Programming manual

V1.0

Gateway

BUSing-MDAC-D

Index

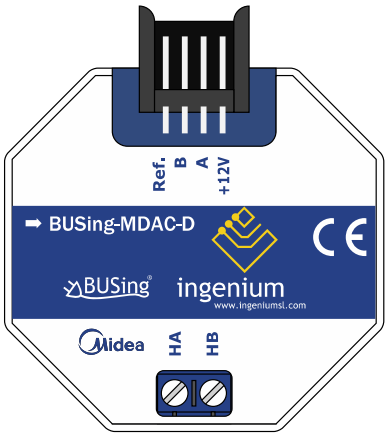
1 GENERAL DESCRIPTION

The BUSing-MDAC-D gateway allows direct communication from a BUSing® protocol installation with compatible Midea® climate units. This makes it easy to control the machine from BUSing screens, web servers or the Ingenium app available for mobile devices (iOS and Android) with a fully graphical and visual interface.

Apart from reading ambient temperature, set point temperature may be consulted and modified, as well as indicating to the machine its mode of operation and fan speed.

Each gateway will allow the control of an internal Midea® climate unit, to which it is connected directly through a connector supplied with the gateway, to the internal unit S21 connection. The maximum cable distance between machine and gateway must be 1 m.

To ensure compatibility of the gateways, contact the technical service or consult the compatibility table.

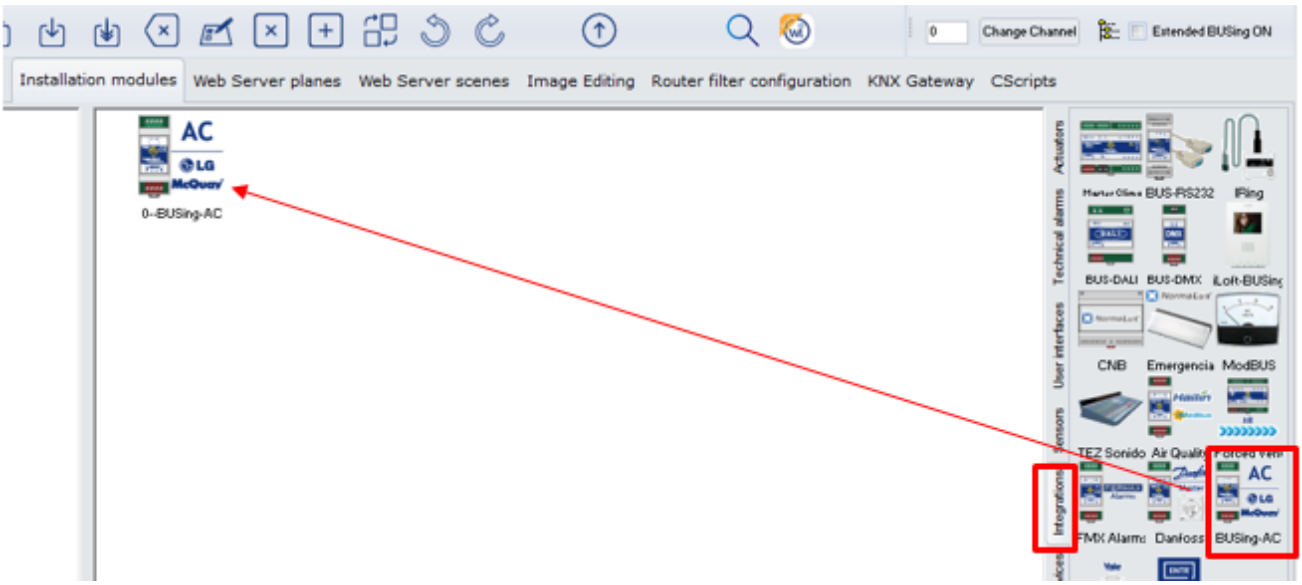


2 TECHNICAL DESCRIPTION

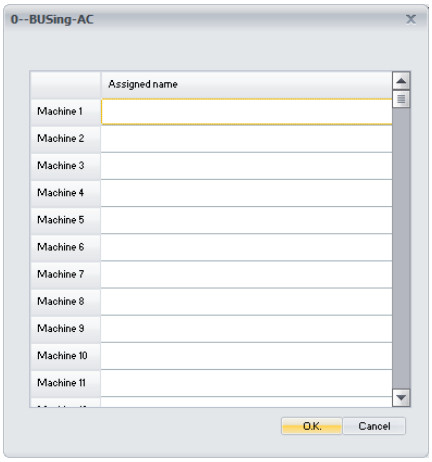
- Gateway for integration of Midea AC air conditioning system and BUSing® protocol.
- Allows control of one indoor Midea unit (check compatibility table)
- Direct communication through 2 wires with no polarity, to HA and HB terminals from indoor unit.
- Control and monitoring of the status and operating modes of the Midea climate machine.
    - On/Off machine
    - Ambient temperature
    - Consignment temperature
    - Modes of operation
    - Machine speed
- Mounting next to the climate unit or integrated into the ceiling.
- Does not support master/slave due to it works either with Midea remote control connected or not, being the last order received priority.
- It allows control from BUSing® screens, web servers or the free Ingenium App.

3 PROGRAMMING OF THE DEVICE

From the Development System (SIDE) BUSing-AC node must be inserted in the integrations tab, in the address wanted the gateway to have.

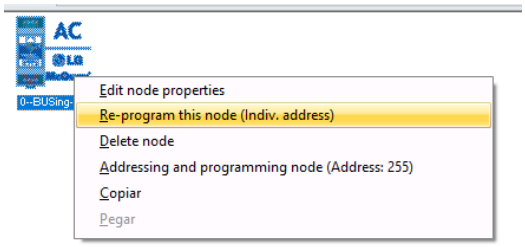


By double-clicking or right-clicking on the icon, and accessing its properties, a window will open like the following:



The only thing that needs to be programmed in this part, is to name the machine 1, which will be the one appearing, when linking it, on the graphical interfaces. The rest of the machines will not be used, as this gateway can only control one climate unit.

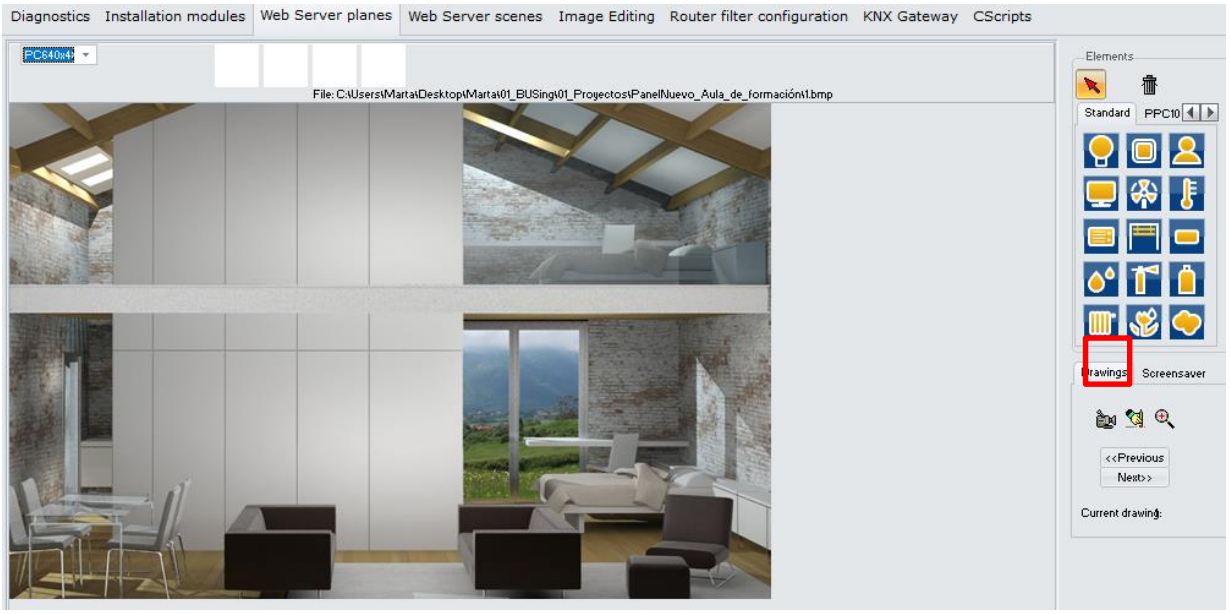
Once entered in the BUSing project and having only connected to the BUS this computer, the device should be addressed, right click on it and select *Program this node by appearing the* property screen on which you must click on programming. You can also right-click: *Direct and program node.*



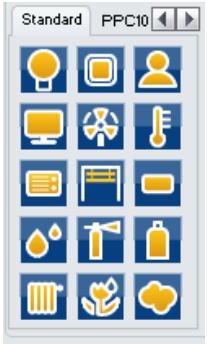
3.1 POINT TO POINT CONTROL IN PPL

To be able to control the machine it will be necessary to include a thermostat icon on one of the graphical interfaces or web server of BUSing®, and make a point-to-point link. The following example is about Ethbus3 or PPL.

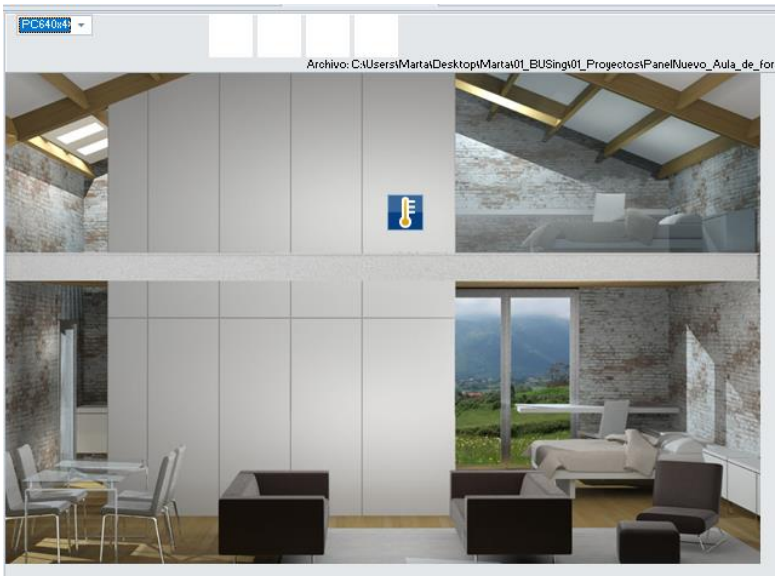
In the *Web Server Planes tab, with* a previously added plane, through the red icon, located on the right side:



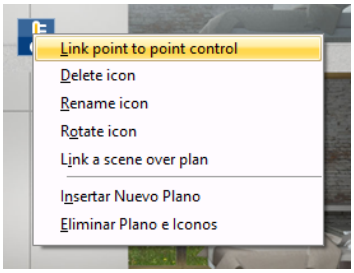
Click on a thermometer icon, available in the icon battery on the right. Next, with the mouse you click on the part of the plane you want to incorporate this icon:



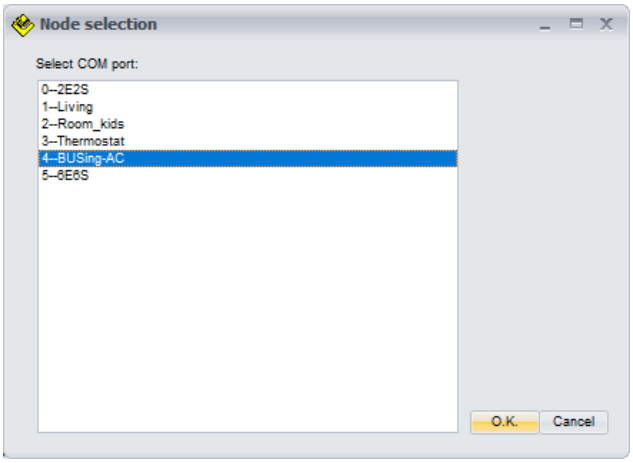
And the map would look like:



The next step will be to make a point-to-point link of the thermostat icon with the AC gateway. To do this, you must right click on the icon and select the option *Link control point-to-point.*



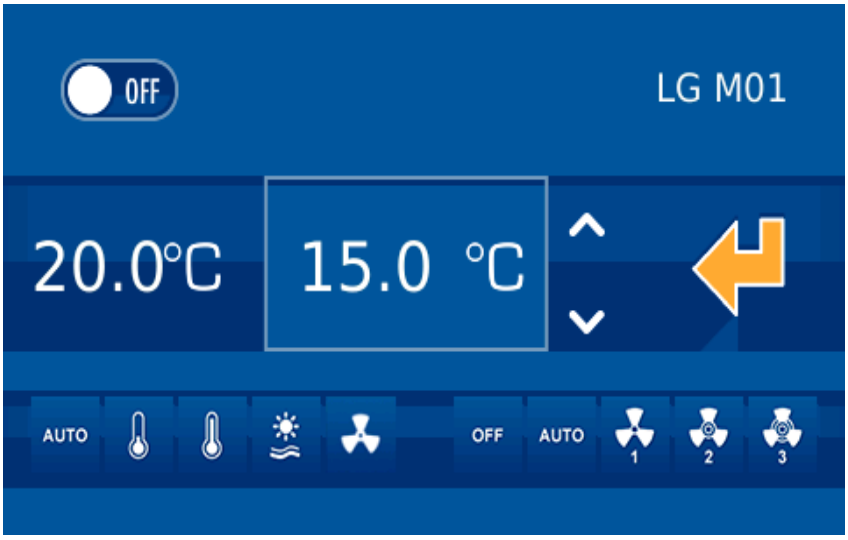
When clicking on this option, a window will appear like the next one, with all the nodes added to our *project (in Installation Modules).* Select the corresponding node for AC gateway, in the case of the example, node 4 and press Ok.



Again, a window will appear to select the Midea machine to add. It is reminded that this gateway only controls 1 indoor climate unit, so only the first machine should be selected, though 0 to 63 machines are available. This is because that BUSing-AC icon added in *Installation Modules serves to program* other BUSing AC gateways that can control more than one AC unit.

Once pressed Ok, the point-to-point control of the gateway would already be linked with its corresponding icon on the PPL. For further information regarding programming a PPL, check its programming manual.

Once downloaded the programming to the screen or webserver, the graphic interface for this device would look like the following:



On the left side, the ambient temperature can be read, the next value in the rectangle is the setpoint temperature. Finally, at the left bottom are the available modes of the AC unit, and on the right side the speed.

4 TABLE OF COMPATIBILITY

4.1 INDOOR UNITS

Compatible models always refer to indoor units, not references to outdoor plus indoor units.

Indoor unit type		Reference
Casettes	One-way casette	MDV-DxxQ1/N1-C
		MDV-DxxQ1/N1-D
	One-way casette VRF	MDV-DxxQ1/N1-D
		MDV-DxxQ1/N1
	Two-way cassette	MDV-DxxQ2/N1
	Compact four-way casette	MDV-DxxQ4/N1-A3
	Four-way casette	MDV-DxxQ4/N1-D
	ART FLUX 360º casette (600x600)	MI-xxQ4/DHN1-A3
	ART FLUX 360º) casette	MI-xxQ4/DHN1-D
	Compact (600x600) Multi	MCA3I-xxHRFNx-QRD0
		MCA3U-xxHRFNx-QRD0W
		MCA3I-xxFNXD0
		MCA3I-xxHRFN1-QRC8
		MCA3U-xxHRFN1-QRD0W
		MCA3-xxHRFN1-QRC8W(B)
	Super Slim (840x840)	MCD-xxFNXD0
		MCD-xxHRFNx-QRD0
		MCD-xxHRFN1-QRC8W(D)
		MCD-xxHRFN1-QRD0
	Cassette 600x600	MCA3U-xxHRFNx-QRD0W
		MCA3U-xxHRFN1-QRD0W
		MCA3-xxHRFN1-QRD0
	Cassette 600x600 2 PIPES / PANEL INCLUDED	MKD-Vxx

	Cassette 600x600 4 PIPES / PANEL INCLUDED	MKD-Vxxf
	Cassette VRF 600x600	MI-xxQ4/DHN1-A3
	Cassette VRF 840x840	MI-xxQ4/DHN1-D
	Cassette 840x840 2 PIPES / PANEL INCLUDED	VxxR
	Cassette 840x840 4 PIPES / PANEL INCLUDED	VxxF
Ducted	T1, High Static Pressure	MDV-DxxT1/N1-B
	T2, Medium Static Pressure	MDV-DxxT2/N1-DA5
	T3, Low Static Pressure	MDV-DxxT3/N1-B
		MDV-DxxT3/N1-C
	Slim A5 medium static duct	MDV-DxxT2/N1-DA5
		MDV-DxxT2/N1-CA5
	A5 medium static duct	MDV-DxxT2/N1-BA5
	MIV V4+ medium static duct	MVMxxA-VA1
	High static duct	MDV-DxxT1/N1-B
		MDV-DxxT1/N1
	High static duct (Inverter Fan)	MI-xxT1/DHN1-B
		MI-xxT2/DHN1-DA5
	Multi	MTBI-xxHWFN1-QRD0
		MTB-xxHWFN1-QRC8W(B)
		MTB-xxHWFN1-QRC8W(D)
	A5	MTBU-xxQRD0W
		MTBU-xxHWFN1-QRD0
	A6	MTIU-xxHWFNx-QRD0W(V1)
		MTIU-xxHWFNx-QRD0W
		MTI-xxHWFNx-QRD0(V1)
		MTI-xxHWFNx-QRD0

		MTI-xxFNXD0
		MTI-xxHWFN1-QRD0
		MTIU-xxFNXD0
	VRF	MI-xxT2/DHN1-DA5
		MI-xxT2/DHN1-BA5
	High Pressure DC High capacity VRF	MI-xxT1/DHN1-B
FCU/AHU	FCU/AHU 1	AHUKZ-xx
		AHUKZ-xxB
Ceiling / floor	Ceiling / floor	MUEU-xxHRFNx-QRD0W
		MUE-xxHRFNx-QRD0
		MDV-DxxDL/N1-C
		MI-xxDL/DHN1-C
		MUE-xxFNXD0
		MUE-xxHRFN1-QRD0
	Ceiling / floor VRF	MI-xxDL/DHN1-C
	Floor with / without envelope VRF	MI-DxxZ/N1-F4
		MDV-DxxZ/N1-F4
Floor stand type	Exposed type floor standing with side air return	MDV-DxxZ/N1-F4
	Exposed type floor standing with bottom air return	MDV-DxxZ/N1-F5
	Concealed type floor standing	MDV-DxxZ/N1-F3B
Wall-mounted unit	R3 series wall-mounted	MDV-DxxG-R3/N1Y
	C series wall-mounted	MDV-DxxG/DN1YB
		MDV-DxxG/N1YB
	S series wall-mounted	MDV-DxxG/N1-S
		MDV-DxxG/DN1-S
	Wall-Mounted	MI-xxG/DHN1-M

	Mural	MSAGDU-xxHRFN8-QRD0GW (2)
		MSAGCU-xxHRFNx-QRD0GW (2)
		MSAGBU-xxHRFN8-QRD1GW(GA) (2)
		MSAGDU-xxHRFNx-QRD0GW (2)
		MSMBAU-xxHRFN1-QRD0GW(B)2
		MSMBBU-xxHRFN1-QRD0GW(B)2
		MSMBCU-xxHRFN1-QRD0GW(B)2
		MSMBDU-xxHRFN1-QRD0GW(B)2
	FAN COILS DC VRF	VxxB
	VRF	MI-xxG/DHN1-M
Console	Console	MDV-DxxZ/DN1-B
	Console with/without casing	MI-DxxZ/N1-F4
	Console double flow multi	MFAI-xxHRFN1-QRC8
		MFAU-xxHRFN1-QRD0
		MFA-xxHRFN1-QRC8W
	VRF	MDV-DxxZ/DN1-B
Fresh air unit	Fresh air unit	MDV-DxxT1/N1-FA
Column	TYPE N	MFM-xxHRFN1-QRD0
		MFM-xxARFN1-RRD0

[1] In order to use AHU units, it is necessary to connect BUSing Gateway to XYE bus of outdoor unit instead of indoor unit bus.

[2] This unit requires a multifunction board (contact the supplier).

XX specifies the indoor unit power
(01/02/03/07/09/12/14/15/18/22/24/28/30/36/45/54/56/60/71/72/80/90/100/112/125/140/160/200/250/280/300/400/450/500/560/600/750/950/1200/1500)

All units including XYE connector and compatible with centralized controller MD-CCM03…09/E will be compatibles with BUSing-MDAC-D gateway.

Any air conditioning model which is not on the list might not be compatible with the Gateway.

Ingenium cannot guarantee that this document has no writing or composition errors, as well as similar problems.

4.2 OUTDOOR UNITS

Outdoor units type	Reference
EXCELLENCE VRF	MDV-VxxxW/DN1
	MDV-VxxxW/DN1(B)
	MDV-VxxxW/DRN1
	MDV-VxxxW/DRN1(A)
	MDV-xxxW/DRN1-i(B)
	MDV-xxxW/DRN1-i(C)
	MV5-ExxxW/V2GN1
	MV5-XxxxW/V2GN1
	MDVS-xxx(8)W/DRN1
	MDVS-xxx(10)W/DRN1
	MDVS-xxx(12)W/DRN1
	MDV-xxx(8)W/D2RN1T(C)
	MDV-xxx(10)W/D2RN1T(C)
	MDV-xx(12)W/D2RN1T(C)
	MDV-xxx(14)W/D2RN1T(C)
	MDV-xxx(16)W/D2RN1T(C)
	MV-xxx(8)W/D2RN1T(D)
	MV-xxx(10)W/D2RN1T(D)
	MV-xxx(12)W/D2RN1T(D)
	MV-xxx(14)W/D2RN1T(D)
	MV-xxx(16)W/D2RN1T(D)

Any air conditioning model which is not on the list might not be compatible with the Gateway.

All units including XYE connector and compatible with centralized controller MD-CCM03…09/E will be compatibles with BUSing-MDAC-D gateway.

5 RECORDS THAT SUPPORTS

5.1 RAM

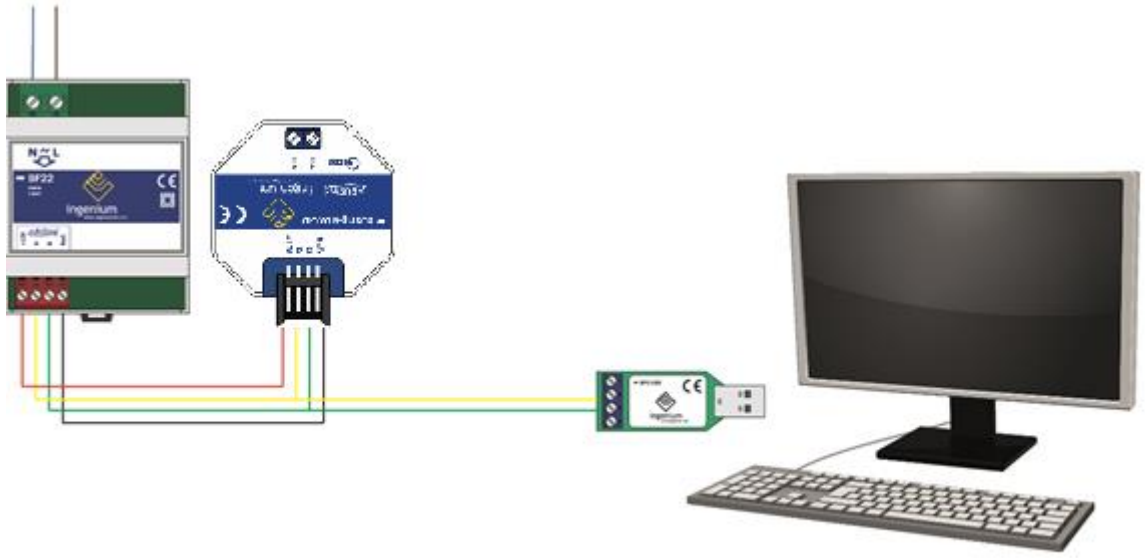
Command	Data 1	Data 2	Description
Read/ Write	0	0-3	0 = Deactivate control of the machine. 3 = On machine. 2 = Off machine.
Read/ Write	1	0-68	Ventilation speed and operating mode. Data 2 = 0-4: Fan off. Data 2 = 16: Low ventilation (Low)/Cold mode (Cool). Data 2 = 17: Low ventilation (Low)/Dry mode. Data 2 = 18: Low ventilation (Low)/Ventilation-only mode (Fan). Data 2 = 19: Low ventilation (Low)/Auto mode. Data 2 = 20: Low ventilation (Low)/Heat mode. Data 2 = 32: Medium ventilation (Medium)/Cold mode (Cool). Data 2 = 33: Medium ventilation (Medium)/Dry mode. Data 2 = 34: Medium ventilation (Medium)/Ventilation-only mode (Fan). Data 2 = 35: Medium ventilation/automatic mode (Auto). Data 2 = 36: Medium ventilation (Medium)/Heat mode. Data 2 = 48: High ventilation (High)/Cold mode (Cool). Data 2 = 49: High ventilation (High)/Dry mode. Data 2 = 50: High ventilation (High)/Ventilation-only mode (Fan). Data 2 = 51: High ventilation (High)/Auto mode. Data 2 = 52: High ventilation (High)/Heat mode. Data 2 = 64: Automatic ventilation (Auto)/Cold mode (Cool). Data 2 = 65: Automatic ventilation (Auto)/Dry mode. Data 2 = 66: Automatic ventilation (Auto)/Ventilation-only mode (Fan). Data 2 = 67: Automatic ventilation (Auto)/Auto mode (Auto). Data 2 = 68: Automatic ventilation (Auto)/Heat mode.
Read/ Write	2	1-16	Consignment temperature in ºC = Data 2 + 15
Read	3	102-132	Temperature measured ºC = (164 – data 2)/2

5.2 EEPROM

Command	Data 1	Data 2	Description
ReadEeprom	0	0 - 255	Device BUSING® address.

6 DATA DOWNLOADING

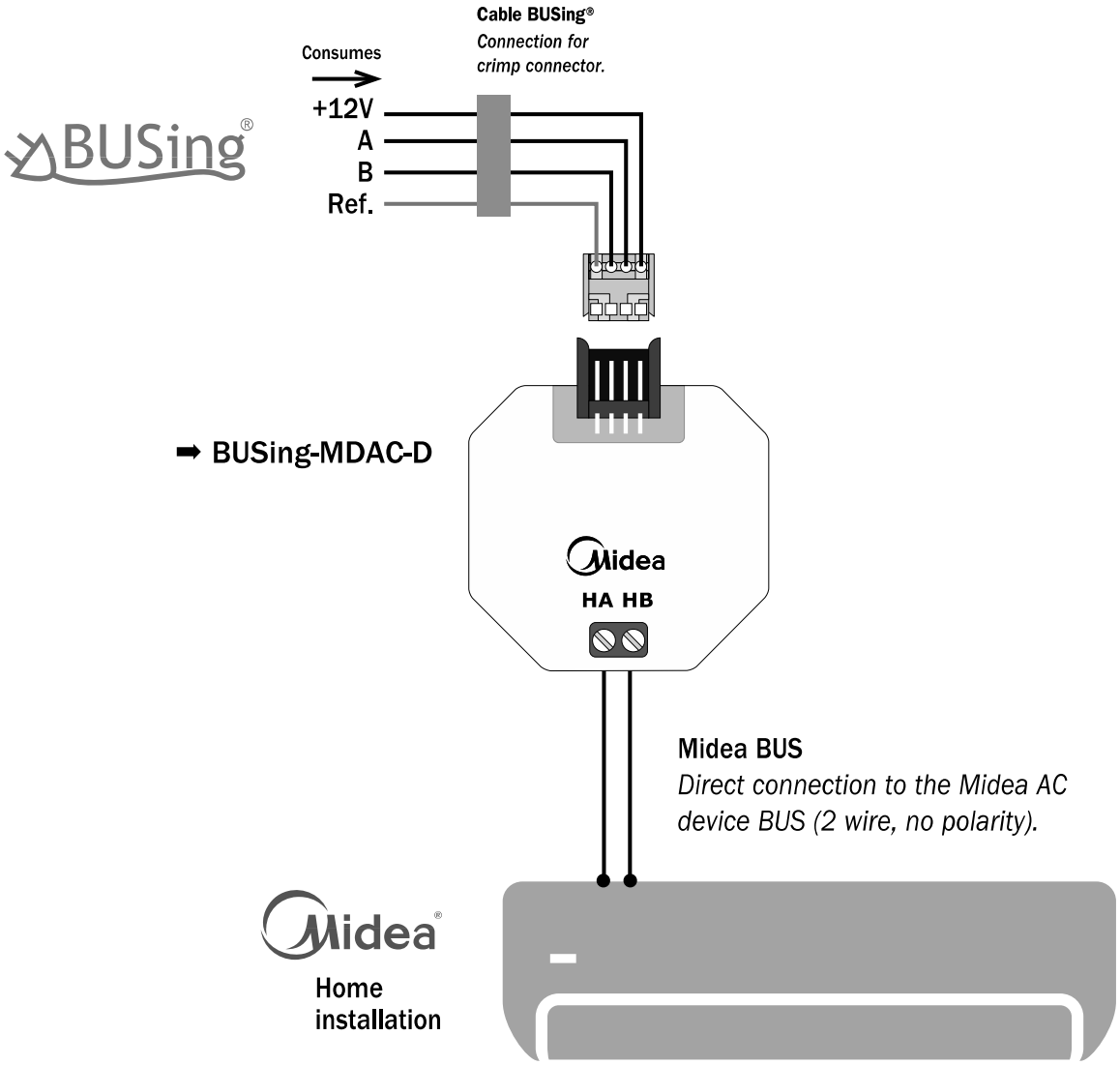
Previously we have to have the BUSing-MDAC-D gateway properly connected as follows:



NOTE:IT IS NOT NECESSARY TO PLACE THE POWER SUPPLY IF THERE IS SUFFICIENT VOLTAGE IN THE INSTALLATION TO POWER IT. IT COULD BE THAT THE POWER COMES FROM OTHER EQUIPMENT LIKE 6E6S, 4E4S...ETC.

The only information to be turned to the gateway is the BUSing address. If you click on the icon *to reprogramme this node, no* window will appear to confirm the programming, since the name assigned to machine 1 in the gateway properties is necessary for point-to-point control linking on a screen/web server.

7 WIRING


Cable BUSing®
Connection for crimp connector.
Consumes
+12V
A
B
Ref.
BUSing®
➡ BUSing-MDAC-D
Midea
HA HB
Midea BUS
Direct connection to the Midea AC device BUS (2 wire, no polarity).
Midea®
Home installation

ingenium
www.ingeniumsl.com

Parque Tecnológico de Asturias, Parcela 50,
33428 Llanera – Asturias - España

Tel (+34) 985 118 859

Fax (+34) 984 283 560

ingeniumsl@ingeniumsl.com
www.ingeniumsl.com

BUSing®

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