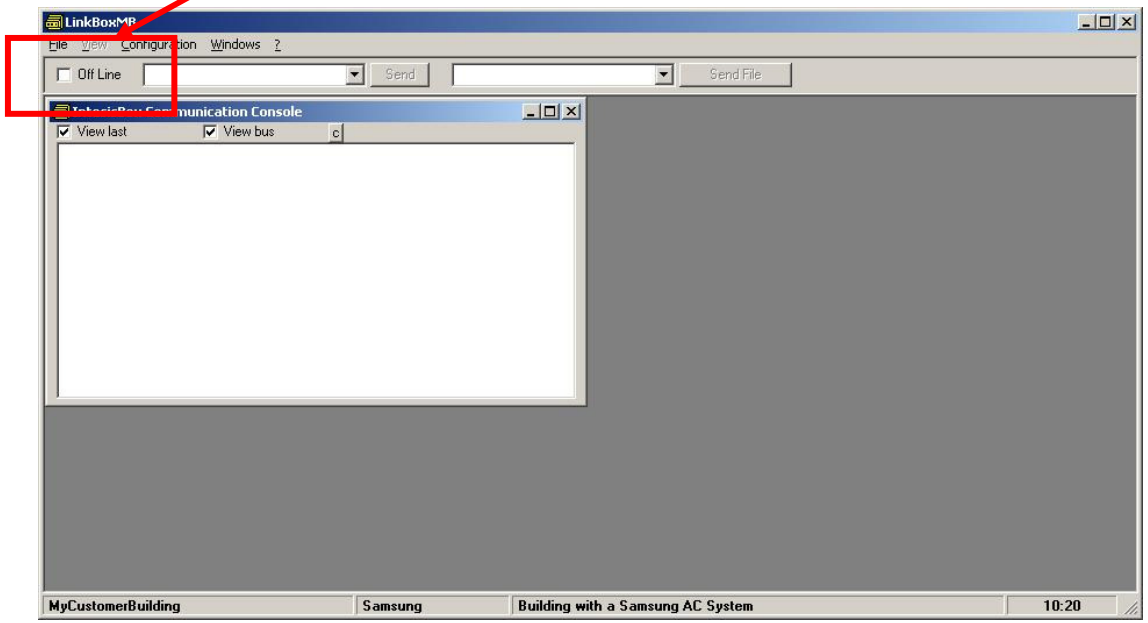
Connecting to SM-AC-XXX device

Serial port setup…



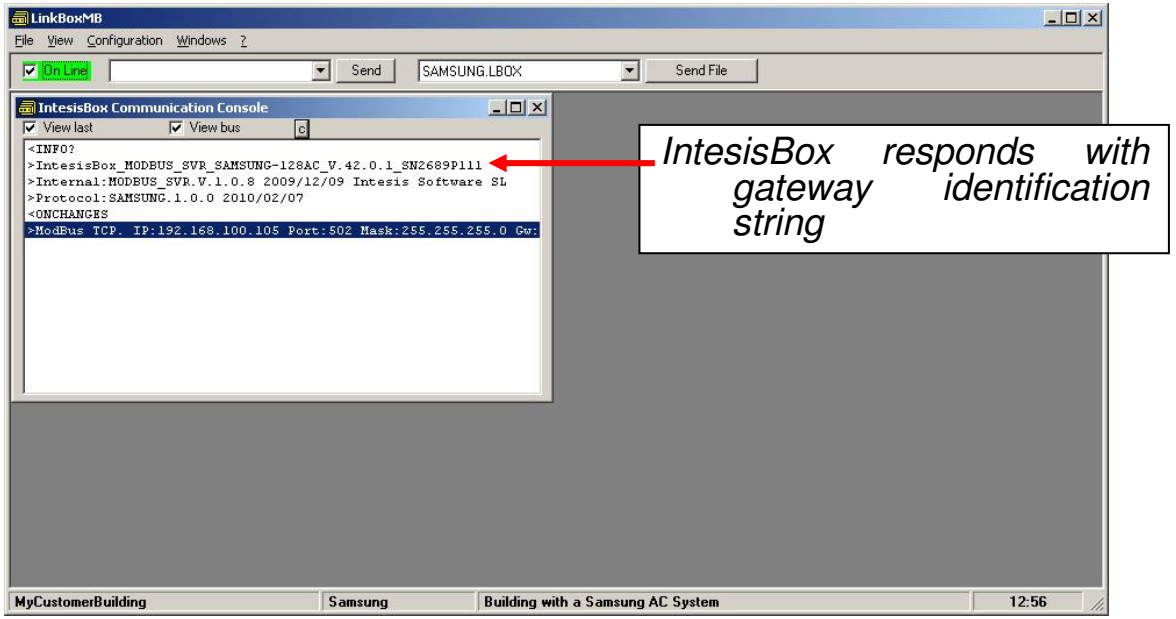
Connecting to SM-AC-XXX device

- *Ensure SM-AC-XXX is powered and connected to PC with the serial cable*
- *Change from "Offline" to "Online"*



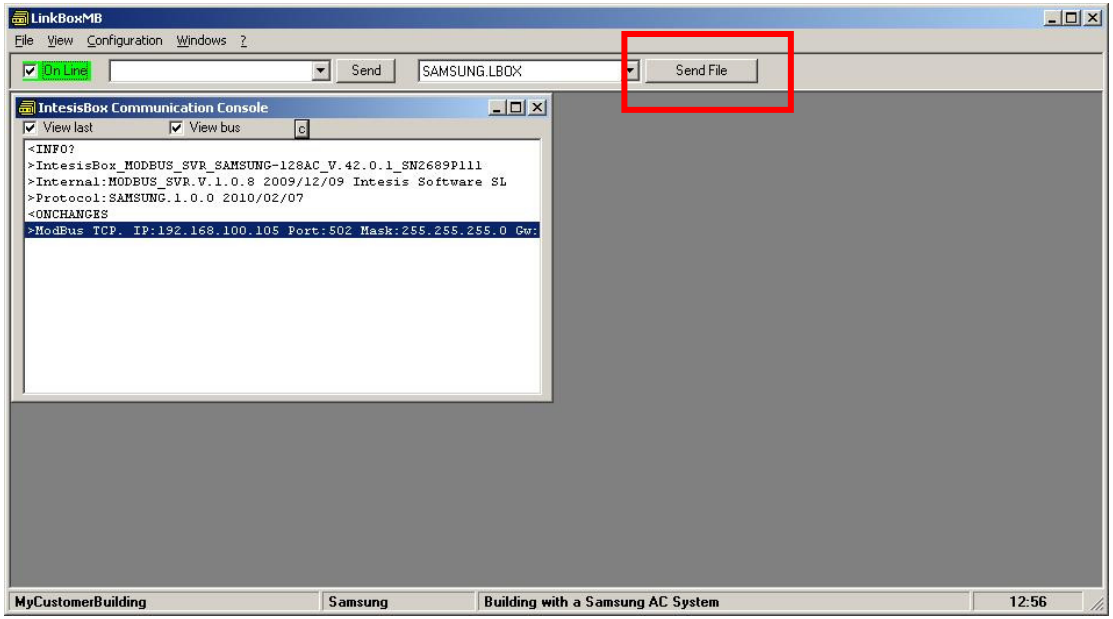
Connecting to SM-AC-XXX device

- *Ensure SM-AC-XXX is powered and connected to PC with the serial cable*
- *Change from "Offline" to "Online"*



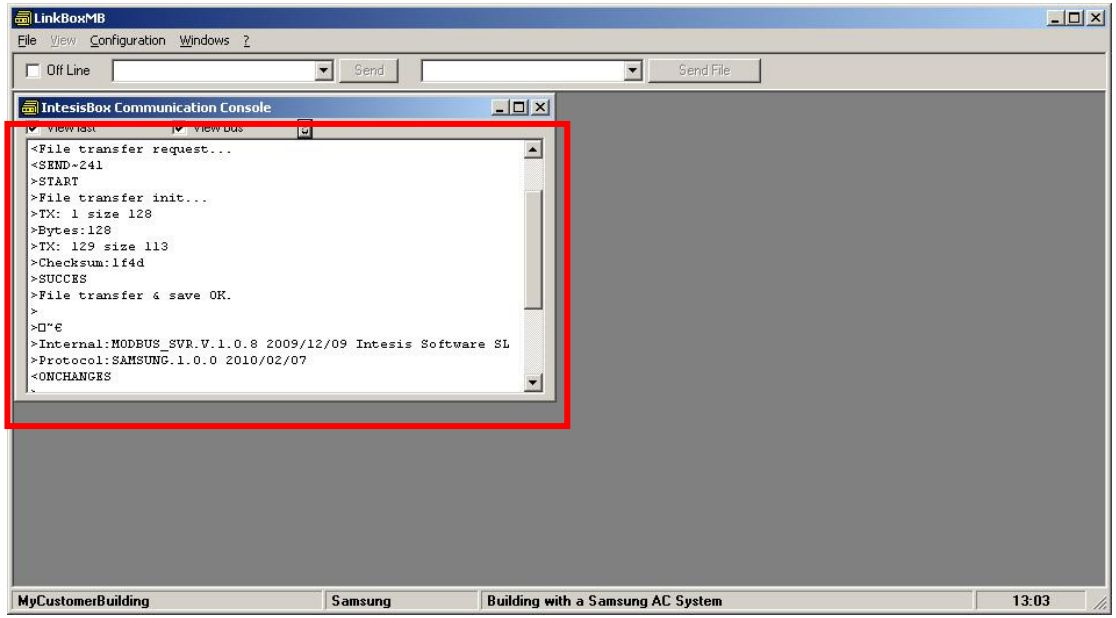
Downloading binary configuration to SM-AC-*XXX*

- *Once "Online", press button "Send File"*
- *Communication Console informs on the download process*
- *Then restarts with the new configuration*

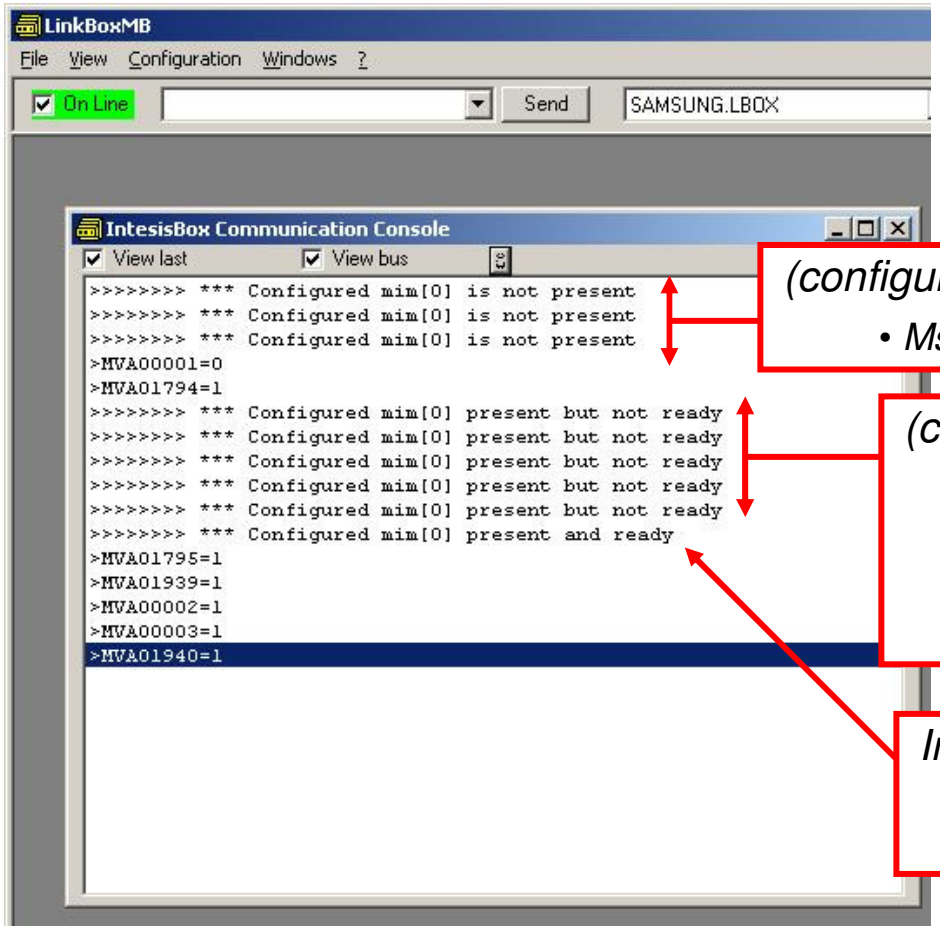


Downloading binary configuration to SM-AC-*XXX*

- *Once "Online", press button "Send File"*
- *Communication Console informs on the download process*
- *Then it will restart with the new configuration*



Monitoring of R1/R2 tracking phase & status



(configured) Interface module not detected

- *Msg shown periodically*

(configured) Interface module detected, but still not ready

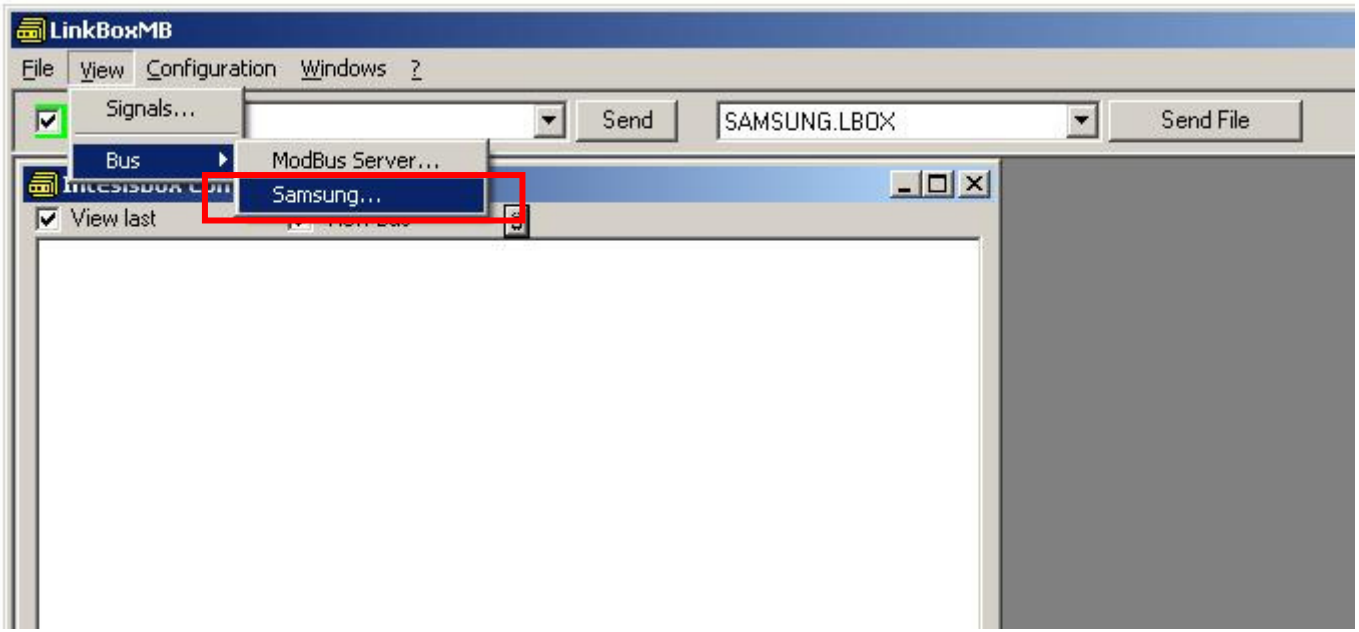
- *Scanning F1/F2 network, or F1/F2 network down*
- *Msg shown periodically*

Interface module detected and ready

- *Now starts monitoring status of AC units under this Interface Module*

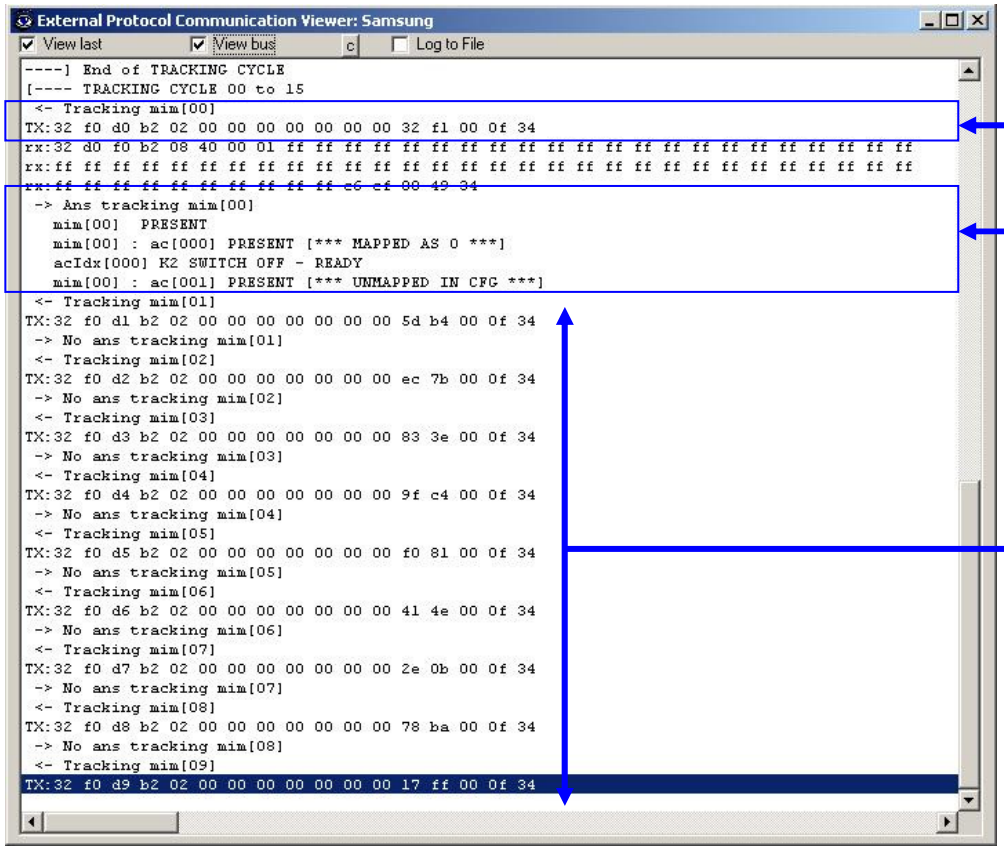
Monitoring of R1/R2 tracking phase & status

Using R1/R2 bus viewer…



Monitoring of R1/R2 tracking phase & status

Using R1/R2 bus viewer…



Tracking request for MIM addr 0

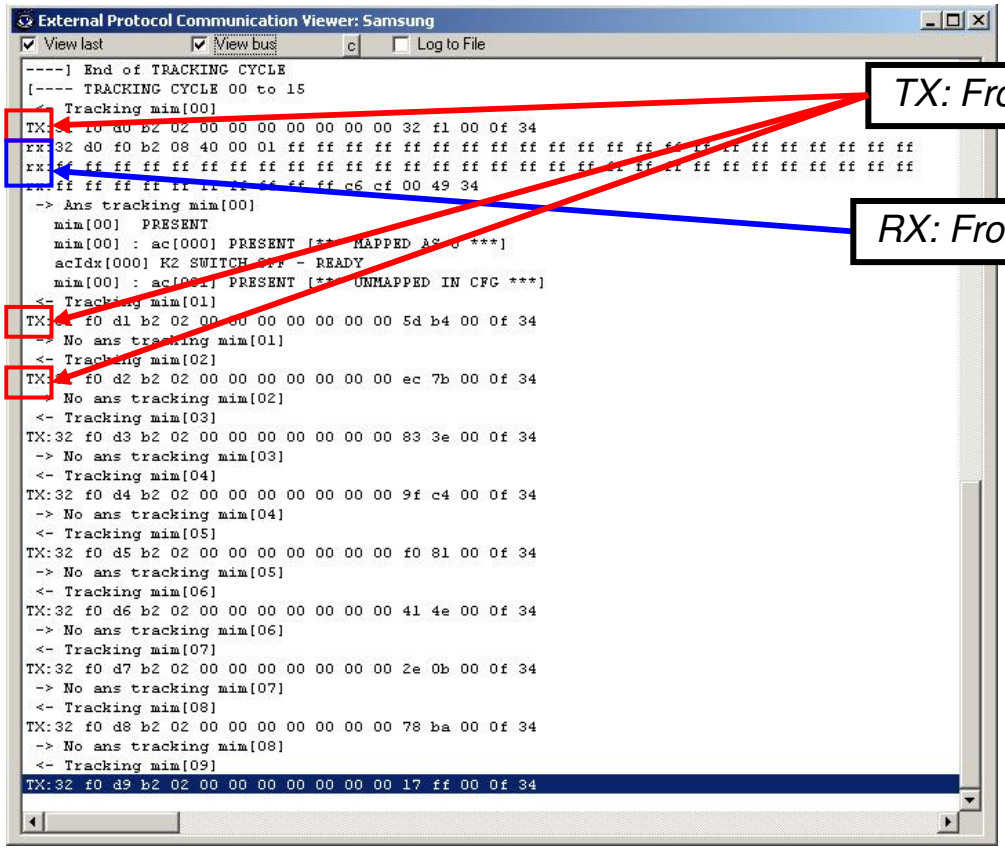
Tracking answer from MIM addr 0

Tracking phase MIM 0 to 15

- *30s during startup or when communication error is detected*

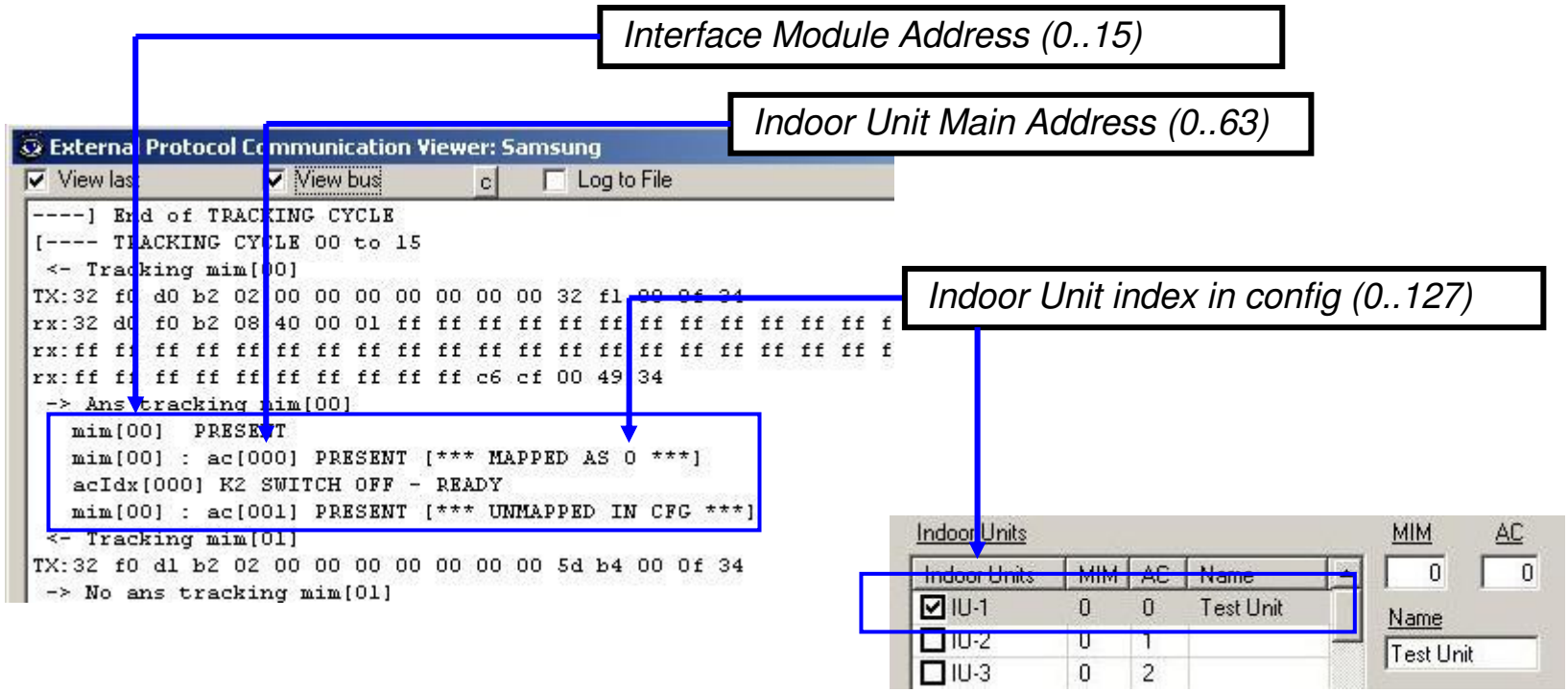
Monitoring of R1/R2 tracking phase & status

Using the R1/R2 bus viewer…



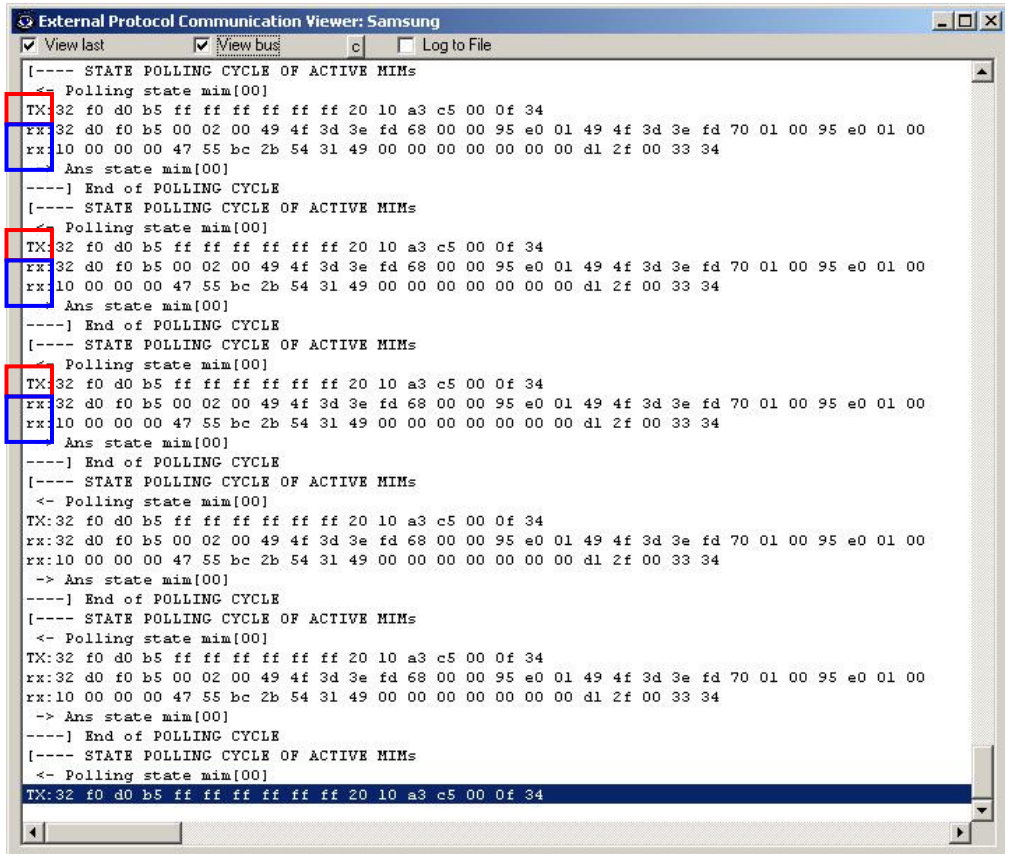
Monitoring of R1/R2 tracking phase & status

Using the R1/R2 bus viewer…



Monitoring of R1/R2 polling phase & status

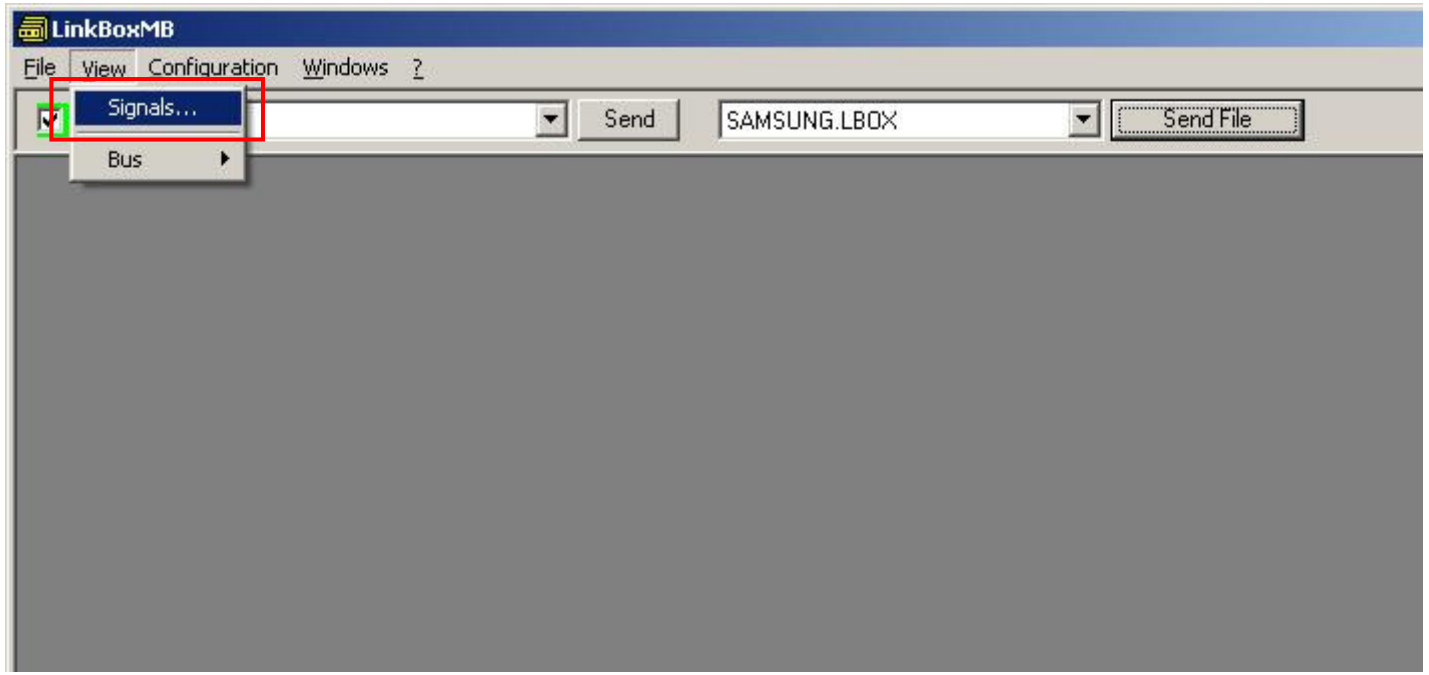
Using the R1/R2 bus viewer…



Continuous polling of AC unit status under the configured (and online) Interface Modules

AC Signals viewer

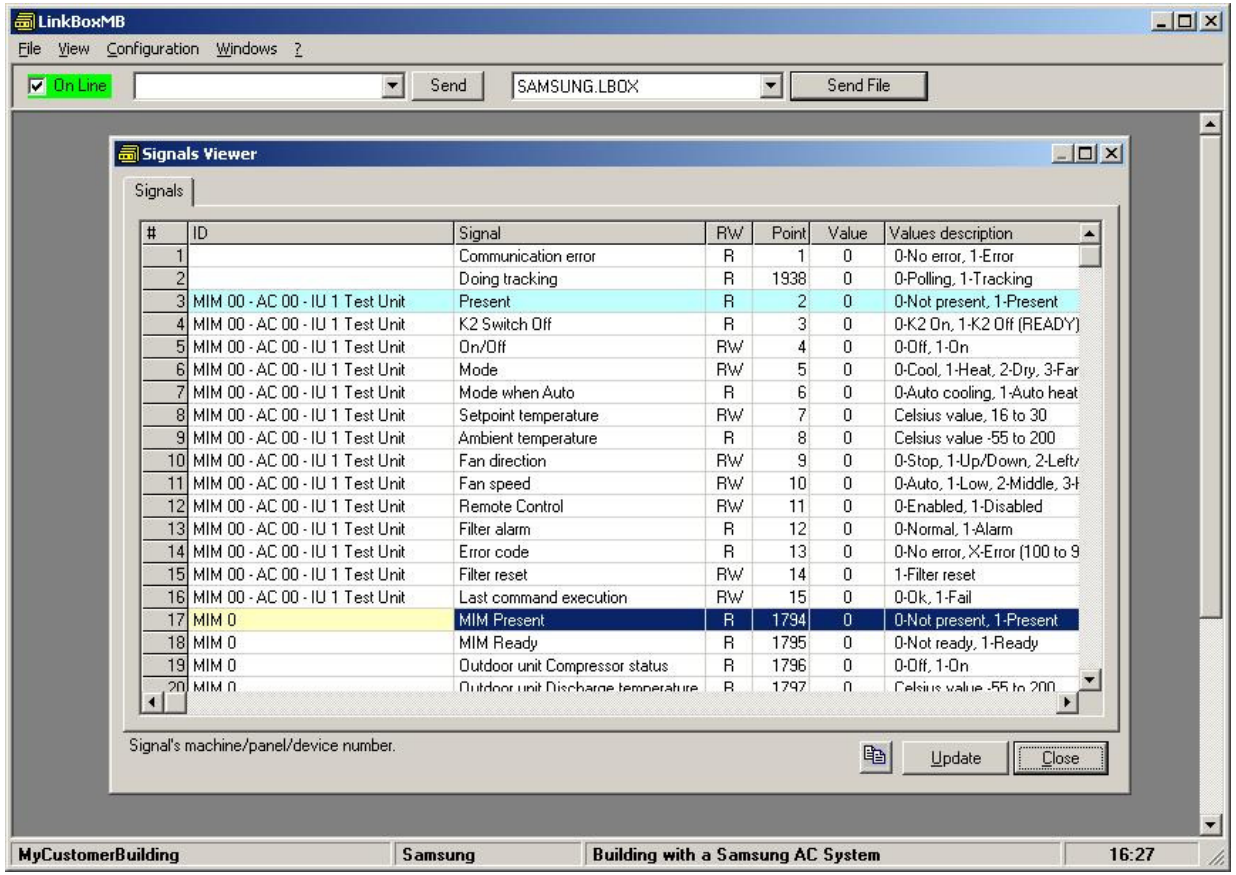
Used for monitoring & control of AC signals values at setup time



(application needs to be in the "Online" status)

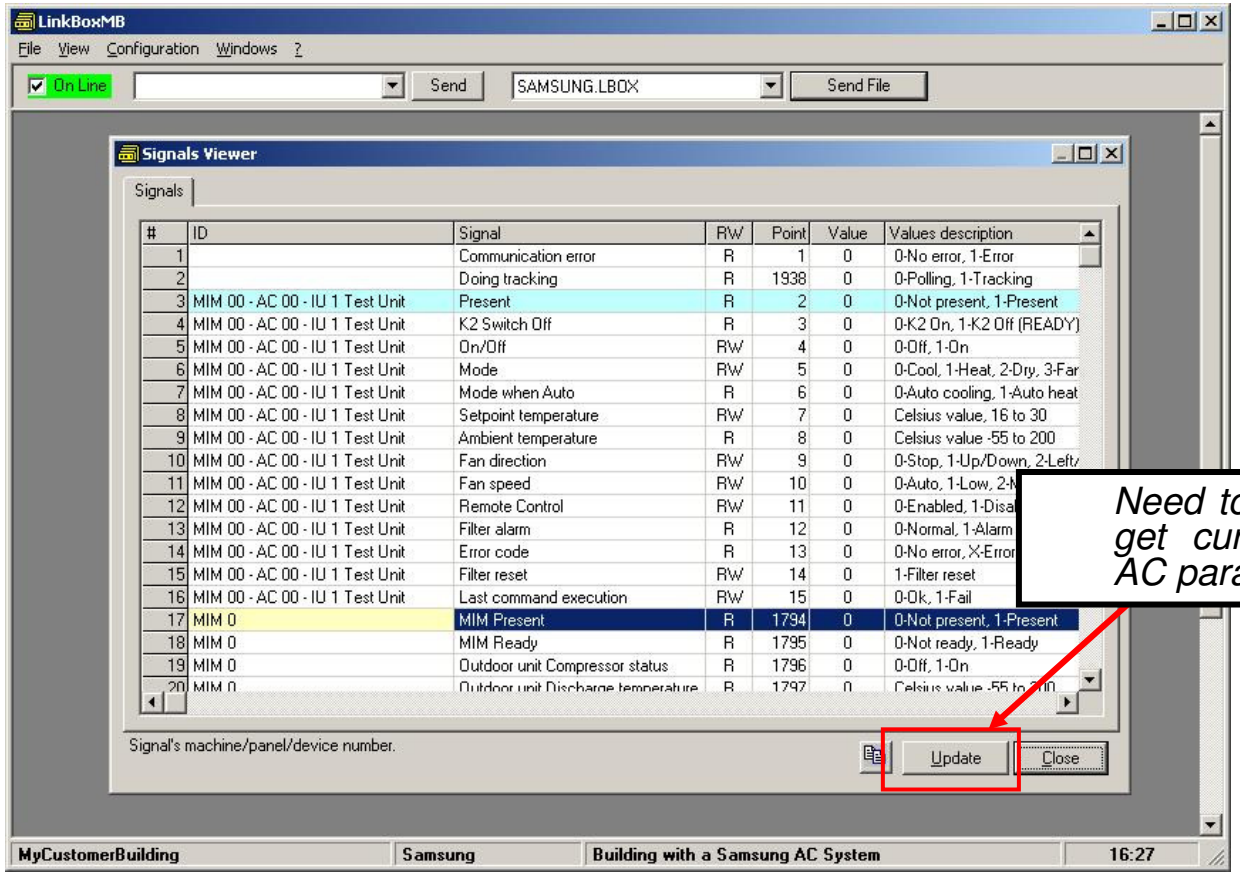
AC Signals viewer

Used for monitoring & control of AC signals values at setup time



AC Signals viewer

Used for monitoring & control of AC signals values at setup time



AC Signals viewer

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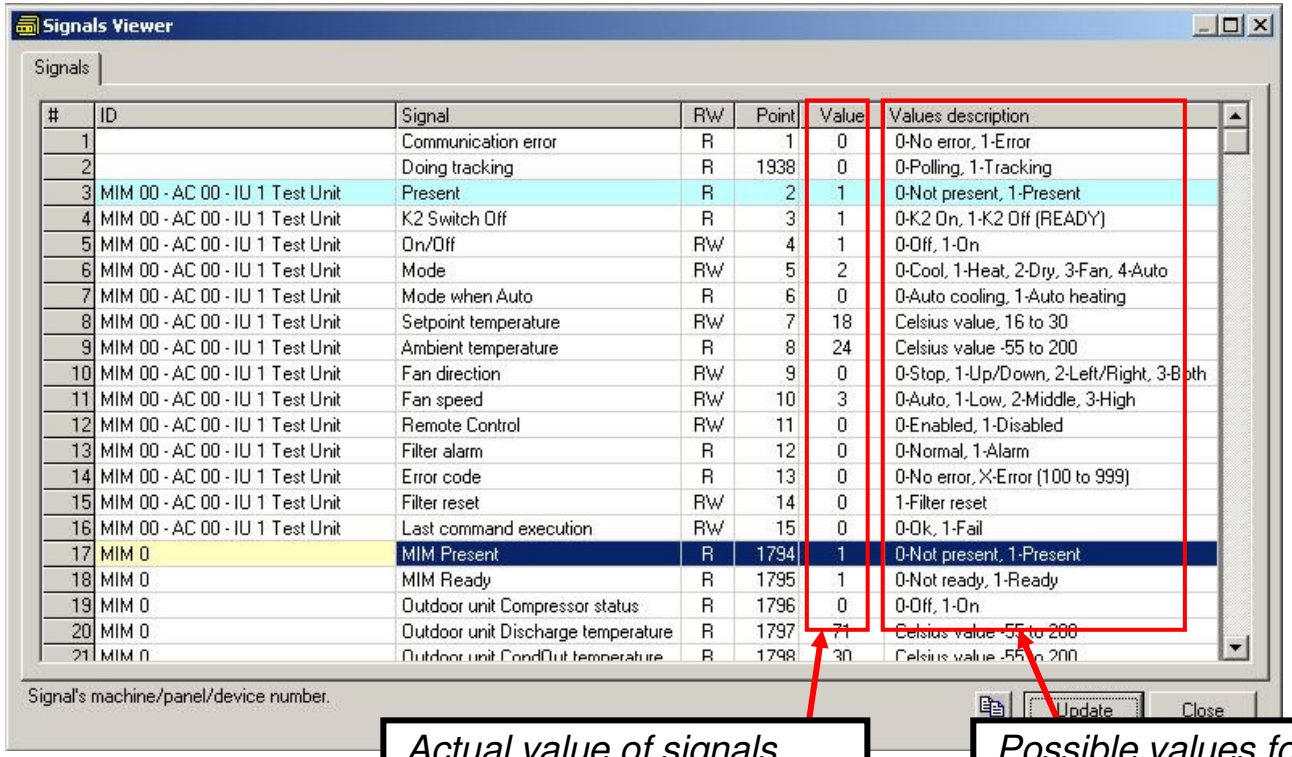

AC Signals viewer

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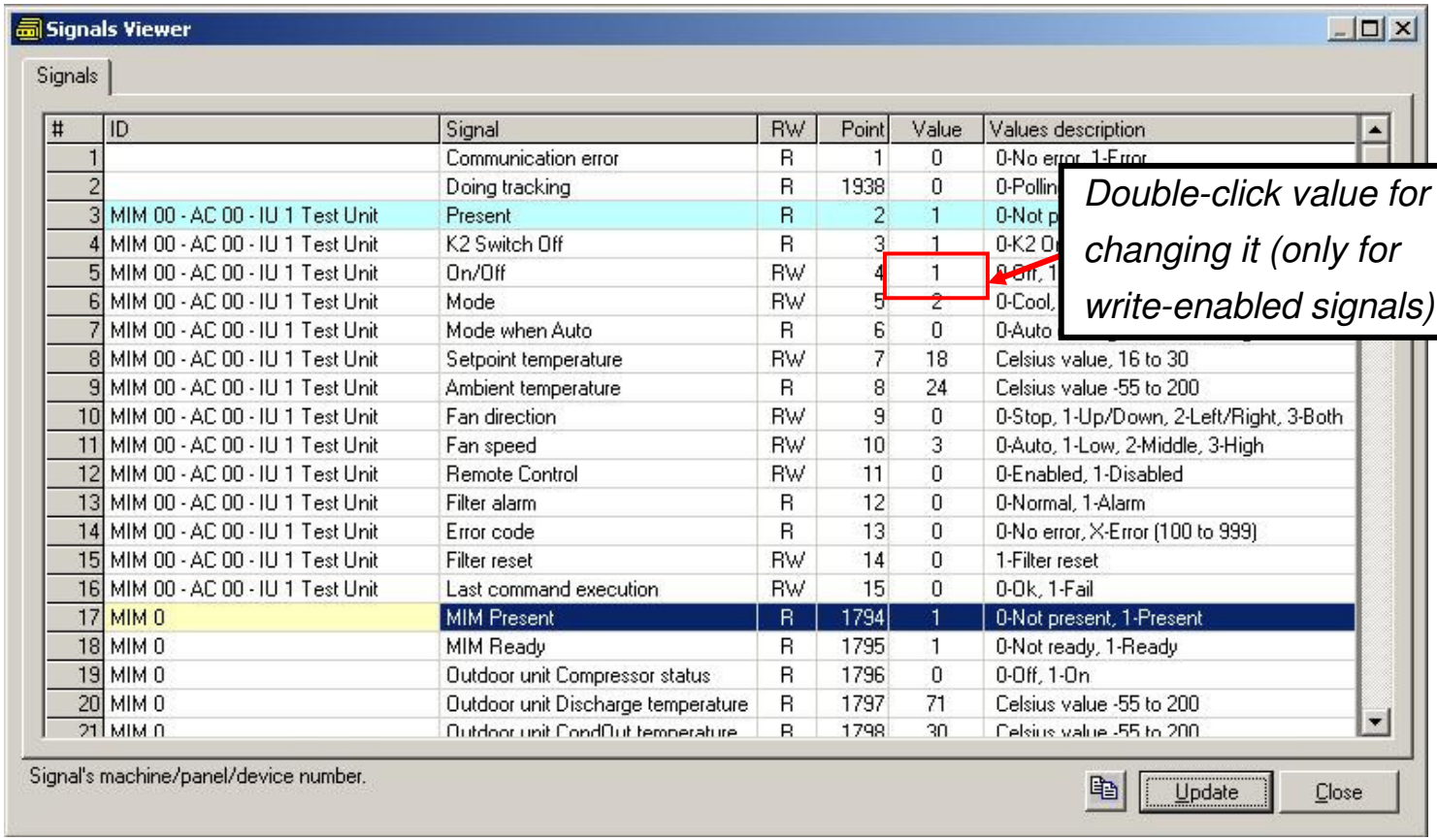
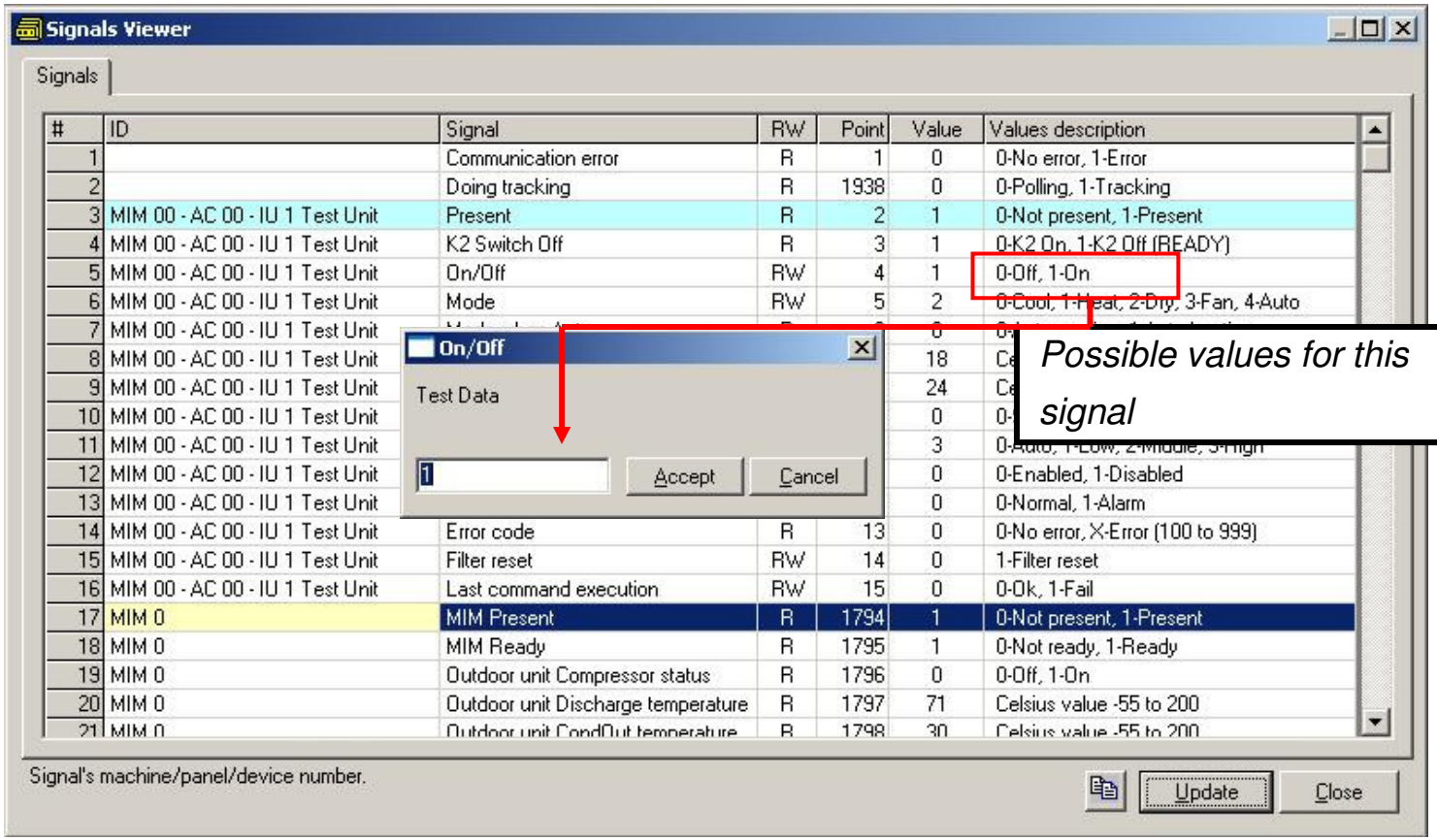


AC Signals viewer

Used for monitoring & control of AC signals values at setup time



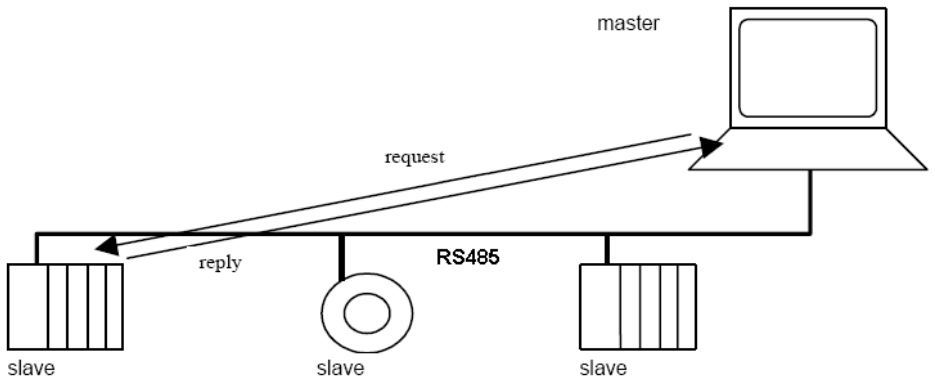
Introduction to Modbus

- Dated 1979 (company *modicon*)
- Currently an Open Protocol
  - Specification can be freely downloaded at www.modbus-ida.org
- Master/slave architecture
  - Master continuously polls slaves. Typically:
    - Masters will be the monitoring / controlling systems (PLCs, Supervisory applications, …)
    - Slaves will be the systems under monitoring / control (SM-AC-MBS)
- Easy to implement on programmable systems (PLCs)

Introduction to Modbus

- Defined physical layers (*communication media*):
  - *Modbus RTU*: RS232 and RS485
  - *Modbus TCP*: (mainly) Ethernet/IP

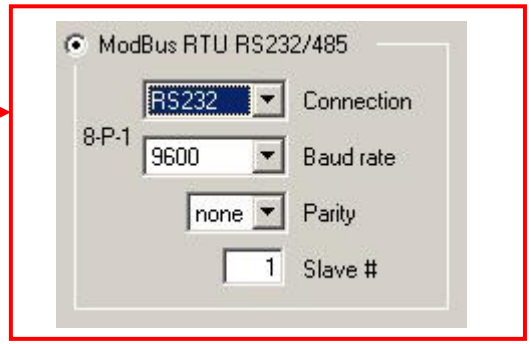
  Supported by SM-AC-MBS
  - (*Modbus ASCII*: RS232 and RS485) (rarely used)
- Main current usages:
  - Communication of *foreign* control systems, PLCs…
  - Centralized monitoring / control concepts



Modbus RTU

- Physical layer is a serial line: RS232 / RS485
  - Several baudrates:2400, 4800, 9600, 19200, …
  - 8 data bits, parity (even / odd / none), 1 or 2 stop bits
- Only 1 master is possible:
  - Up to 32 slaves in RS485
    - Must be wired in *bus* topology (no loops)
  - Only 1 slave in RS232 (point-to-point physical connection)
- Each slave in the network is identified by a *slave number* (1..254)

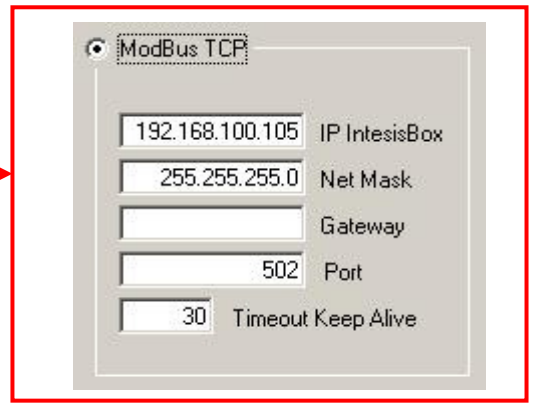
Configuration parameters in LinkBoxMB for SM-AC-MBS



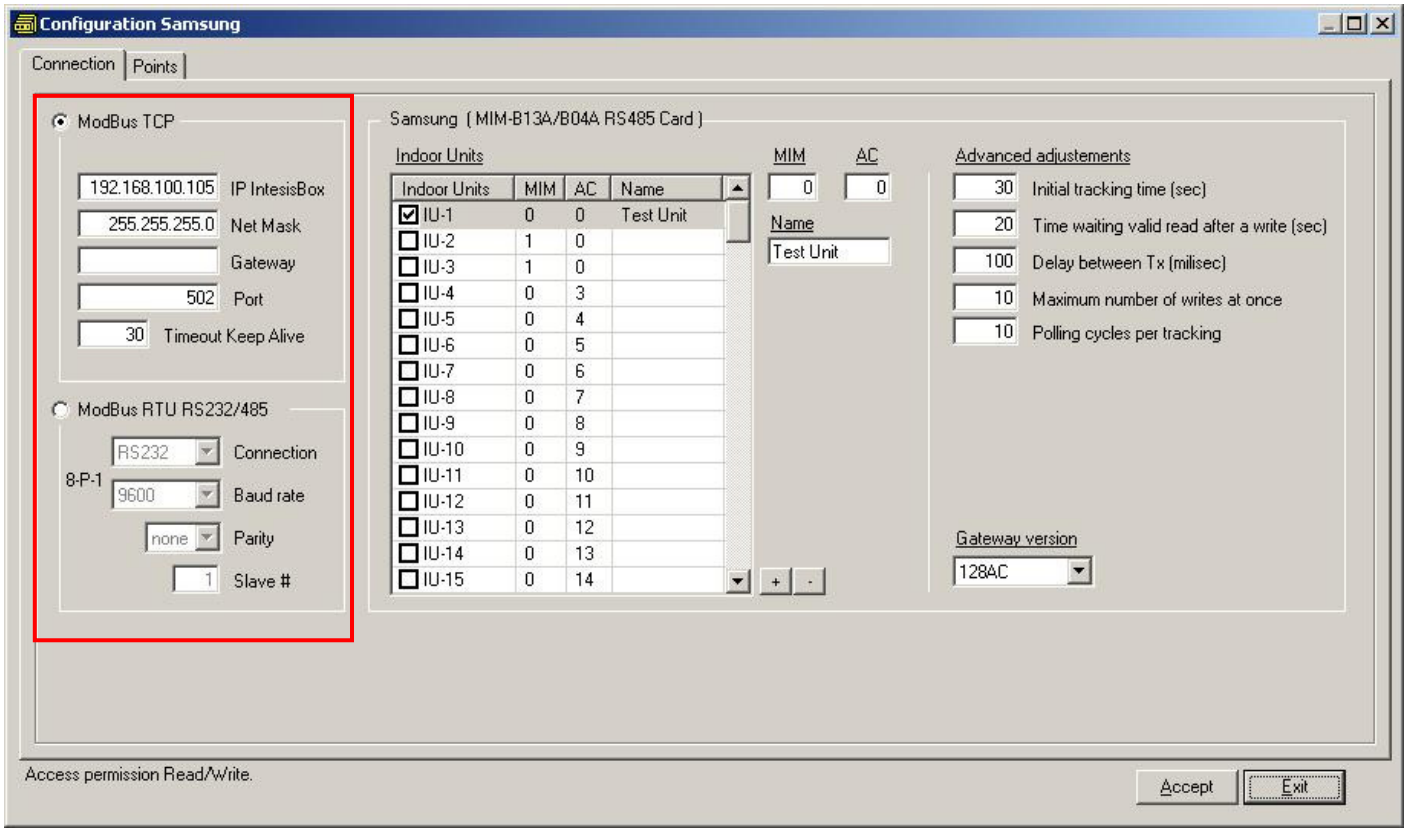
Modbus TCP

- Physical layer is any IP channel
  - Most commonly used in building automation is Ethernet
- Several masters (clients) are possible in the same (IP) channel:
  - SM-AC-MBS supports up to 4 masters polling it
- Each slave (server) in the network is identified by its own IP, and Port on which they offer the Modbus TCP service. IP:port identifies the server

Configuration parameters in LinkBoxMB for SM-AC-MBS



Modbus channel configuration in LinkBoxMB



Introduction to Modbus

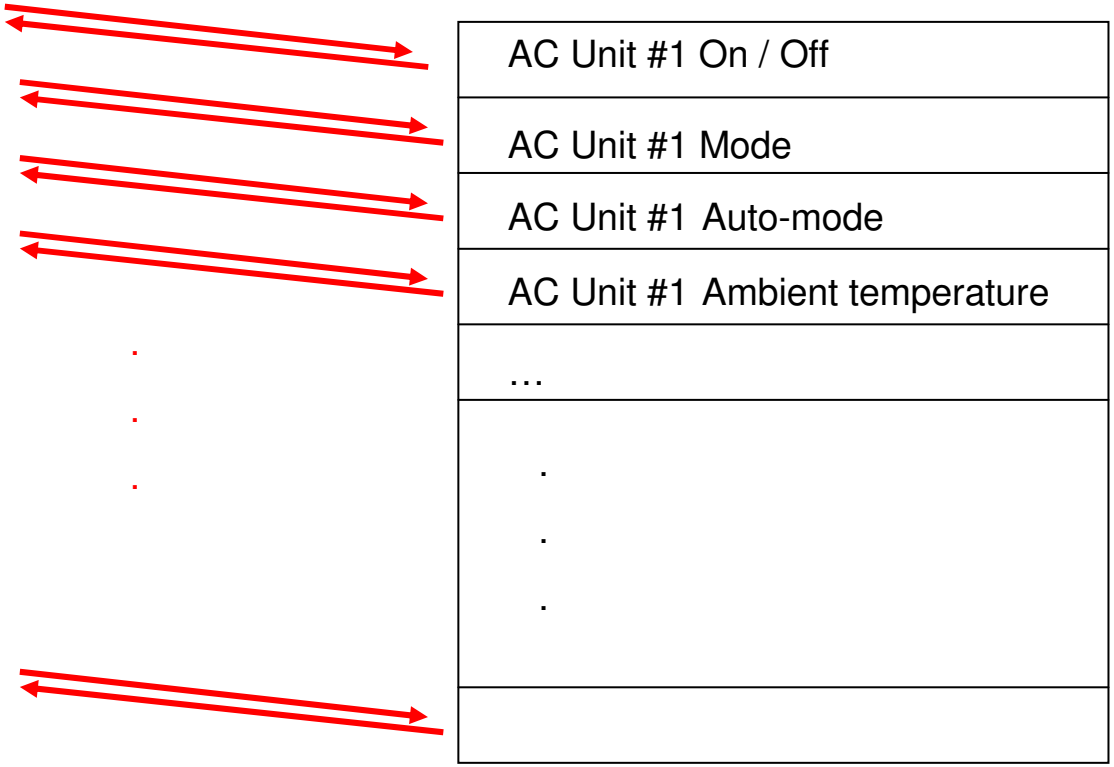
- Data that each slave exchanges to/from bus is based on *registers*

AC Unit ON / OFF
AC Unit Mode
Auto-mode
Ambient temperature
…
. . .

Introduction to Modbus

- Data that each slave exchanges to/from bus is based on *registers*

A modbus master periodically polls these registers, and can also write them

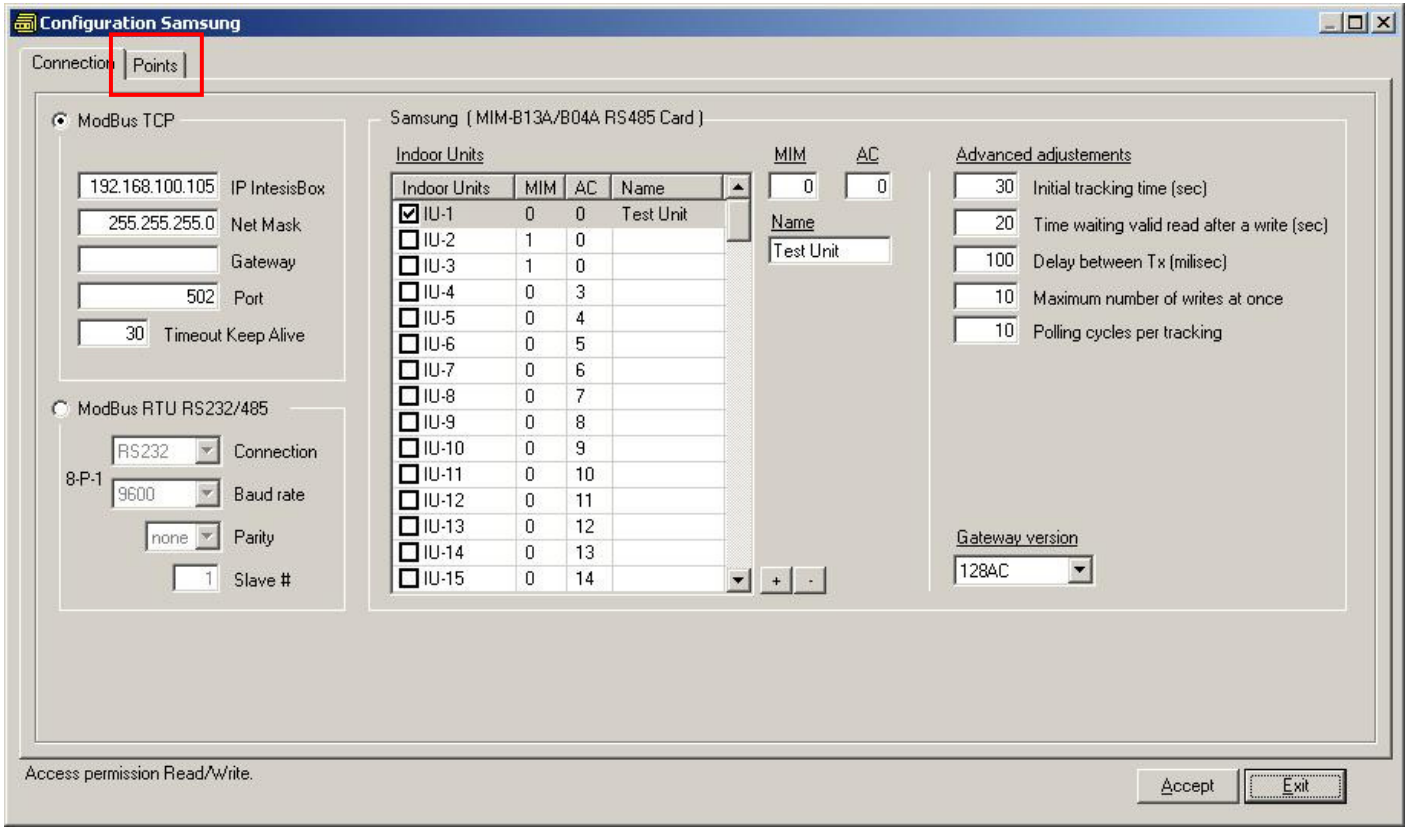


Introduction to Modbus

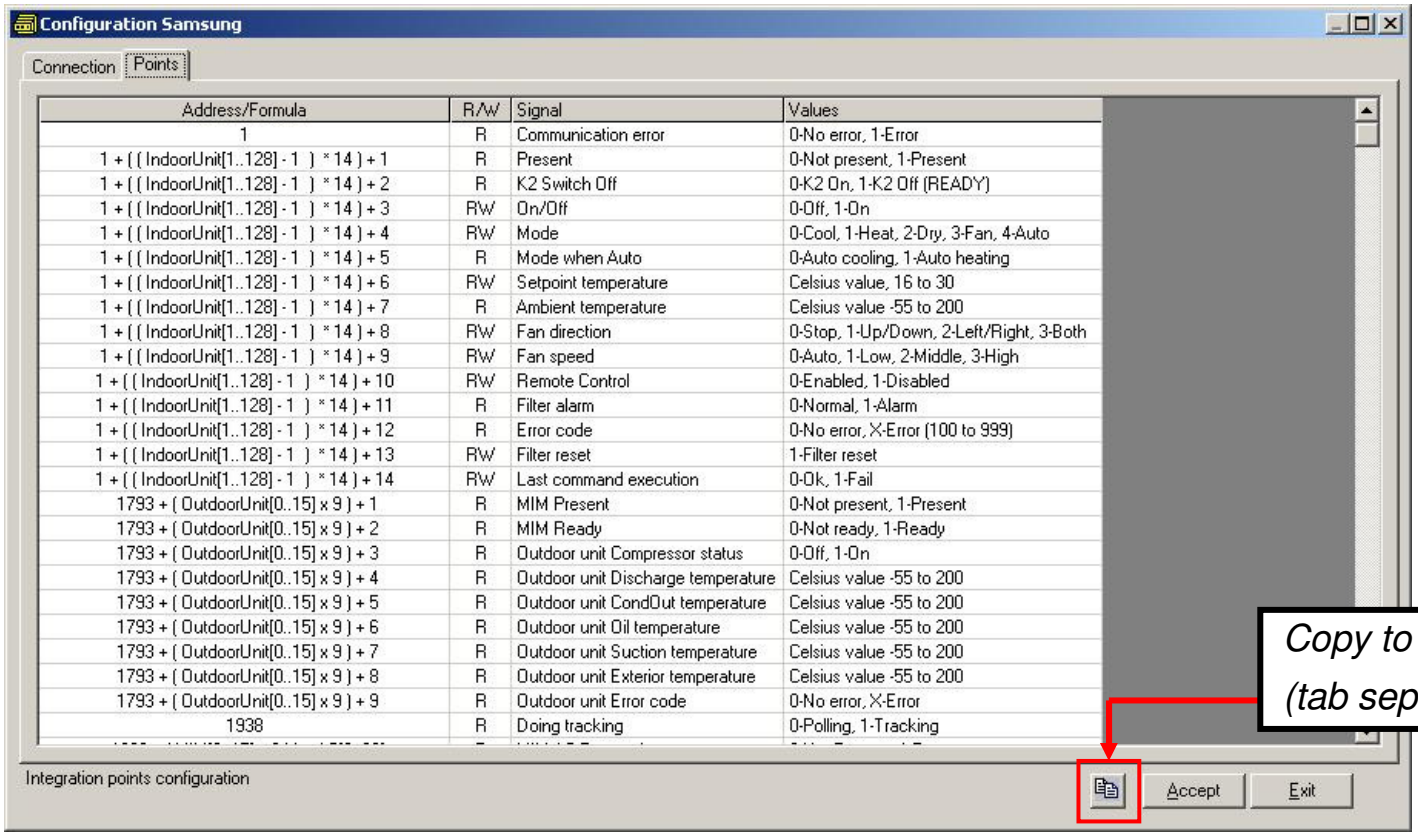
- Each register is defined in the slave by
  - A register address
  - A supported modbus function code (type of request) – itrelates to data-type

- In the case of SM-AC-MBS
  - Implements up to 1937 registers (SM-AC-MBS-128)
    - 14 registers per IDU
    - 9 registers per ODU / MIM
  - Allows function codes:
    - “03”, “04”: for polling (up to 125 modbus registers can be read on a single request)
    - “06”: for writing (1 single write per request)
      → 16-bit registers

View of register addresses in LinkBoxMB



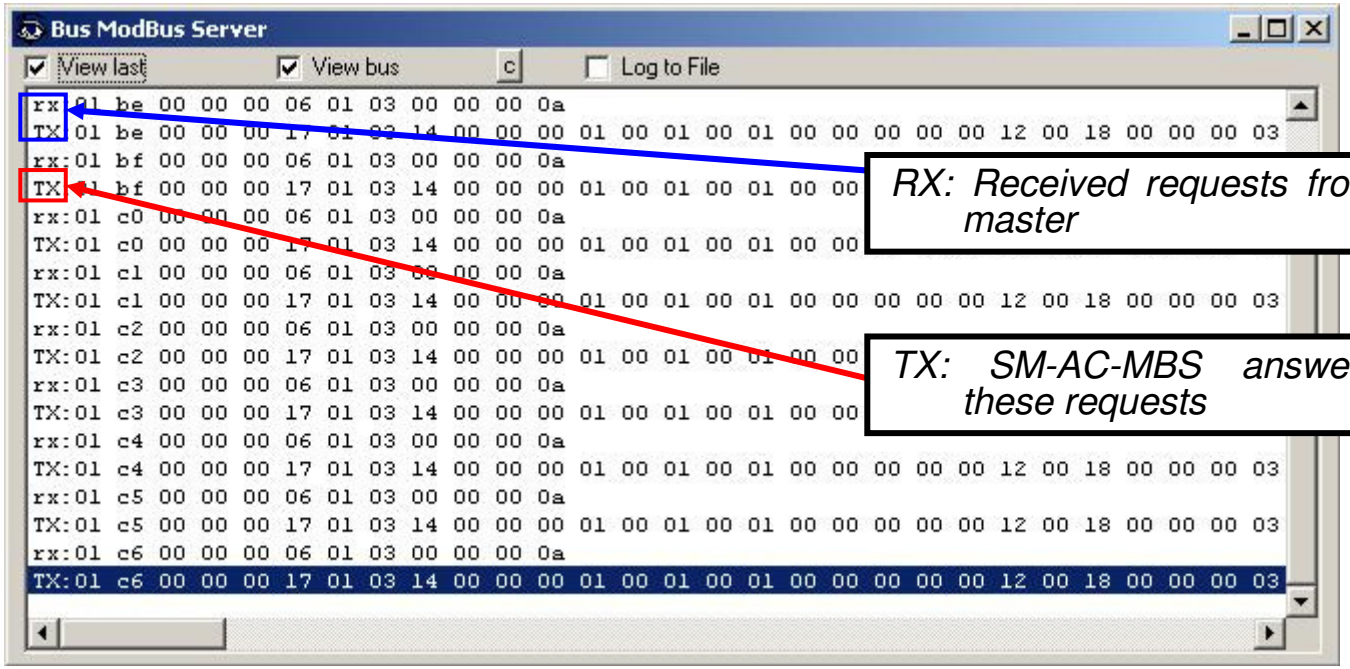
View of register addresses in LinkBoxMB



Content in this window cannot be edited / is informative only

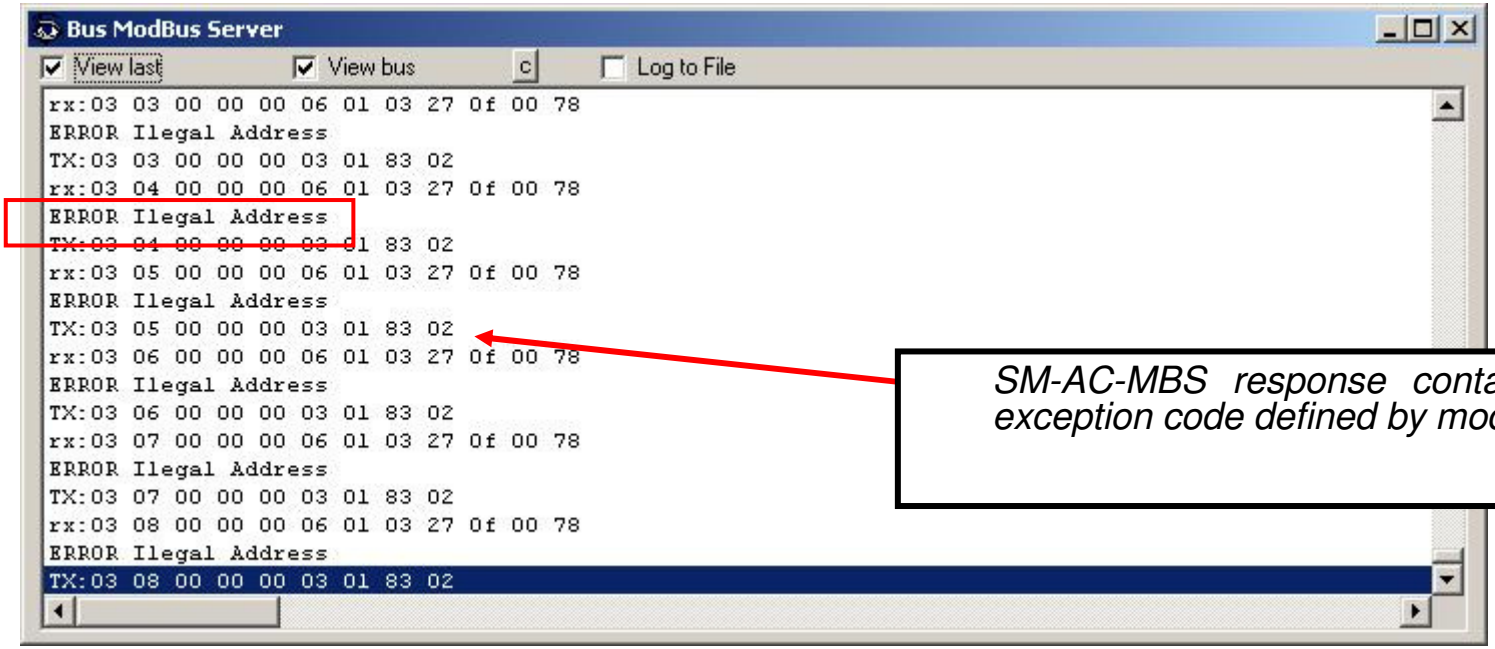
Introduction to Modbus

What it looks like in LinkBoxMB bus viewer…



Introduction to Modbus

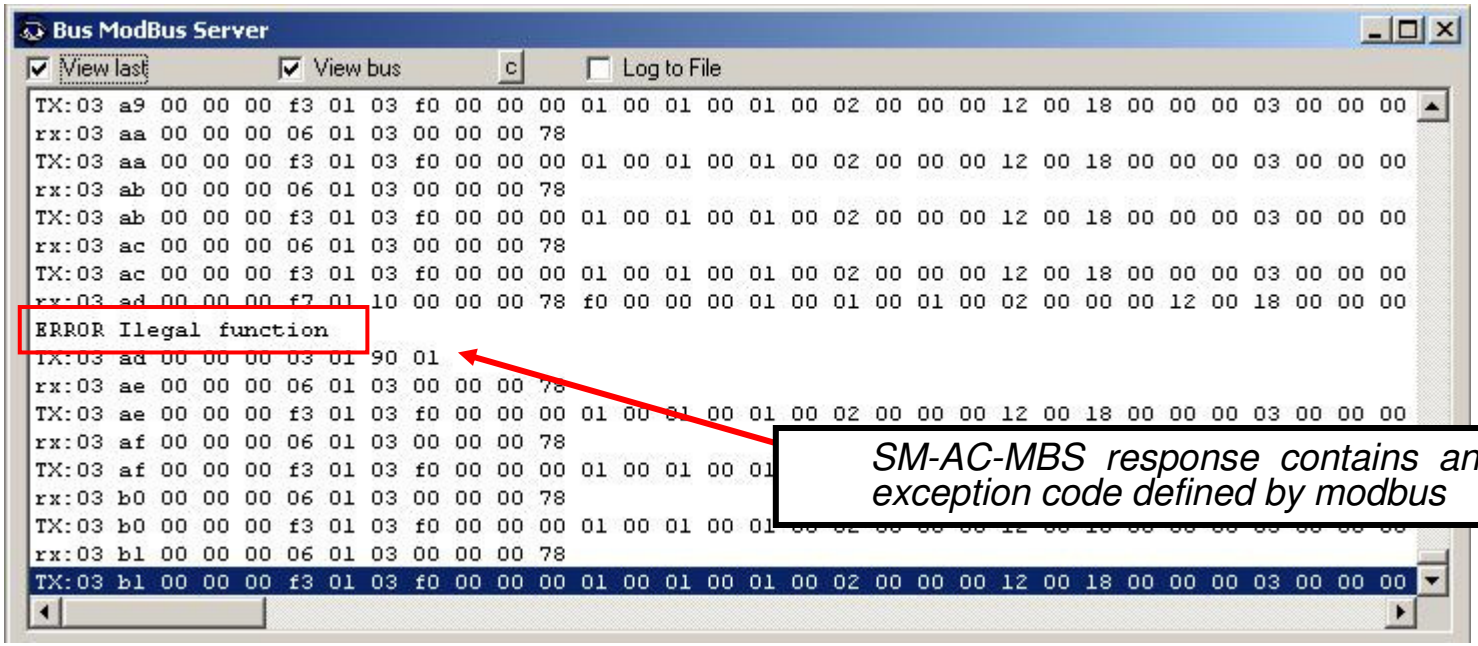
Common mistakes: Polling wrong addresses



(master is polling addresses >10000 – whereas max modbus address on SM-AC-MBS is <2000)

Introduction to Modbus

Common mistakes: Using unsupported modbus function



(master is trying to write multiple registers at once with function code “10”)

Introduction to KNX

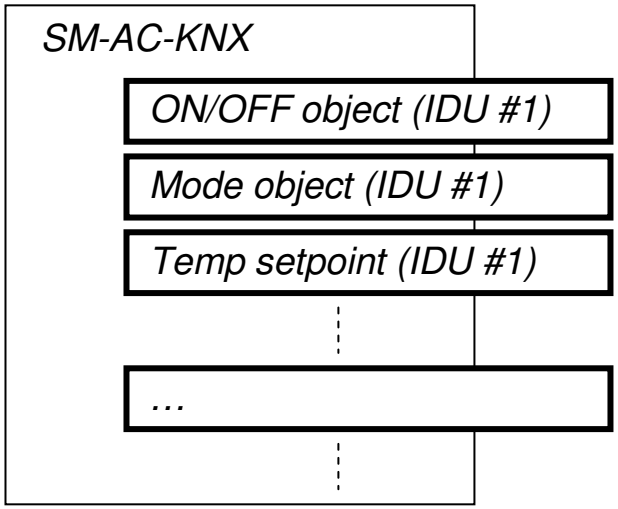
- Open protocol
  - Covered by several worldwide standards (CENELEC, ISO, ASHRAE, …)
  - Convergence of former standards (BatiBUS, EHS, EIB)
- Standard maintained by The KNX Association (www.knx.org)
- KNX installations are planned by specifically trained professionals
  - *KNX partners* are required to pass an exam in KNX-certified training centres
- Intesis Software is member of the KNX Association, as manufacturer
- Distributed philosophy. Focus on the concept of *smart house*.
- Widely used at *field* level

Introduction to KNX

- Several physical channels
  - Powerline, radio
  - Ethernet/IP (KNXnet/IP)
  - Twisted pair (KNX TP-1) ← *Supported by SM-AC-KNX*
    - 24 VDC power supply on bus
    - Physical communication done at 9600bps
    - Free topology
- Communication mainly based on *signal changes*
  - Any device can initiate communication (collision avoidance mechanism)

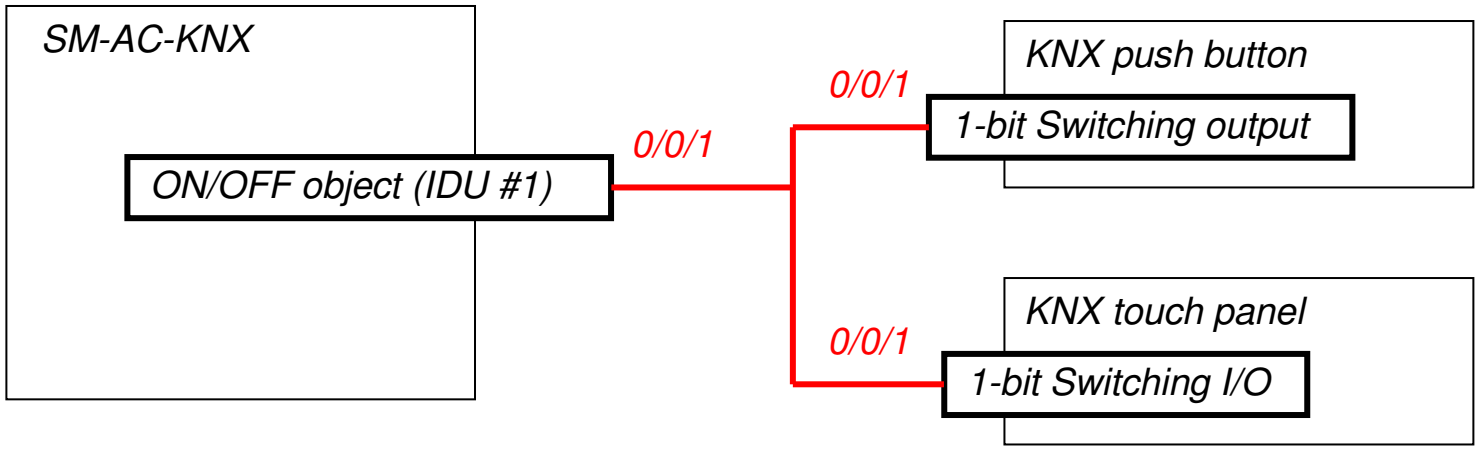
Introduction to KNX

- A KNX device is abstracted as a set of *communication objects*
- Each *communication object* has a defined *EIS type*.
  - 1-bit Switching (EIS 1): 0-Off, 1-On
  - 8-bit Scaling (EIS 6): 0 – 0%, 255 – 100%
  - 8-bit Counter (EIS 14): 0..255
  - 16-bit float value (EIS 5)
- E.g., an indoor unit in SM-AC-KNX
  - On / Off (1-bit Switching / EIS 1)
  - Mode (8-bit Counter / EIS 14)
  - Temperature setpoint (16-bit float / EIS 5)
  - Filter alarm (1-bit Switching / EIS 1)



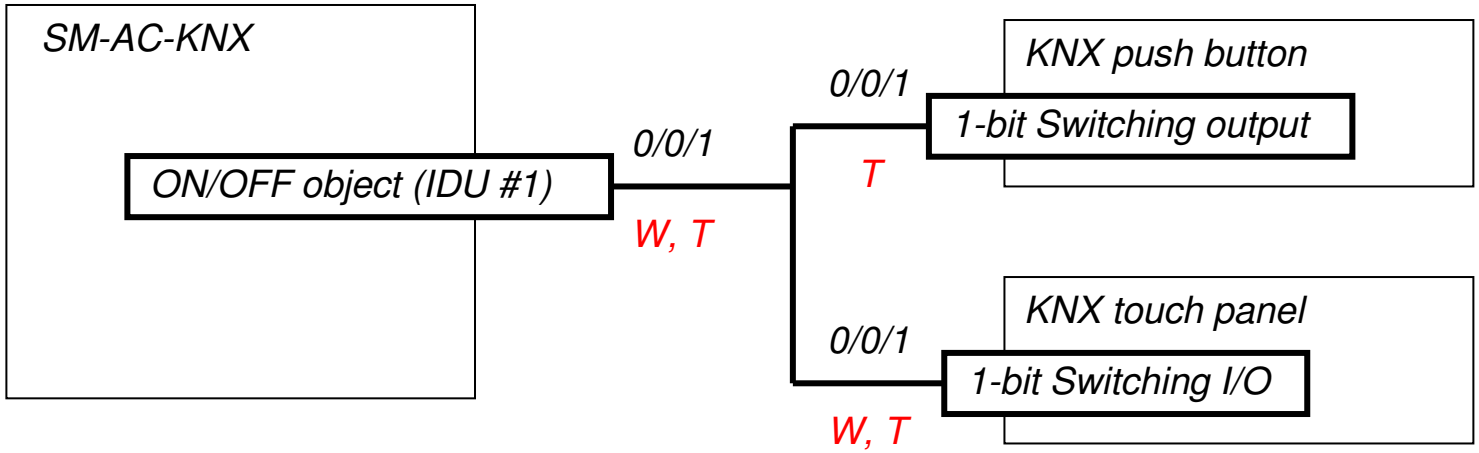
Introduction to KNX

- Communication objects on devices are logically bound by means of *group addresses*
- Group addresses have format *"Main Group" / "Middle group" / "Subgroup"*
- Bound objects need to use the same EIS type



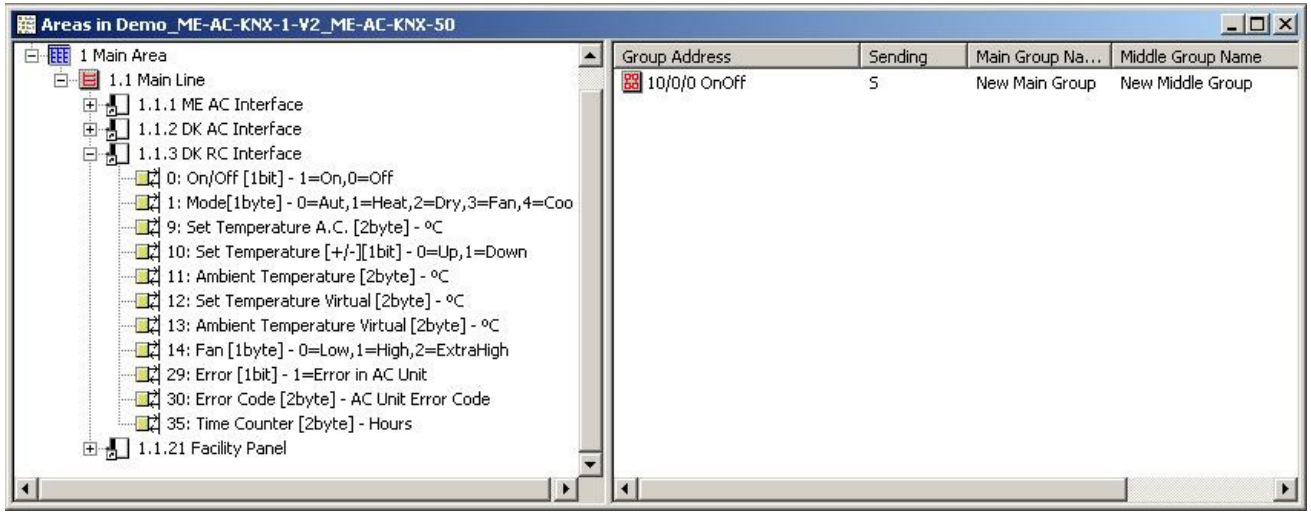
Introduction to KNX

- Integrator needs to define the *direction* of the signals
- Done by means of flags:
  - T: The communication object updates this value to bus on signal change
  - W: Value allows being written from bus



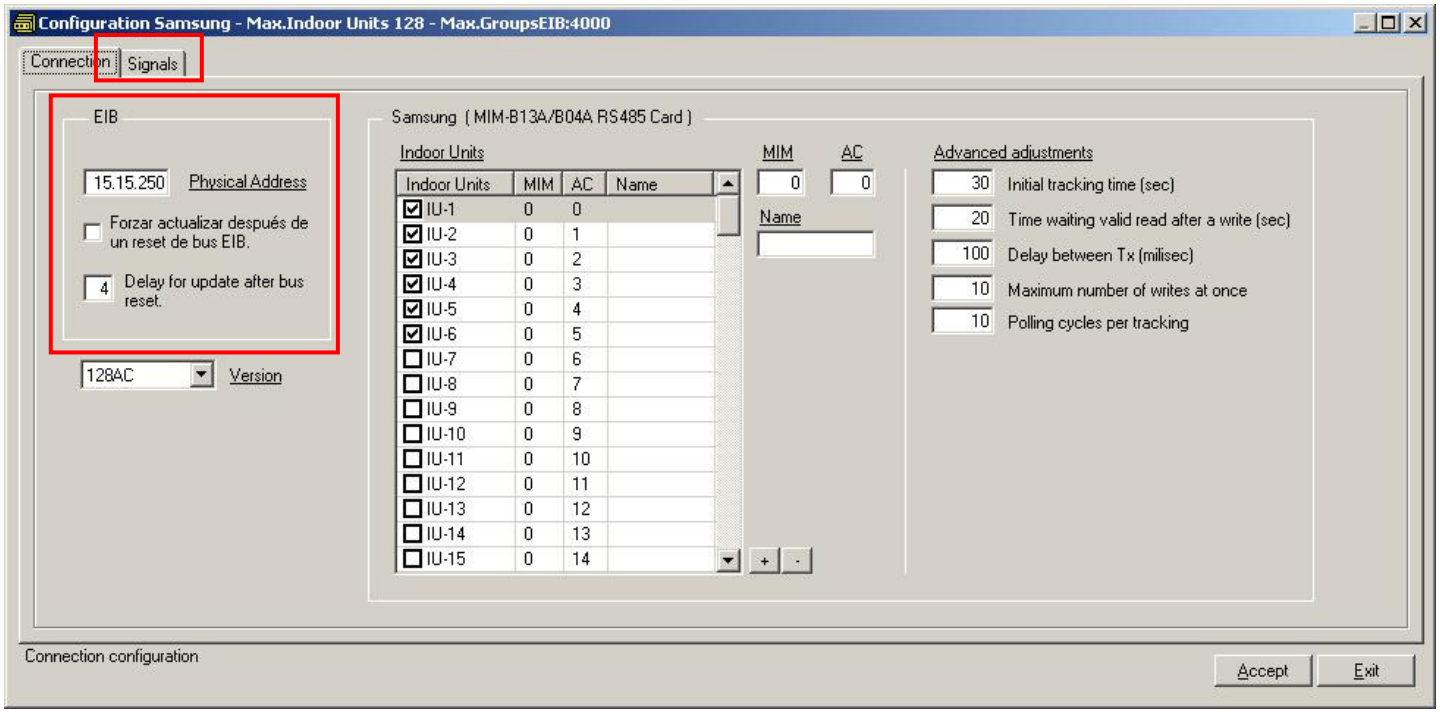
Introduction to KNX

- Most of this configuration is done with software tool *ETS*
  - The tool used for designing KNX networks
  - Each manufacturer provides a file with a “description” of its device (ETS database entry) so that the integrator can use it on ETS
  - Used also for *downloading* the configuration to the devices

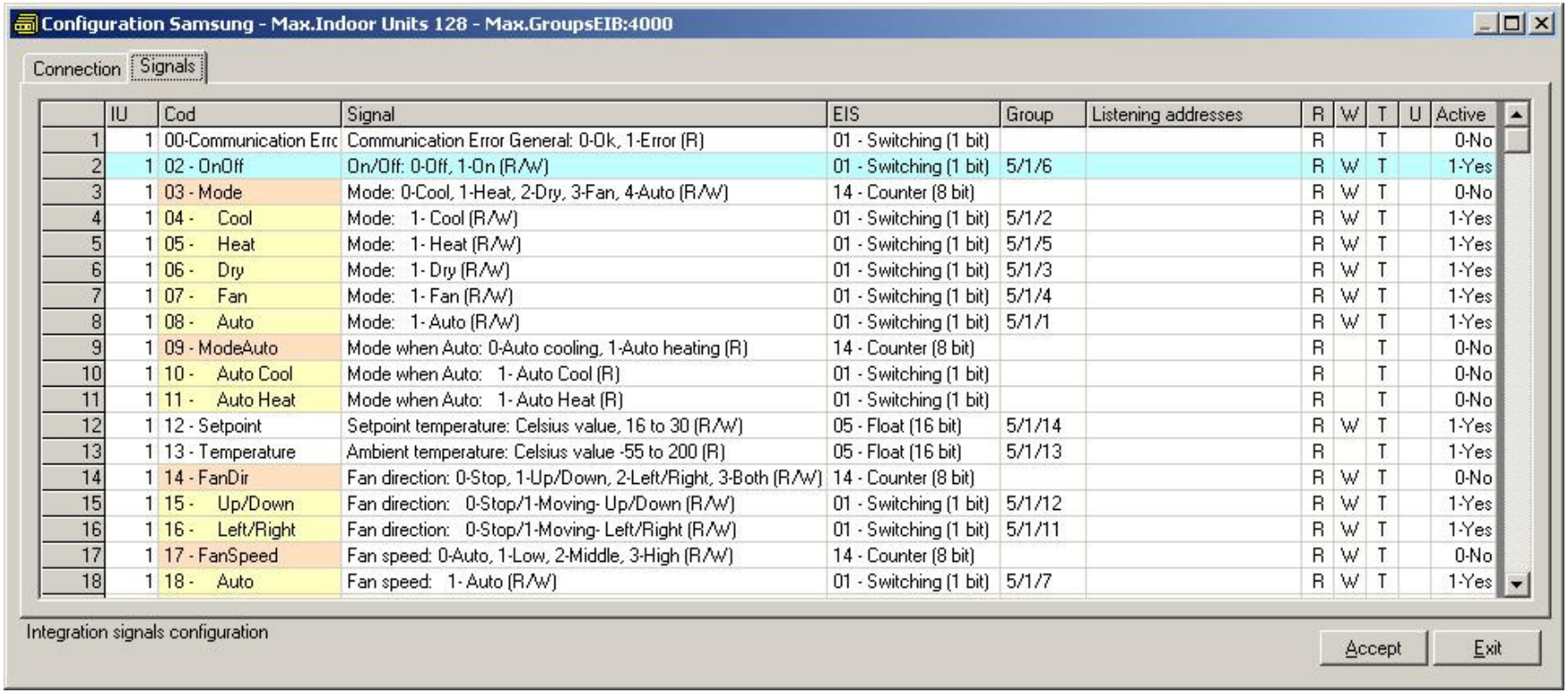


Introduction to KNX

- SM-AC-KNX does not use ETS
- Configuration needs to be edited and downloaded with a separate tool (LinkBoxEIB)

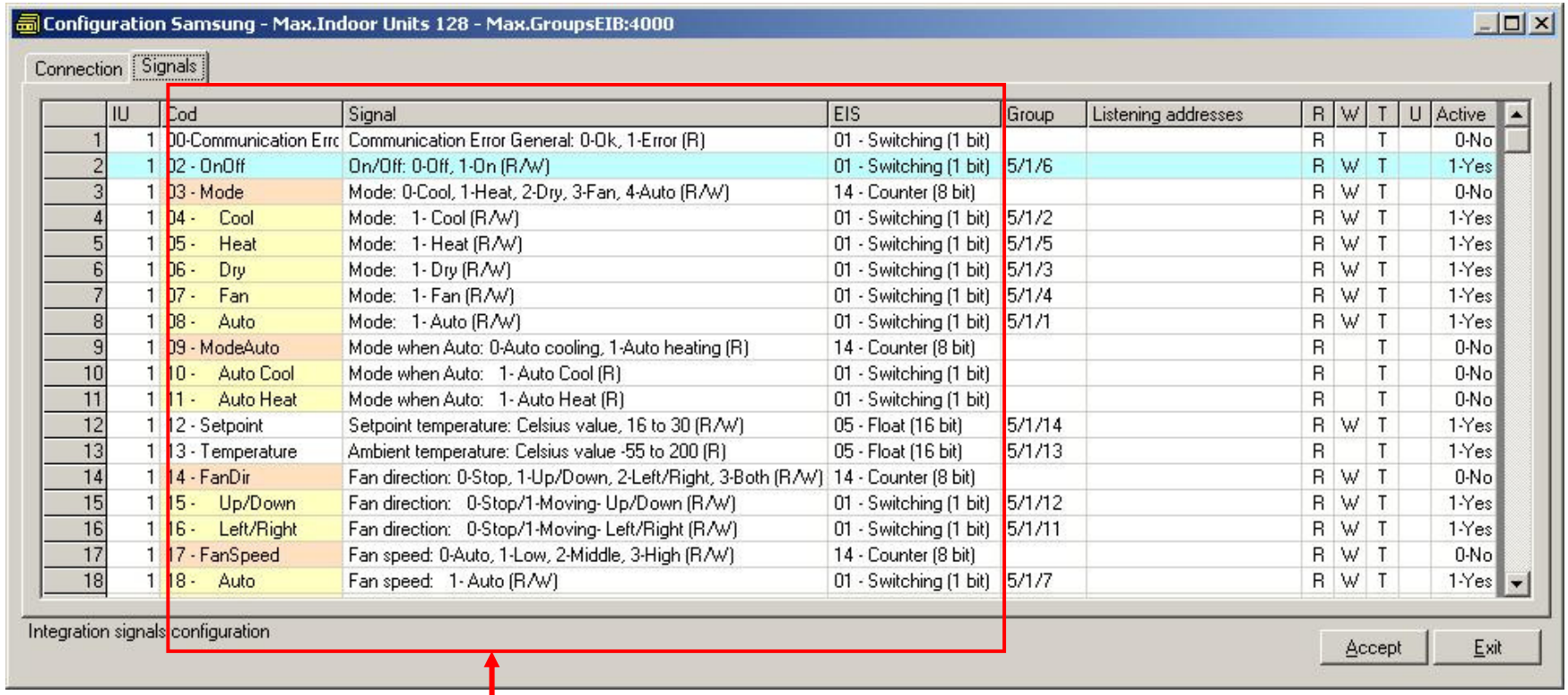


Configuration of SM-AC-KNX in LinkBoxEIB



	IU	Cod	Signal	EIS	Group	Listening addresses	R	W	T	U	Active
1	1	00-Communication Erro	Communication Error General: 0-Ok, 1-Error (R)	01 - Switching (1 bit)			R		T		0-No
2	1	02 - OnOff	On/Off: 0-Off, 1-On (R/W)	01 - Switching (1 bit)	5/1/6		R	W	T		1-Yes
3	1	03 - Mode	Mode: 0-Cool, 1-Heat, 2-Dry, 3-Fan, 4-Auto (R/W)	14 - Counter (8 bit)			R	W	T		0-No
4	1	04 - Cool	Mode: 1- Cool (R/W)	01 - Switching (1 bit)	5/1/2		R	W	T		1-Yes
5	1	05 - Heat	Mode: 1- Heat (R/W)	01 - Switching (1 bit)	5/1/5		R	W	T		1-Yes
6	1	06 - Dry	Mode: 1- Dry (R/W)	01 - Switching (1 bit)	5/1/3		R	W	T		1-Yes
7	1	07 - Fan	Mode: 1- Fan (R/W)	01 - Switching (1 bit)	5/1/4		R	W	T		1-Yes
8	1	08 - Auto	Mode: 1- Auto (R/W)	01 - Switching (1 bit)	5/1/1		R	W	T		1-Yes
9	1	09 - ModeAuto	Mode when Auto: 0-Auto cooling, 1-Auto heating (R)	14 - Counter (8 bit)			R		T		0-No
10	1	10 - Auto Cool	Mode when Auto: 1- Auto Cool (R)	01 - Switching (1 bit)			R		T		0-No
11	1	11 - Auto Heat	Mode when Auto: 1- Auto Heat (R)	01 - Switching (1 bit)			R		T		0-No
12	1	12 - Setpoint	Setpoint temperature: Celsius value, 16 to 30 (R/W)	05 - Float (16 bit)	5/1/14		R	W	T		1-Yes
13	1	13 - Temperature	Ambient temperature: Celsius value -55 to 200 (R)	05 - Float (16 bit)	5/1/13		R		T		1-Yes
14	1	14 - FanDir	Fan direction: 0-Stop, 1-Up/Down, 2-Left/Right, 3-Both (R/W)	14 - Counter (8 bit)			R	W	T		0-No
15	1	15 - Up/Down	Fan direction: 0-Stop/1-Moving- Up/Down (R/W)	01 - Switching (1 bit)	5/1/12		R	W	T		1-Yes
16	1	16 - Left/Right	Fan direction: 0-Stop/1-Moving- Left/Right (R/W)	01 - Switching (1 bit)	5/1/11		R	W	T		1-Yes
17	1	17 - FanSpeed	Fan speed: 0-Auto, 1-Low, 2-Middle, 3-High (R/W)	14 - Counter (8 bit)			R	W	T		0-No
18	1	18 - Auto	Fan speed: 1- Auto (R/W)	01 - Switching (1 bit)	5/1/7		R	W	T		1-Yes

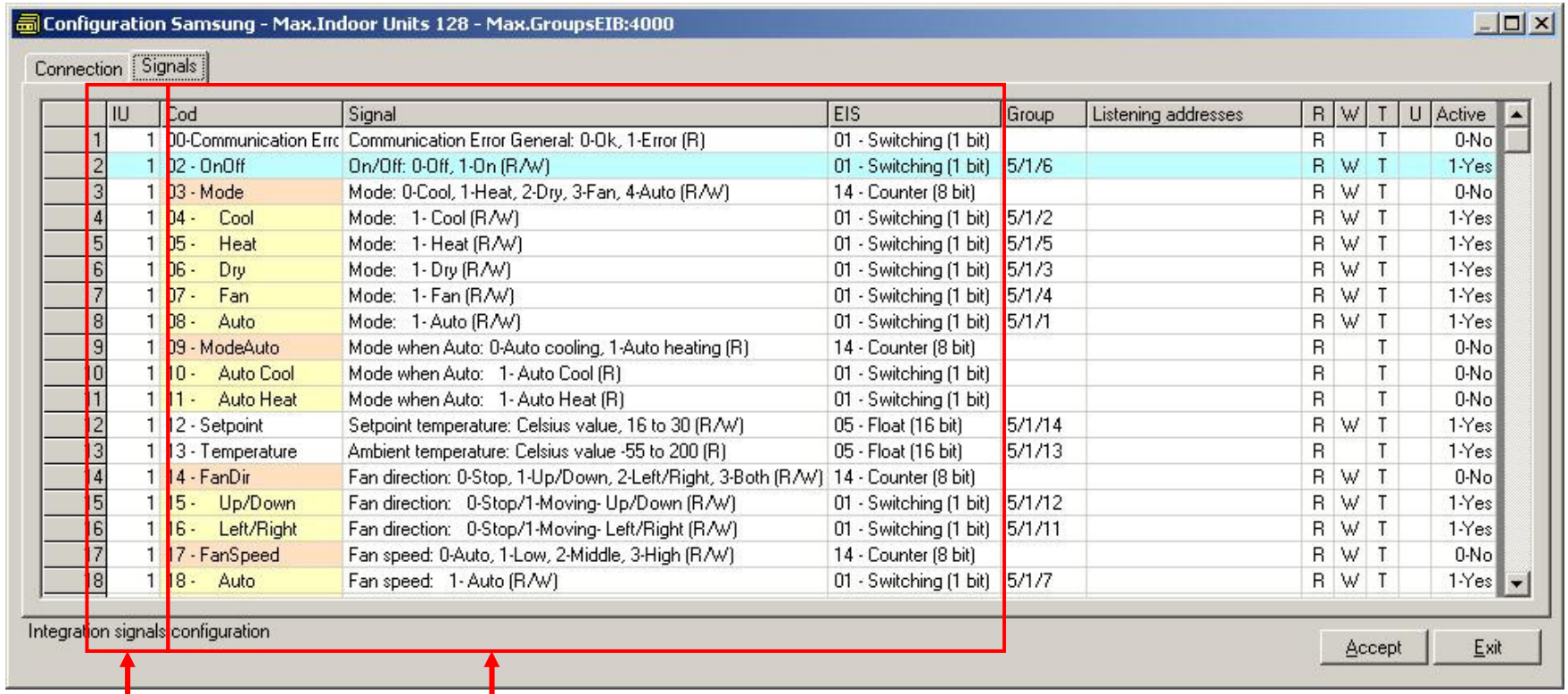
Configuration of SM-AC-KNX in LinkBoxEIB



	IU	Cod	Signal	EIS	Group	Listening addresses	R	W	T	U	Active
1	1	00-Communication Erro	Communication Error General: 0-Ok, 1-Error (R)	01 - Switching (1 bit)			R		T		0-No
2	1	02 - OnOff	On/Off: 0-Off, 1-On (R/W)	01 - Switching (1 bit)	5/1/6		R	W	T		1-Yes
3	1	03 - Mode	Mode: 0-Cool, 1-Heat, 2-Dry, 3-Fan, 4-Auto (R/W)	14 - Counter (8 bit)			R	W	T		0-No
4	1	04 - Cool	Mode: 1- Cool (R/W)	01 - Switching (1 bit)	5/1/2		R	W	T		1-Yes
5	1	05 - Heat	Mode: 1- Heat (R/W)	01 - Switching (1 bit)	5/1/5		R	W	T		1-Yes
6	1	06 - Dry	Mode: 1- Dry (R/W)	01 - Switching (1 bit)	5/1/3		R	W	T		1-Yes
7	1	07 - Fan	Mode: 1- Fan (R/W)	01 - Switching (1 bit)	5/1/4		R	W	T		1-Yes
8	1	08 - Auto	Mode: 1- Auto (R/W)	01 - Switching (1 bit)	5/1/1		R	W	T		1-Yes
9	1	09 - ModeAuto	Mode when Auto: 0-Auto cooling, 1-Auto heating (R)	14 - Counter (8 bit)			R		T		0-No
10	1	10 - Auto Cool	Mode when Auto: 1- Auto Cool (R)	01 - Switching (1 bit)			R		T		0-No
11	1	11 - Auto Heat	Mode when Auto: 1- Auto Heat (R)	01 - Switching (1 bit)			R		T		0-No
12	1	12 - Setpoint	Setpoint temperature: Celsius value, 16 to 30 (R/W)	05 - Float (16 bit)	5/1/14		R	W	T		1-Yes
13	1	13 - Temperature	Ambient temperature: Celsius value -55 to 200 (R)	05 - Float (16 bit)	5/1/13		R		T		1-Yes
14	1	14 - FanDir	Fan direction: 0-Stop, 1-Up/Down, 2-Left/Right, 3-Both (R/W)	14 - Counter (8 bit)			R	W	T		0-No
15	1	15 - Up/Down	Fan direction: 0-Stop/1-Moving- Up/Down (R/W)	01 - Switching (1 bit)	5/1/12		R	W	T		1-Yes
16	1	16 - Left/Right	Fan direction: 0-Stop/1-Moving- Left/Right (R/W)	01 - Switching (1 bit)	5/1/11		R	W	T		1-Yes
17	1	17 - FanSpeed	Fan speed: 0-Auto, 1-Low, 2-Middle, 3-High (R/W)	14 - Counter (8 bit)			R	W	T		0-No
18	1	18 - Auto	Fan speed: 1- Auto (R/W)	01 - Switching (1 bit)	5/1/7		R	W	T		1-Yes

Description of com. Objects (cannot be edited)

Configuration of SM-AC-KNX in LinkBoxEIB

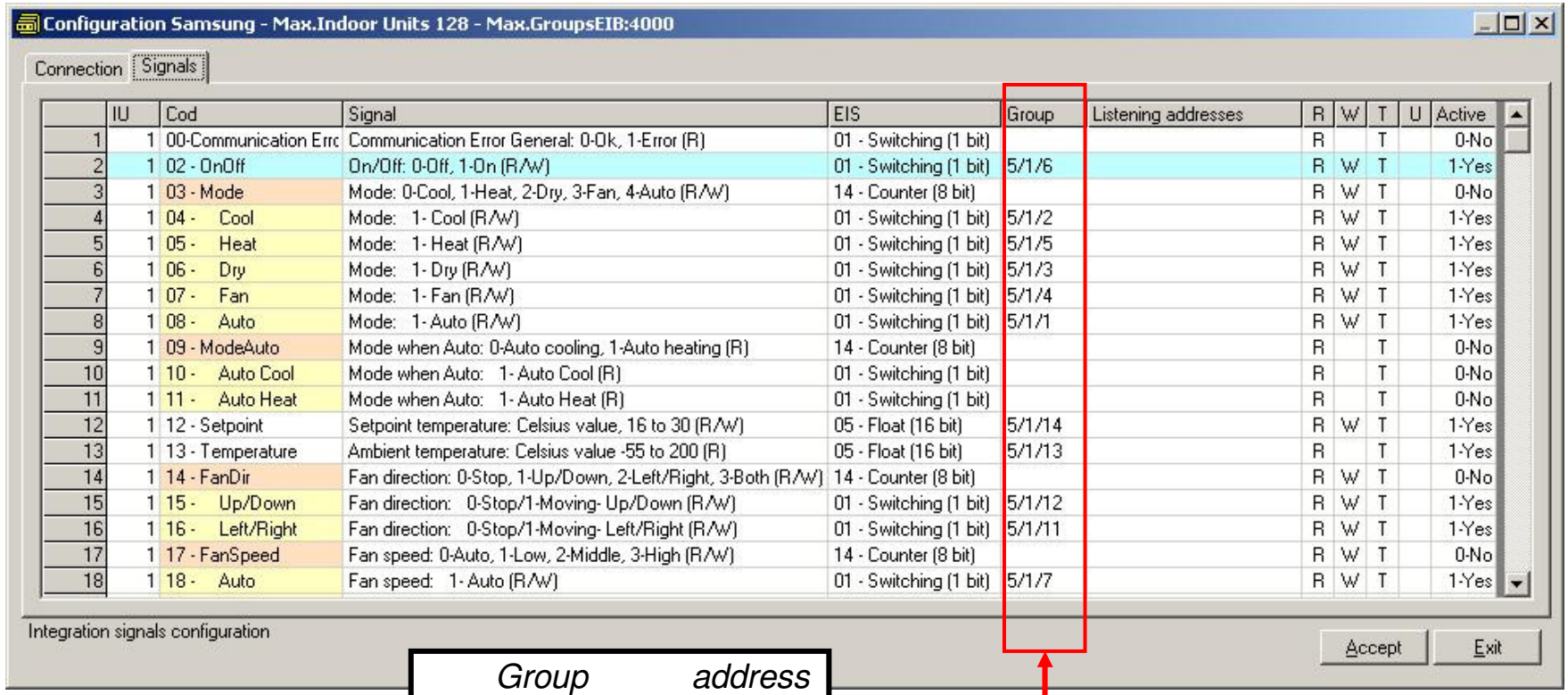


	IU	Cod	Signal	EIS	Group	Listening addresses	R	W	T	U	Active
1	1	00-Communication Erro	Communication Error General: 0-Ok, 1-Error (R)	01 - Switching (1 bit)			R		T		0-No
2	1	02 - OnOff	On/Off: 0-Off, 1-On (R/W)	01 - Switching (1 bit)	5/1/6		R	W	T		1-Yes
3	1	03 - Mode	Mode: 0-Cool, 1-Heat, 2-Dry, 3-Fan, 4-Auto (R/W)	14 - Counter (8 bit)			R	W	T		0-No
4	1	04 - Cool	Mode: 1- Cool (R/W)	01 - Switching (1 bit)	5/1/2		R	W	T		1-Yes
5	1	05 - Heat	Mode: 1- Heat (R/W)	01 - Switching (1 bit)	5/1/5		R	W	T		1-Yes
6	1	06 - Dry	Mode: 1- Dry (R/W)	01 - Switching (1 bit)	5/1/3		R	W	T		1-Yes
7	1	07 - Fan	Mode: 1- Fan (R/W)	01 - Switching (1 bit)	5/1/4		R	W	T		1-Yes
8	1	08 - Auto	Mode: 1- Auto (R/W)	01 - Switching (1 bit)	5/1/1		R	W	T		1-Yes
9	1	09 - ModeAuto	Mode when Auto: 0-Auto cooling, 1-Auto heating (R)	14 - Counter (8 bit)			R		T		0-No
10	1	10 - Auto Cool	Mode when Auto: 1- Auto Cool (R)	01 - Switching (1 bit)			R		T		0-No
11	1	11 - Auto Heat	Mode when Auto: 1- Auto Heat (R)	01 - Switching (1 bit)			R		T		0-No
12	1	12 - Setpoint	Setpoint temperature: Celsius value, 16 to 30 (R/W)	05 - Float (16 bit)	5/1/14		R	W	T		1-Yes
13	1	13 - Temperature	Ambient temperature: Celsius value -55 to 200 (R)	05 - Float (16 bit)	5/1/13		R		T		1-Yes
14	1	14 - FanDir	Fan direction: 0-Stop, 1-Up/Down, 2-Left/Right, 3-Both (R/W)	14 - Counter (8 bit)			R	W	T		0-No
15	1	15 - Up/Down	Fan direction: 0-Stop/1-Moving- Up/Down (R/W)	01 - Switching (1 bit)	5/1/12		R	W	T		1-Yes
16	1	16 - Left/Right	Fan direction: 0-Stop/1-Moving- Left/Right (R/W)	01 - Switching (1 bit)	5/1/11		R	W	T		1-Yes
17	1	17 - FanSpeed	Fan speed: 0-Auto, 1-Low, 2-Middle, 3-High (R/W)	14 - Counter (8 bit)			R	W	T		0-No
18	1	18 - Auto	Fan speed: 1- Auto (R/W)	01 - Switching (1 bit)	5/1/7		R	W	T		1-Yes

Indoor unit (1..128) related to these objects

Description of com. Objects (cannot be edited)

Configuration of SM-AC-KNX in LinkBoxEIB

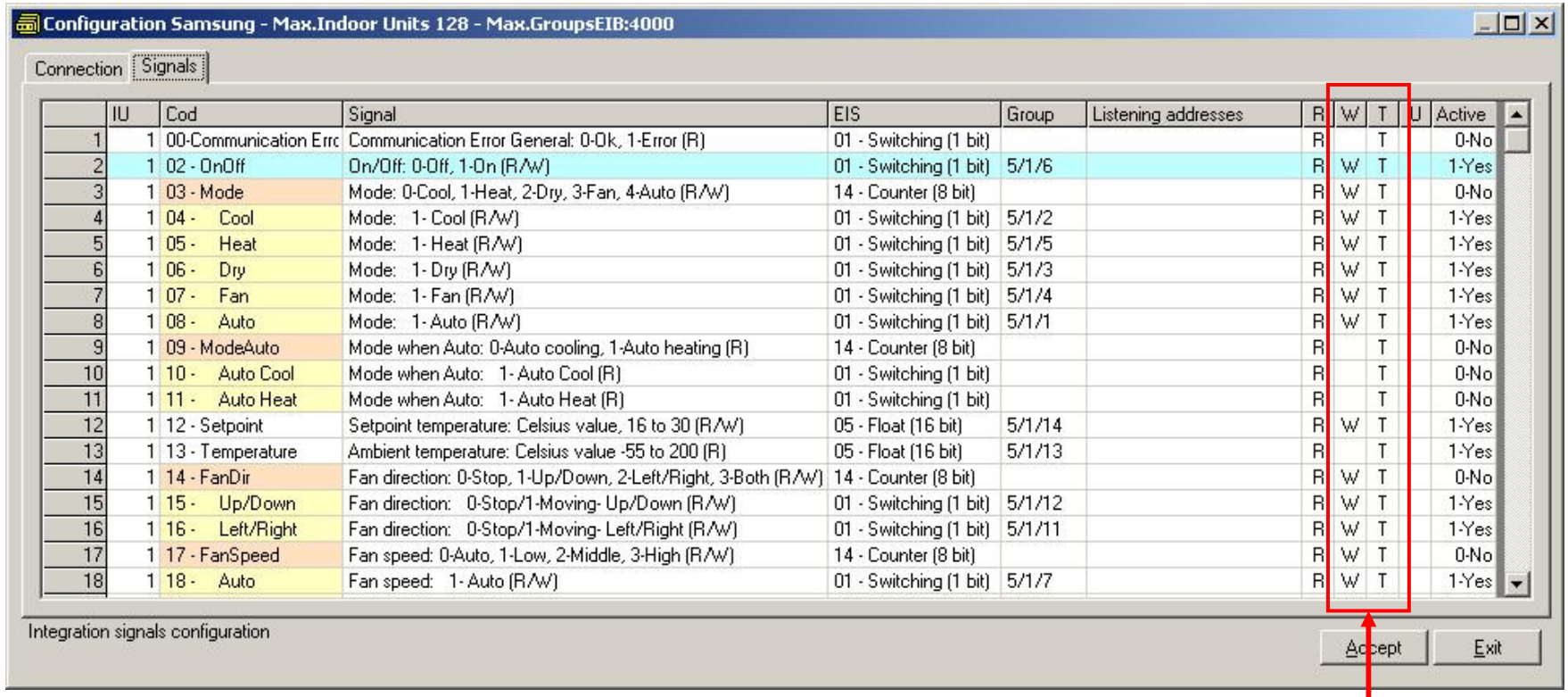


	IU	Cod	Signal	EIS	Group	Listening addresses	R	W	T	U	Active
1	1	00-Communication Err	Communication Error General: 0-Ok, 1-Error (R)	01 - Switching (1 bit)			R		T		0-No
2	1	02 - OnOff	On/Off: 0-Off, 1-On (R/W)	01 - Switching (1 bit)	5/1/6		R	W	T		1-Yes
3	1	03 - Mode	Mode: 0-Cool, 1-Heat, 2-Dry, 3-Fan, 4-Auto (R/W)	14 - Counter (8 bit)			R	W	T		0-No
4	1	04 - Cool	Mode: 1- Cool (R/W)	01 - Switching (1 bit)	5/1/2		R	W	T		1-Yes
5	1	05 - Heat	Mode: 1- Heat (R/W)	01 - Switching (1 bit)	5/1/5		R	W	T		1-Yes
6	1	06 - Dry	Mode: 1- Dry (R/W)	01 - Switching (1 bit)	5/1/3		R	W	T		1-Yes
7	1	07 - Fan	Mode: 1- Fan (R/W)	01 - Switching (1 bit)	5/1/4		R	W	T		1-Yes
8	1	08 - Auto	Mode: 1- Auto (R/W)	01 - Switching (1 bit)	5/1/1		R	W	T		1-Yes
9	1	09 - ModeAuto	Mode when Auto: 0-Auto cooling, 1-Auto heating (R)	14 - Counter (8 bit)			R		T		0-No
10	1	10 - Auto Cool	Mode when Auto: 1- Auto Cool (R)	01 - Switching (1 bit)			R		T		0-No
11	1	11 - Auto Heat	Mode when Auto: 1- Auto Heat (R)	01 - Switching (1 bit)			R		T		0-No
12	1	12 - Setpoint	Setpoint temperature: Celsius value, 16 to 30 (R/W)	05 - Float (16 bit)	5/1/14		R	W	T		1-Yes
13	1	13 - Temperature	Ambient temperature: Celsius value -55 to 200 (R)	05 - Float (16 bit)	5/1/13		R		T		1-Yes
14	1	14 - FanDir	Fan direction: 0-Stop, 1-Up/Down, 2-Left/Right, 3-Both (R/W)	14 - Counter (8 bit)			R	W	T		0-No
15	1	15 - Up/Down	Fan direction: 0-Stop/1-Moving- Up/Down (R/W)	01 - Switching (1 bit)	5/1/12		R	W	T		1-Yes
16	1	16 - Left/Right	Fan direction: 0-Stop/1-Moving- Left/Right (R/W)	01 - Switching (1 bit)	5/1/11		R	W	T		1-Yes
17	1	17 - FanSpeed	Fan speed: 0-Auto, 1-Low, 2-Middle, 3-High (R/W)	14 - Counter (8 bit)			R	W	T		0-No
18	1	18 - Auto	Fan speed: 1- Auto (R/W)	01 - Switching (1 bit)	5/1/7		R	W	T		1-Yes

Group address associated to each com. Object

(MAIN address)

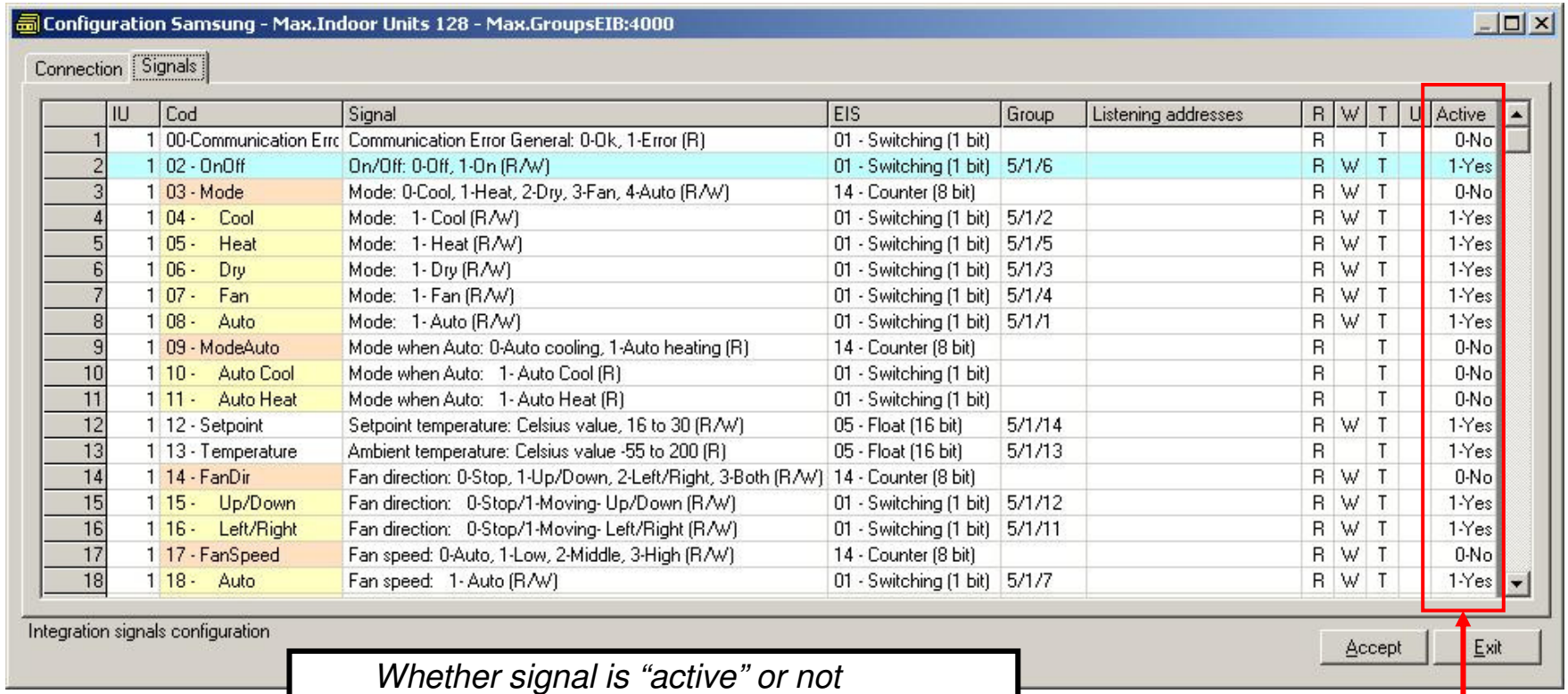
Configuration of SM-AC-KNX in LinkBoxEIB



	IU	Cod	Signal	EIS	Group	Listening addresses	R	W	T	U	Active
1	1	00-Communication Erro	Communication Error General: 0-Ok, 1-Error (R)	01 - Switching (1 bit)			R		T		0-No
2	1	02 - OnOff	On/Off: 0-Off, 1-On (R/W)	01 - Switching (1 bit)	5/1/6		R	W	T		1-Yes
3	1	03 - Mode	Mode: 0-Cool, 1-Heat, 2-Dry, 3-Fan, 4-Auto (R/W)	14 - Counter (8 bit)			R	W	T		0-No
4	1	04 - Cool	Mode: 1- Cool (R/W)	01 - Switching (1 bit)	5/1/2		R	W	T		1-Yes
5	1	05 - Heat	Mode: 1- Heat (R/W)	01 - Switching (1 bit)	5/1/5		R	W	T		1-Yes
6	1	06 - Dry	Mode: 1- Dry (R/W)	01 - Switching (1 bit)	5/1/3		R	W	T		1-Yes
7	1	07 - Fan	Mode: 1- Fan (R/W)	01 - Switching (1 bit)	5/1/4		R	W	T		1-Yes
8	1	08 - Auto	Mode: 1- Auto (R/W)	01 - Switching (1 bit)	5/1/1		R	W	T		1-Yes
9	1	09 - ModeAuto	Mode when Auto: 0-Auto cooling, 1-Auto heating (R)	14 - Counter (8 bit)			R		T		0-No
10	1	10 - Auto Cool	Mode when Auto: 1- Auto Cool (R)	01 - Switching (1 bit)			R		T		0-No
11	1	11 - Auto Heat	Mode when Auto: 1- Auto Heat (R)	01 - Switching (1 bit)			R		T		0-No
12	1	12 - Setpoint	Setpoint temperature: Celsius value, 16 to 30 (R/W)	05 - Float (16 bit)	5/1/14		R	W	T		1-Yes
13	1	13 - Temperature	Ambient temperature: Celsius value -55 to 200 (R)	05 - Float (16 bit)	5/1/13		R		T		1-Yes
14	1	14 - FanDir	Fan direction: 0-Stop, 1-Up/Down, 2-Left/Right, 3-Both (R/W)	14 - Counter (8 bit)			R	W	T		0-No
15	1	15 - Up/Down	Fan direction: 0-Stop/1-Moving- Up/Down (R/W)	01 - Switching (1 bit)	5/1/12		R	W	T		1-Yes
16	1	16 - Left/Right	Fan direction: 0-Stop/1-Moving- Left/Right (R/W)	01 - Switching (1 bit)	5/1/11		R	W	T		1-Yes
17	1	17 - FanSpeed	Fan speed: 0-Auto, 1-Low, 2-Middle, 3-High (R/W)	14 - Counter (8 bit)			R	W	T		0-No
18	1	18 - Auto	Fan speed: 1- Auto (R/W)	01 - Switching (1 bit)	5/1/7		R	W	T		1-Yes

W, T flags enablement

Configuration of SM-AC-KNX in LinkBoxEIB

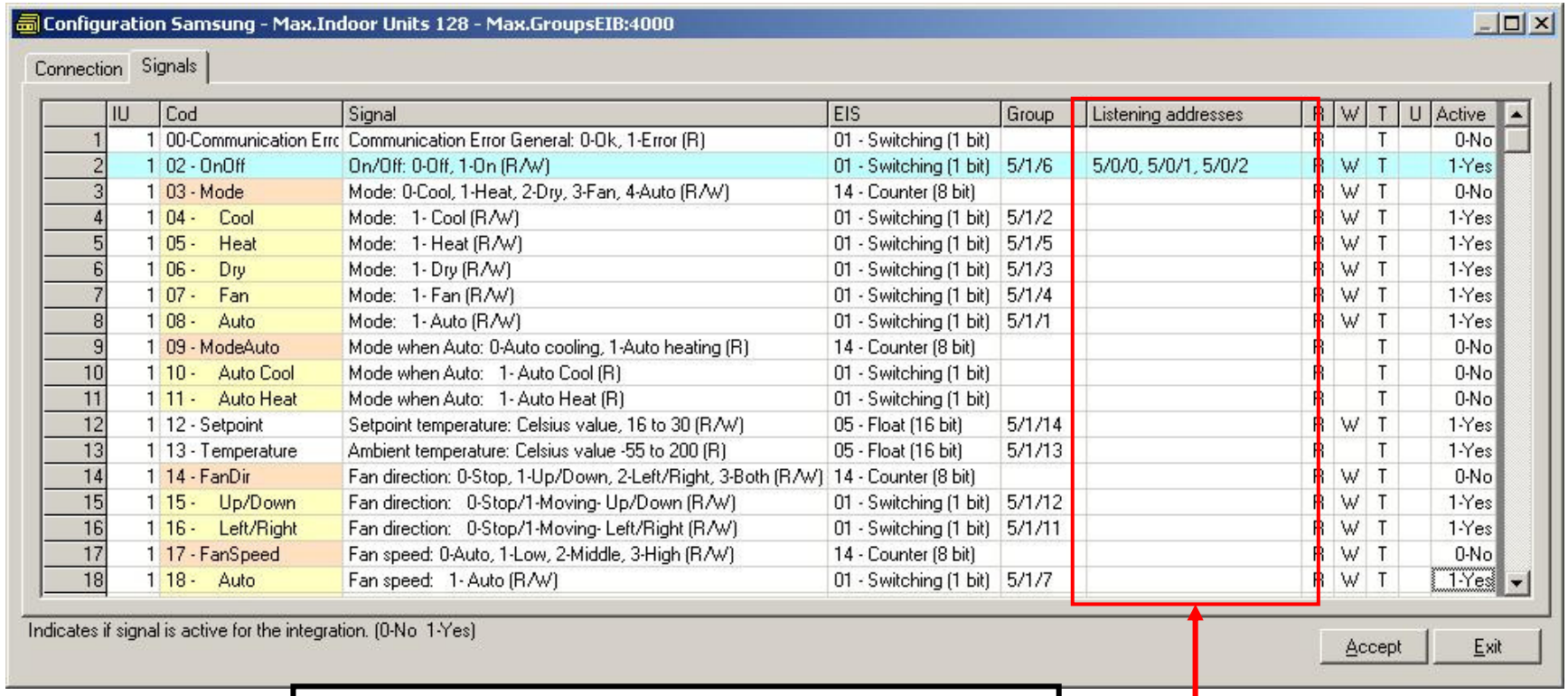


	IU	Cod	Signal	EIS	Group	Listening addresses	R	W	T	U	Active
1	1	00-Communication Err	Communication Error General: 0-Ok, 1-Error (R)	01 - Switching (1 bit)			R		T		0-No
2	1	02 - OnOff	On/Off: 0-Off, 1-On (R/W)	01 - Switching (1 bit)	5/1/6		R	W	T		1-Yes
3	1	03 - Mode	Mode: 0-Cool, 1-Heat, 2-Dry, 3-Fan, 4-Auto (R/W)	14 - Counter (8 bit)			R	W	T		0-No
4	1	04 - Cool	Mode: 1- Cool (R/W)	01 - Switching (1 bit)	5/1/2		R	W	T		1-Yes
5	1	05 - Heat	Mode: 1- Heat (R/W)	01 - Switching (1 bit)	5/1/5		R	W	T		1-Yes
6	1	06 - Dry	Mode: 1- Dry (R/W)	01 - Switching (1 bit)	5/1/3		R	W	T		1-Yes
7	1	07 - Fan	Mode: 1- Fan (R/W)	01 - Switching (1 bit)	5/1/4		R	W	T		1-Yes
8	1	08 - Auto	Mode: 1- Auto (R/W)	01 - Switching (1 bit)	5/1/1		R	W	T		1-Yes
9	1	09 - ModeAuto	Mode when Auto: 0-Auto cooling, 1-Auto heating (R)	14 - Counter (8 bit)			R		T		0-No
10	1	10 - Auto Cool	Mode when Auto: 1- Auto Cool (R)	01 - Switching (1 bit)			R		T		0-No
11	1	11 - Auto Heat	Mode when Auto: 1- Auto Heat (R)	01 - Switching (1 bit)			R		T		0-No
12	1	12 - Setpoint	Setpoint temperature: Celsius value, 16 to 30 (R/W)	05 - Float (16 bit)	5/1/14		R	W	T		1-Yes
13	1	13 - Temperature	Ambient temperature: Celsius value -55 to 200 (R)	05 - Float (16 bit)	5/1/13		R		T		1-Yes
14	1	14 - FanDir	Fan direction: 0-Stop, 1-Up/Down, 2-Left/Right, 3-Both (R/W)	14 - Counter (8 bit)			R	W	T		0-No
15	1	15 - Up/Down	Fan direction: 0-Stop/1-Moving- Up/Down (R/W)	01 - Switching (1 bit)	5/1/12		R	W	T		1-Yes
16	1	16 - Left/Right	Fan direction: 0-Stop/1-Moving- Left/Right (R/W)	01 - Switching (1 bit)	5/1/11		R	W	T		1-Yes
17	1	17 - FanSpeed	Fan speed: 0-Auto, 1-Low, 2-Middle, 3-High (R/W)	14 - Counter (8 bit)			R	W	T		0-No
18	1	18 - Auto	Fan speed: 1- Auto (R/W)	01 - Switching (1 bit)	5/1/7		R	W	T		1-Yes

Whether signal is "active" or not

Not active ←→ As if not implemented in the device

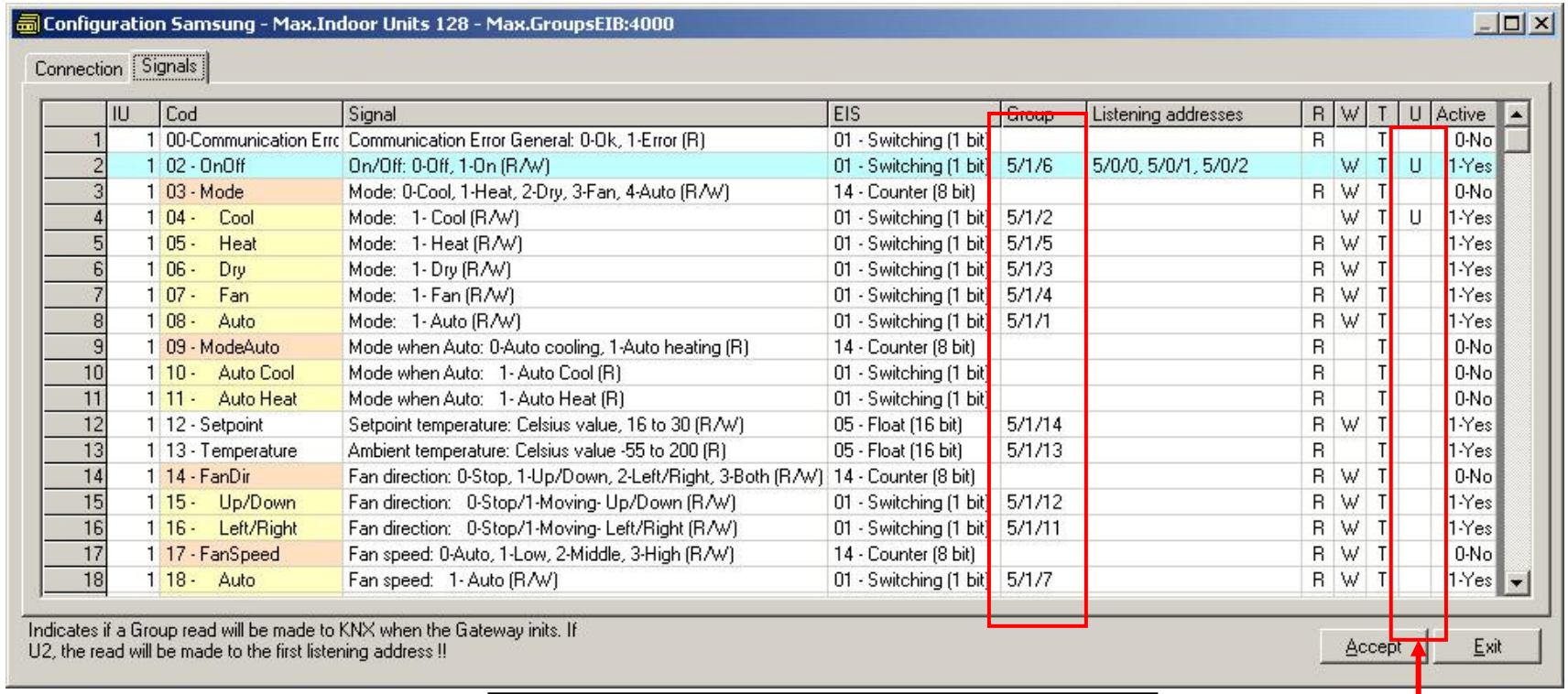
Configuration of SM-AC-KNX in LinkBoxEIB



	IU	Cod	Signal	EIS	Group	Listening addresses	R	W	T	U	Active
1	1	00-Communication Erro	Communication Error General: 0-Ok, 1-Error (R)	01 - Switching (1 bit)			R		T		0-No
2	1	02 - OnOff	On/Off: 0-Off, 1-On (R/W)	01 - Switching (1 bit)	5/1/6	5/0/0, 5/0/1, 5/0/2	R	W	T		1-Yes
3	1	03 - Mode	Mode: 0-Cool, 1-Heat, 2-Dry, 3-Fan, 4-Auto (R/W)	14 - Counter (8 bit)			R	W	T		0-No
4	1	04 - Cool	Mode: 1- Cool (R/W)	01 - Switching (1 bit)	5/1/2		R	W	T		1-Yes
5	1	05 - Heat	Mode: 1- Heat (R/W)	01 - Switching (1 bit)	5/1/5		R	W	T		1-Yes
6	1	06 - Dry	Mode: 1- Dry (R/W)	01 - Switching (1 bit)	5/1/3		R	W	T		1-Yes
7	1	07 - Fan	Mode: 1- Fan (R/W)	01 - Switching (1 bit)	5/1/4		R	W	T		1-Yes
8	1	08 - Auto	Mode: 1- Auto (R/W)	01 - Switching (1 bit)	5/1/1		R	W	T		1-Yes
9	1	09 - ModeAuto	Mode when Auto: 0-Auto cooling, 1-Auto heating (R)	14 - Counter (8 bit)			R		T		0-No
10	1	10 - Auto Cool	Mode when Auto: 1- Auto Cool (R)	01 - Switching (1 bit)			R		T		0-No
11	1	11 - Auto Heat	Mode when Auto: 1- Auto Heat (R)	01 - Switching (1 bit)			R		T		0-No
12	1	12 - Setpoint	Setpoint temperature: Celsius value, 16 to 30 (R/W)	05 - Float (16 bit)	5/1/14		R	W	T		1-Yes
13	1	13 - Temperature	Ambient temperature: Celsius value -55 to 200 (R)	05 - Float (16 bit)	5/1/13		R		T		1-Yes
14	1	14 - FanDir	Fan direction: 0-Stop, 1-Up/Down, 2-Left/Right, 3-Both (R/W)	14 - Counter (8 bit)			R	W	T		0-No
15	1	15 - Up/Down	Fan direction: 0-Stop/1-Moving- Up/Down (R/W)	01 - Switching (1 bit)	5/1/12		R	W	T		1-Yes
16	1	16 - Left/Right	Fan direction: 0-Stop/1-Moving- Left/Right (R/W)	01 - Switching (1 bit)	5/1/11		R	W	T		1-Yes
17	1	17 - FanSpeed	Fan speed: 0-Auto, 1-Low, 2-Middle, 3-High (R/W)	14 - Counter (8 bit)			R	W	T		0-No
18	1	18 - Auto	Fan speed: 1- Auto (R/W)	01 - Switching (1 bit)	5/1/7		R	W	T		1-Yes

Additional group addresses that will write-to that comm. object

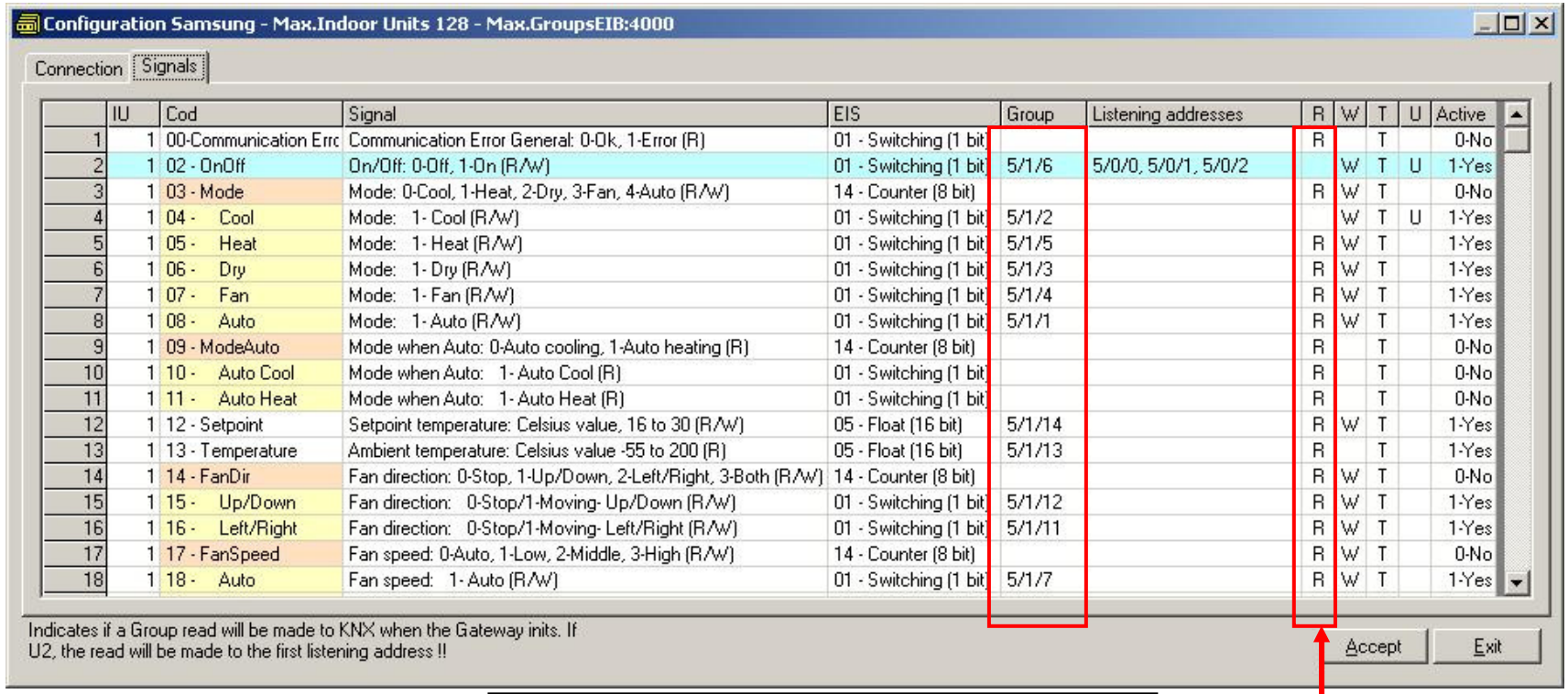
Configuration of SM-AC-KNX in LinkBoxEIB



	IU	Cod	Signal	EIS	Group	Listening addresses	R	W	T	U	Active
1	1	00-Communication Erro	Communication Error General: 0-Ok, 1-Error (R)	01 - Switching (1 bit)			R		T		0-No
2	1	02 - OnOff	On/Off: 0-Off, 1-On (R/W)	01 - Switching (1 bit)	5/1/6	5/0/0, 5/0/1, 5/0/2		W	T	U	1-Yes
3	1	03 - Mode	Mode: 0-Cool, 1-Heat, 2-Dry, 3-Fan, 4-Auto (R/W)	14 - Counter (8 bit)			R	W	T		0-No
4	1	04 - Cool	Mode: 1- Cool (R/W)	01 - Switching (1 bit)	5/1/2			W	T	U	1-Yes
5	1	05 - Heat	Mode: 1- Heat (R/W)	01 - Switching (1 bit)	5/1/5		R	W	T		1-Yes
6	1	06 - Dry	Mode: 1- Dry (R/W)	01 - Switching (1 bit)	5/1/3		R	W	T		1-Yes
7	1	07 - Fan	Mode: 1- Fan (R/W)	01 - Switching (1 bit)	5/1/4		R	W	T		1-Yes
8	1	08 - Auto	Mode: 1- Auto (R/W)	01 - Switching (1 bit)	5/1/1		R	W	T		1-Yes
9	1	09 - ModeAuto	Mode when Auto: 0-Auto cooling, 1-Auto heating (R)	14 - Counter (8 bit)			R		T		0-No
10	1	10 - Auto Cool	Mode when Auto: 1- Auto Cool (R)	01 - Switching (1 bit)			R		T		0-No
11	1	11 - Auto Heat	Mode when Auto: 1- Auto Heat (R)	01 - Switching (1 bit)			R		T		0-No
12	1	12 - Setpoint	Setpoint temperature: Celsius value, 16 to 30 (R/W)	05 - Float (16 bit)	5/1/14		R	W	T		1-Yes
13	1	13 - Temperature	Ambient temperature: Celsius value -55 to 200 (R)	05 - Float (16 bit)	5/1/13		R		T		1-Yes
14	1	14 - FanDir	Fan direction: 0-Stop, 1-Up/Down, 2-Left/Right, 3-Both (R/W)	14 - Counter (8 bit)			R	W	T		0-No
15	1	15 - Up/Down	Fan direction: 0-Stop/1-Moving- Up/Down (R/W)	01 - Switching (1 bit)	5/1/12		R	W	T		1-Yes
16	1	16 - Left/Right	Fan direction: 0-Stop/1-Moving- Left/Right (R/W)	01 - Switching (1 bit)	5/1/11		R	W	T		1-Yes
17	1	17 - FanSpeed	Fan speed: 0-Auto, 1-Low, 2-Middle, 3-High (R/W)	14 - Counter (8 bit)			R	W	T		0-No
18	1	18 - Auto	Fan speed: 1- Auto (R/W)	01 - Switching (1 bit)	5/1/7		R	W	T		1-Yes

U flag: Request update to bus on bus recovery / startup, on his own associated group address (Main group address)

Configuration of SM-AC-KNX in LinkBoxEIB



	IU	Cod	Signal	EIS	Group	Listening addresses	R	W	T	U	Active
1	1	00-Communication Erro	Communication Error General: 0-Ok, 1-Error (R)	01 - Switching (1 bit)			R		T		0-No
2	1	02 - OnOff	On/Off: 0-Off, 1-On (R/W)	01 - Switching (1 bit)	5/1/6	5/0/0, 5/0/1, 5/0/2		W	T	U	1-Yes
3	1	03 - Mode	Mode: 0-Cool, 1-Heat, 2-Dry, 3-Fan, 4-Auto (R/W)	14 - Counter (8 bit)			R	W	T		0-No
4	1	04 - Cool	Mode: 1- Cool (R/W)	01 - Switching (1 bit)	5/1/2			W	T	U	1-Yes
5	1	05 - Heat	Mode: 1- Heat (R/W)	01 - Switching (1 bit)	5/1/5		R	W	T		1-Yes
6	1	06 - Dry	Mode: 1- Dry (R/W)	01 - Switching (1 bit)	5/1/3		R	W	T		1-Yes
7	1	07 - Fan	Mode: 1- Fan (R/W)	01 - Switching (1 bit)	5/1/4		R	W	T		1-Yes
8	1	08 - Auto	Mode: 1- Auto (R/W)	01 - Switching (1 bit)	5/1/1		R	W	T		1-Yes
9	1	09 - ModeAuto	Mode when Auto: 0-Auto cooling, 1-Auto heating (R)	14 - Counter (8 bit)			R		T		0-No
10	1	10 - Auto Cool	Mode when Auto: 1- Auto Cool (R)	01 - Switching (1 bit)			R		T		0-No
11	1	11 - Auto Heat	Mode when Auto: 1- Auto Heat (R)	01 - Switching (1 bit)			R		T		0-No
12	1	12 - Setpoint	Setpoint temperature: Celsius value, 16 to 30 (R/W)	05 - Float (16 bit)	5/1/14		R	W	T		1-Yes
13	1	13 - Temperature	Ambient temperature: Celsius value -55 to 200 (R)	05 - Float (16 bit)	5/1/13		R		T		1-Yes
14	1	14 - FanDir	Fan direction: 0-Stop, 1-Up/Down, 2-Left/Right, 3-Both (R/W)	14 - Counter (8 bit)			R	W	T		0-No
15	1	15 - Up/Down	Fan direction: 0-Stop/1-Moving- Up/Down (R/W)	01 - Switching (1 bit)	5/1/12		R	W	T		1-Yes
16	1	16 - Left/Right	Fan direction: 0-Stop/1-Moving- Left/Right (R/W)	01 - Switching (1 bit)	5/1/11		R	W	T		1-Yes
17	1	17 - FanSpeed	Fan speed: 0-Auto, 1-Low, 2-Middle, 3-High (R/W)	14 - Counter (8 bit)			R	W	T		0-No
18	1	18 - Auto	Fan speed: 1- Auto (R/W)	01 - Switching (1 bit)	5/1/7		R	W	T		1-Yes

R flag: Communication object responds to read/update requests triggered from other devices on bus

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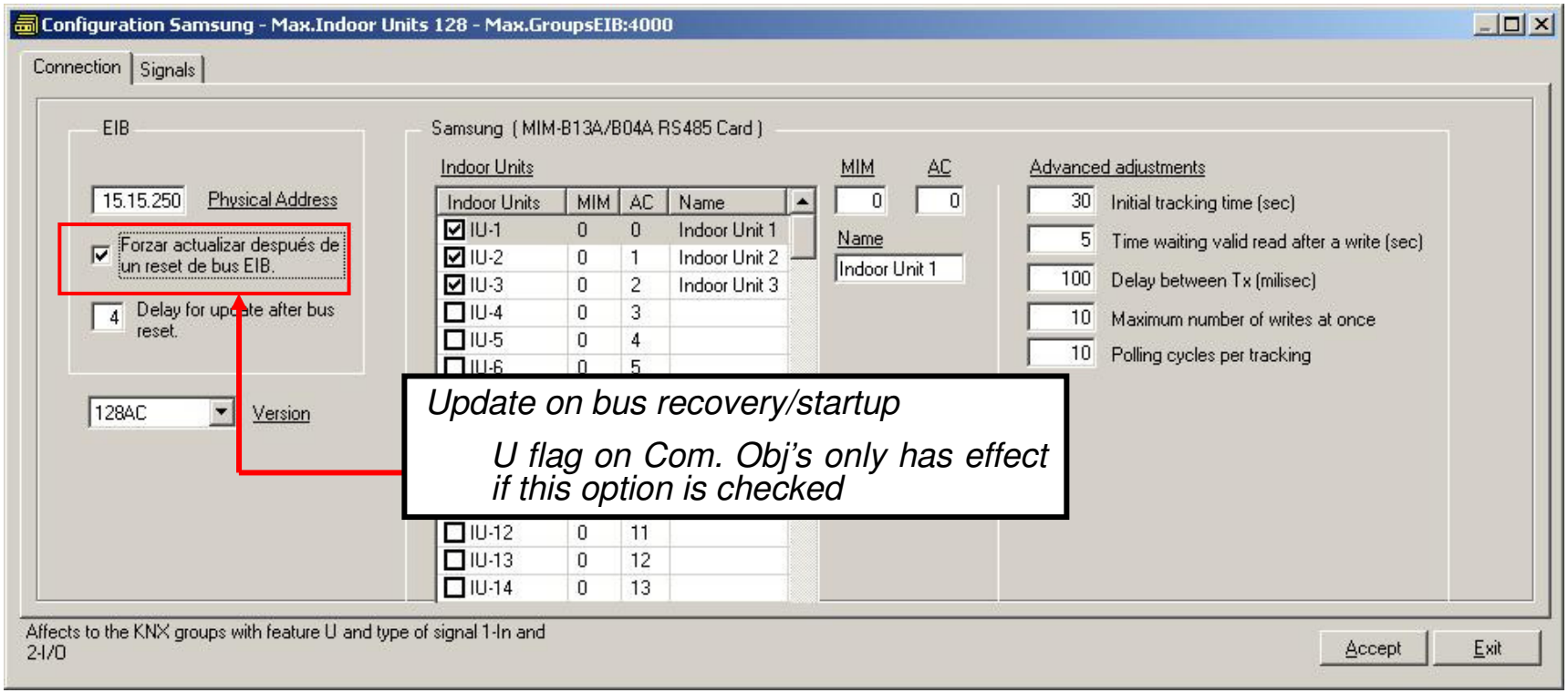

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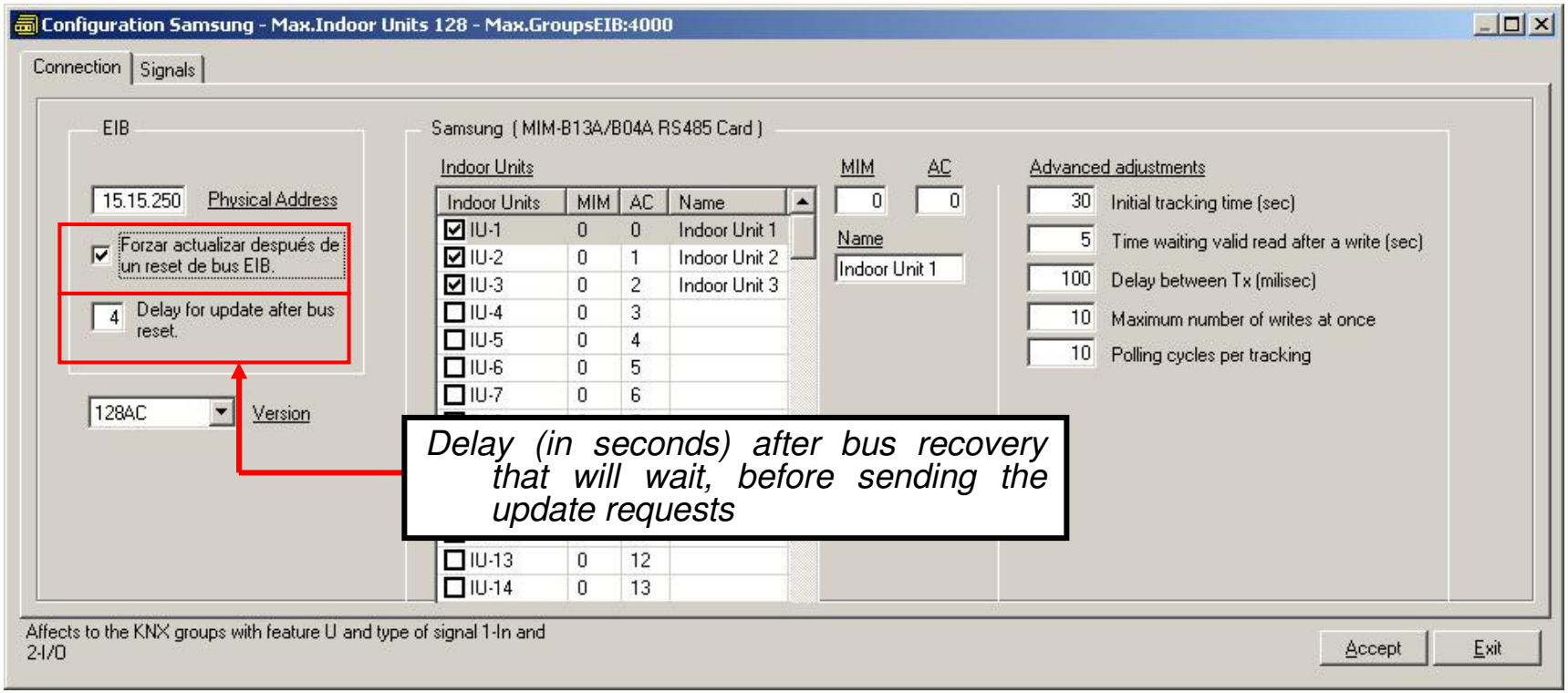

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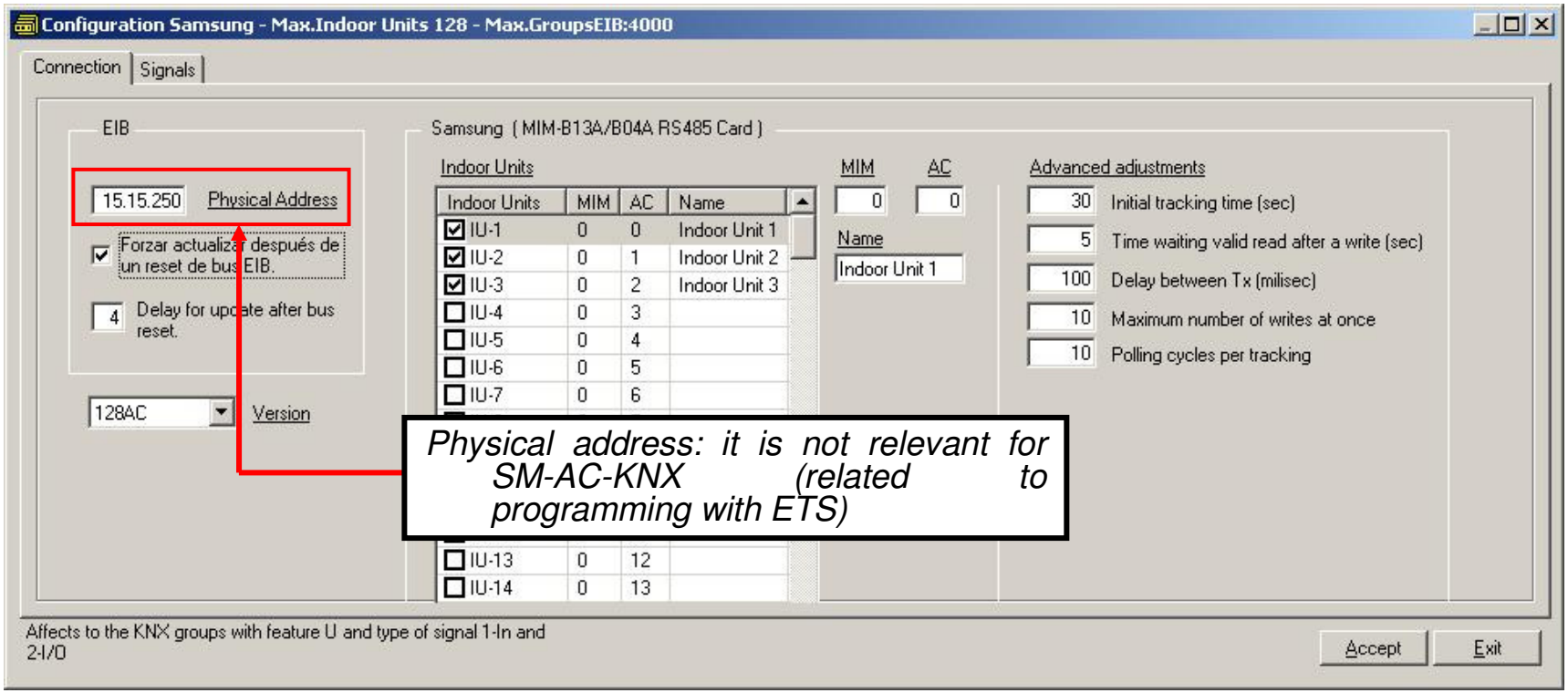
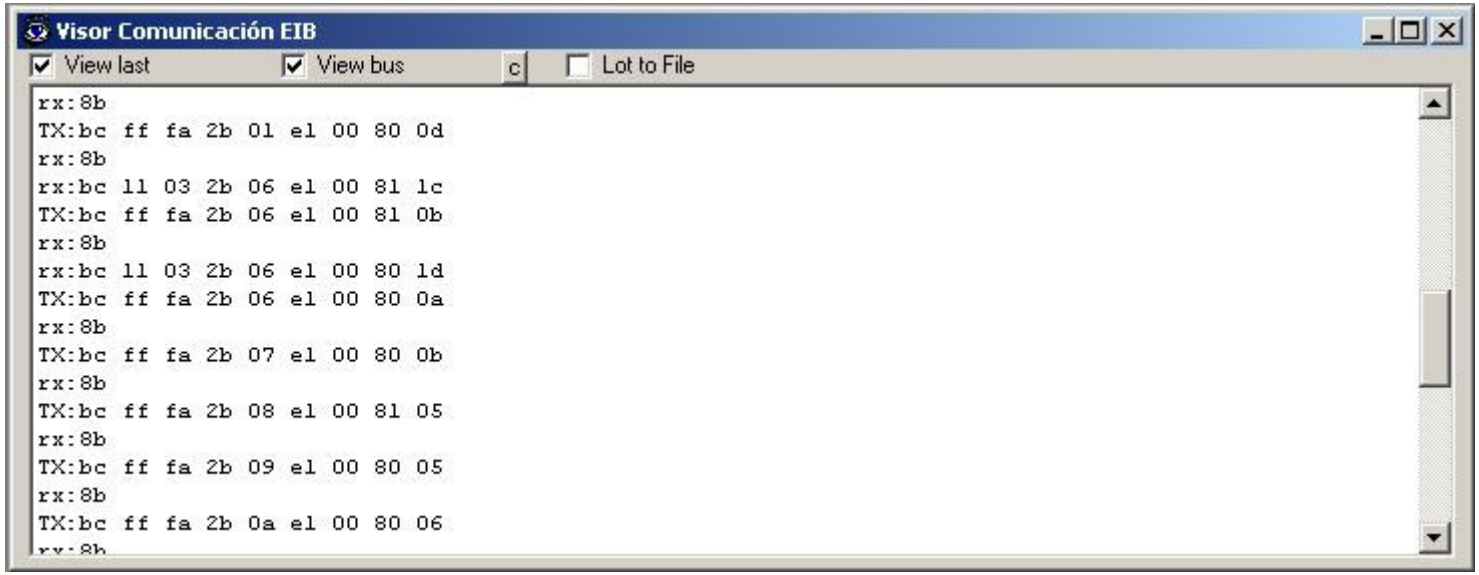
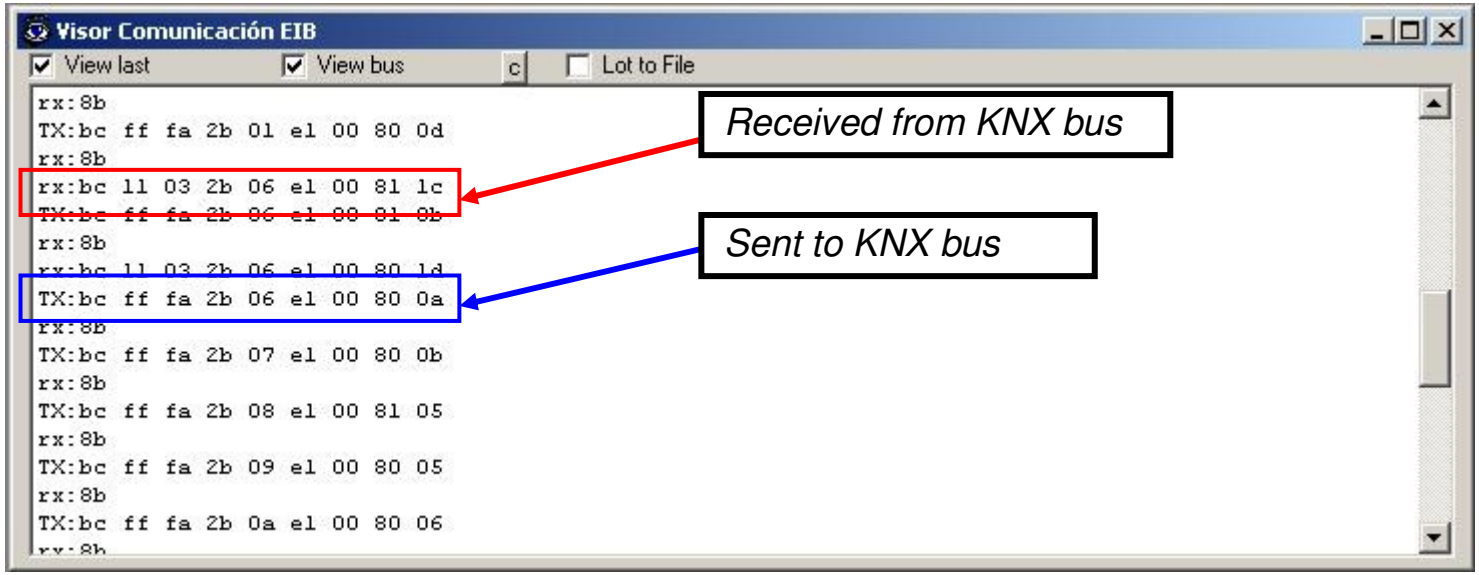


KNX bus on LinkBoxEIB bus viewer



KNX bus on LinkBoxEIB bus viewer



Thanks for your attention!

Intesis software

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