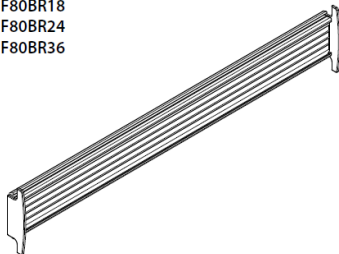


## EMS BT DIN - Power supply & Connection Equipment

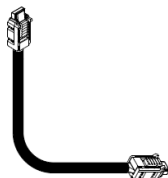
### Cat. Nos:

F80BR18/24/36, F80BC250/500/1000, F80BCA, F80BRA, F80BA

F80BR18  
F80BR24  
F80BR36



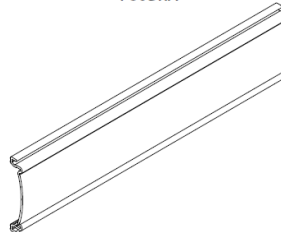
F80BC250  
F80BC500  
F80BC1000



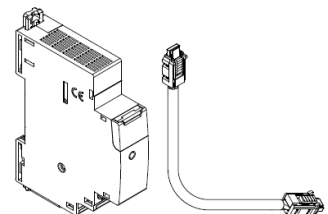
F80BCA



F80BRA



F80BA



### Contents

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# EMS BT DIN - Power supply & Connection Equipment

## Cat. Nos:

F80BR18/24/36, F80BC250/500/1000, F80BCA, F80BRA, F80BA

## 1. DESCRIPTION - USE

- . Equipment: dedicated to Energy Management System (EMS BT DIN) use.
- . Power supply module: allows the power up and distribution of the supply and of the communications data within the EMS BT DIN system

## 2. RANGE

### Communicating rails:

- . Allow supply and data transmission between EMS BT DIN modules
- . Allow the connection of several EMS BT DIN modules at the rear through dedicated connectors on the same row.
- . Fixed directly on DIN rails of 7,5 mm or 15 mm depth
  - Cat. no F80BR18: 1 rail of 18 DIN modules (315 mm length)
  - Cat. no F80BR24: 1 rail of 24 DIN modules (420 mm length)
  - Cat. no F80BR36: 1 rail of 36 DIN modules (630 mm length)

### Communicating patch cords:

- . Allow connection of EMS BT DIN data
- . Allow the connexion between several EMS BT DIN modules at the downstream through dedicated connectors or to connect several communicating rails to one another.
  - Cat. no F80BC250: 10 patch cords of 250 mm length
  - Cat. no F80BC500: 10 patch cords of 500 mm length
  - Cat. no F80BC1000: 5 patch cords of 1000 mm length

### Communication patch cords connector:

Increases the length of communicating patch cords: communicating cords are clipped to either side of the connector. Maximum total length allowed for 1 communicating cable cord: **3 meters**

Cat. n° F80BCA

### Plastic cover for communicating rails:

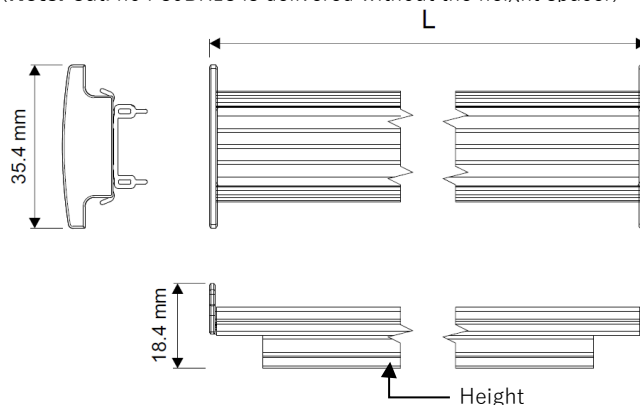
- . Protects the unused portion of the communicating rail (**use of plastic cover is mandatory**). To be clip directly on the onto the DIN rail, can be cut to the required length
  - Cat. n° F80BRA: 630 mm length

### Power Supplier Module:

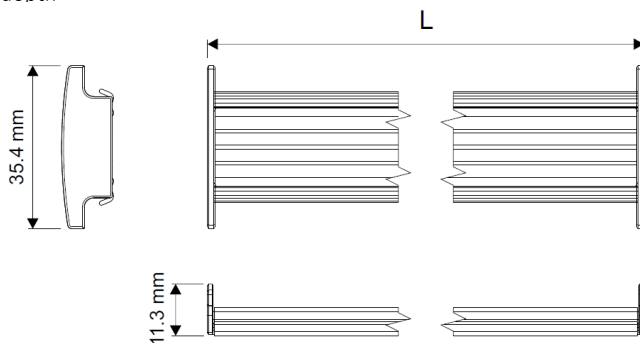
- . Delivered with a separation white patch cord
  - . Supplier.
- Primary voltage 95 ÷ 250 V~  
Secondary voltage 12 VDC 500 mA  
Cat. n° F80BA: 1 module (17,8 mm) width

## 3. OVERALL DIMENSIONS

- . Communicating rails with the height spacer for mounting on DIN rails 15 mm depth (**Note:** Cat. no F80BR18 is delivered without the height spacer)

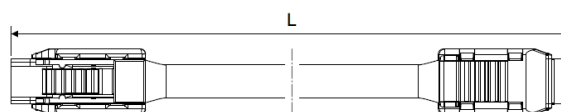


- without the height spacer for mounting on DIN rails 7,5 mm depth



Cat. n°	L (mm)
F80BR18 (delivered without the height spacer which is not necessary)	<b>315</b>
F80BR24	<b>420</b>
F80BR36	<b>630</b>

- . Communicating patch cords



Cat. n°	L (mm)
F80BC250	<b>250</b>
F80BC500	<b>500</b>
F80BC1000	<b>1000</b>

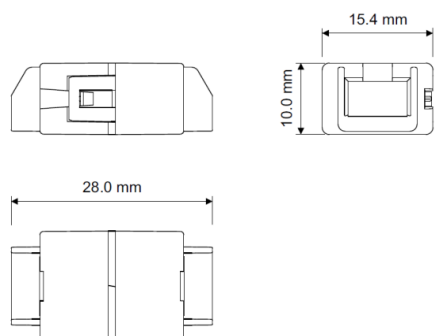
# EMS BT DIN - Power supply & Connection Equipment

Cat. Nos:

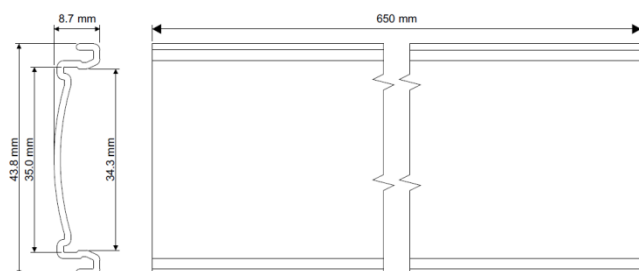
F80BR18/24/36, F80BC250/500/1000, F80BCA, F80BRA, F80BA

## 3. OVERALL DIMENSIONS *(continued)*

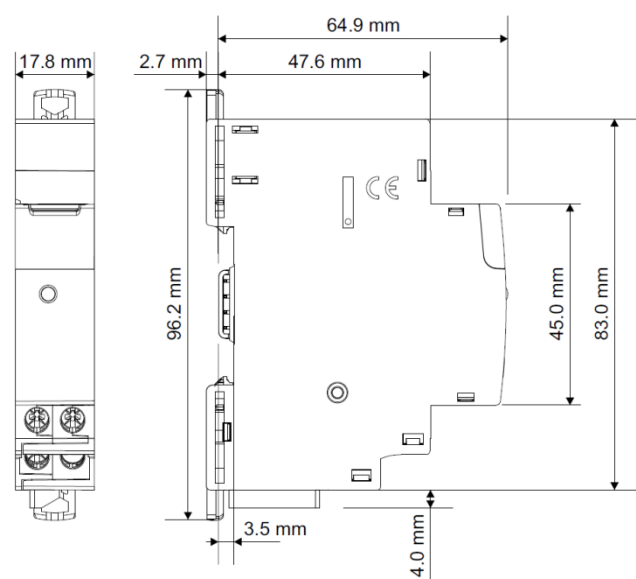
. Communication patch cord connector, cat. n° F80BCA:



. Plastic cover for communicating rails, cat. n° F80BRA:



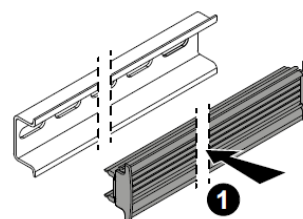
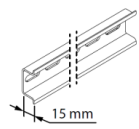
. Power supply module, cat. n° F80BA:



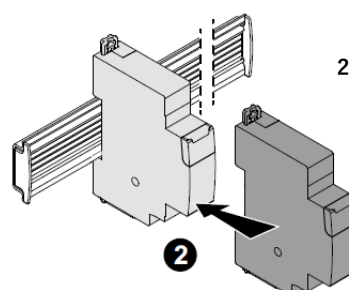
## 4. PREPARATION -CONNECTION

**Assembly of the various elements of the system:**

. Communicating rail on a 15 mm depth DIN rail:



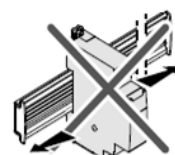
**1.** Clip the communicating rail on the DIN rail



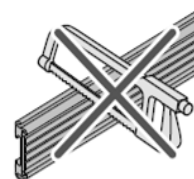
**2.** Clip the EMS BT DIN devices



. Do not slide EMS BT DIN devices once fixed on the communicating rail



. Do not cut the EMS BT DIN communicating rail



# EMS BT DIN - Power supply & Connection Equipment

Cat. Nos:

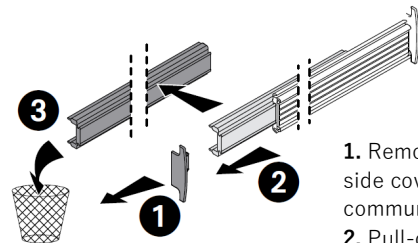
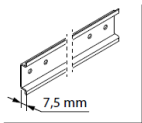
F80BR18/24/36, F80BC250/500/1000, F80BCA, F80BRA, F80BA

## 4. PREPARATION –CONNECTION (continued)

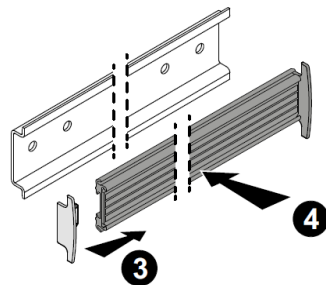
### Assembly of the various elements of the system

(continued):

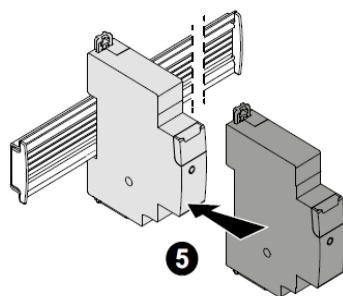
. Communicating rail on a 7.5 mm depth DIN rail:



1. Remove one of the two side covers of the communicating rail
2. Pull-out the height spacer



3. Refit the side cover
4. Clip the communicating rail on the DIN rail



5. Clip the EMS BT DIN devices



. Do not slide EMS BT DIN devices once fixed on the communicating rail



. Do not cut the EMS BT DIN communicating rail

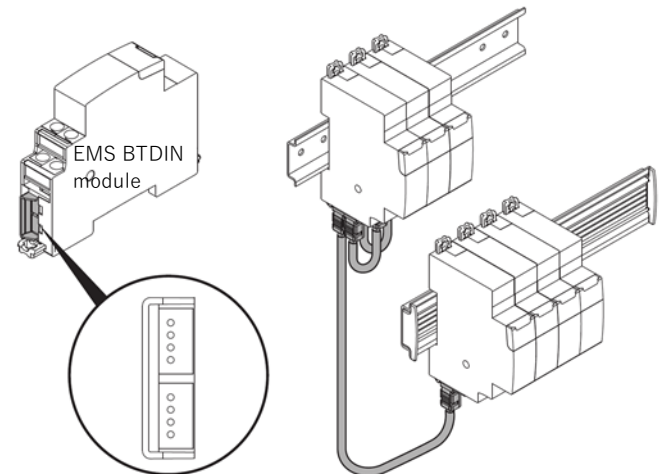


## 4. PREPARATION –CONNECTION (continued)

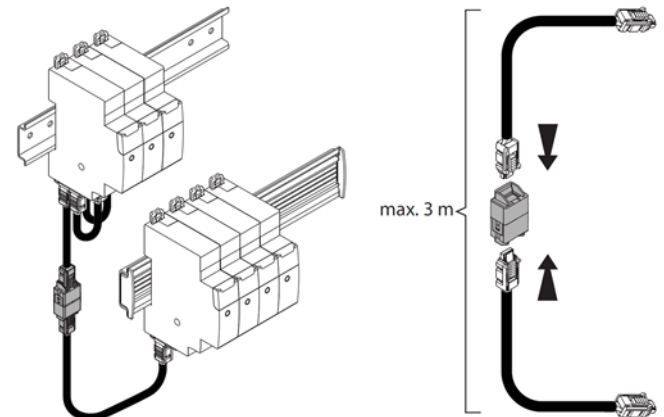
### Assembly of the various elements of the system

(continued):

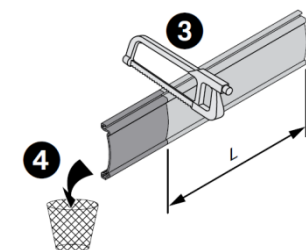
. Communicating patch cords:



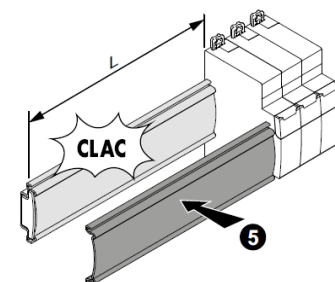
. Communication patch cord connector:



. Plastic cover for communicating rails:



. Cut the protection plastic cover to the required length



Clip the protection plastic cover on the remaining exposed part of the communicating rail

# EMS BT DIN - Power supply & Connection Equipment

Cat. Nos:

F80BR18/24/36, F80BC250/500/1000, F80BCA, F80BRA, F80BA

## 4. PREPARATION –CONNECTION (continued)

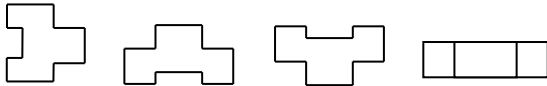
. Power Supply Module

### Fixing:

. On symmetric rail EN/IEC 60715 or DIN 35 rail

### Operating positions:

. Vertical, Horizontal, Upside down, On the side



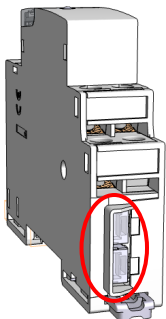
### Power Supply:

Primary voltage 95 ÷ 250 V~

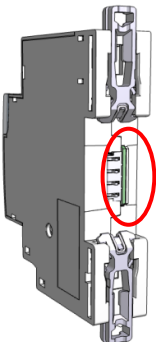
Secondary voltage 12 VDC 500 mA

. Two ways:

via specific communication patch cords (cat. nos F80BC250/500/1000) to connect at the downstream through dedicated ports



via specific communication rails (cat. nos F80BR18/24/36) to connect at the rear through dedicated connectors.



### Power supply terminals:

. Terminal depth: 8 mm.

. Stripping length: 8 mm

### Screw head:

. Mixed, slotted and Pozidriv n° 1 (UNI7596 type Z1).

### Recommended tightening torque:

. 1 Nm.

### Recommended tools:

. For the terminals: Pozidriv n° 1 or flat screwdriver 4 mm.

. For fixing: flat screwdriver 5.5 mm (6 mm maximum).

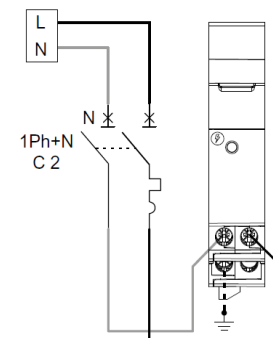
## 4. PREPARATION –CONNECTION (continued)

### Conductor type:

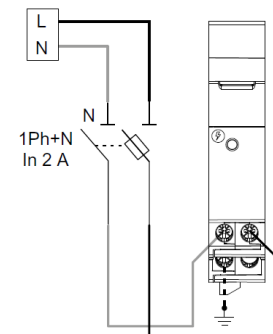
	Copper cable	
	Without ferrule	With ferrule
Rigid Cable	1 x 0,5 mm <sup>2</sup> to 1,5 mm <sup>2</sup> 2 x 1,5 mm <sup>2</sup>	-
Flexible Cable	1 x 0,5 mm <sup>2</sup> to 1,5 mm <sup>2</sup> 2 x 1,5 mm <sup>2</sup>	1 x 0,5 mm <sup>2</sup> to 1,5 mm <sup>2</sup> 2 x 1,5 mm <sup>2</sup>

### Wiring diagrams:

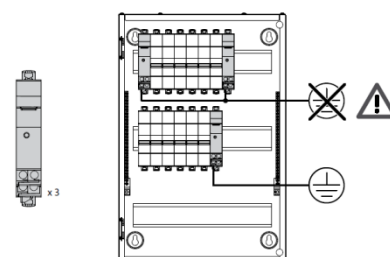
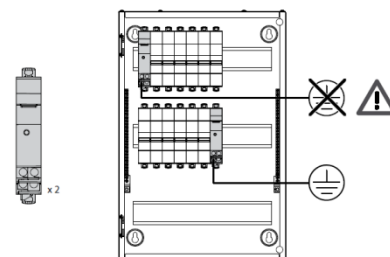
. Power supply protected by an MCB:



. Power supply protected by a Fuse holder:



**Note:** when there are several power suppliers in a system, just one of them must be earthed.



# EMS BT DIN - Power supply & Connection Equipment

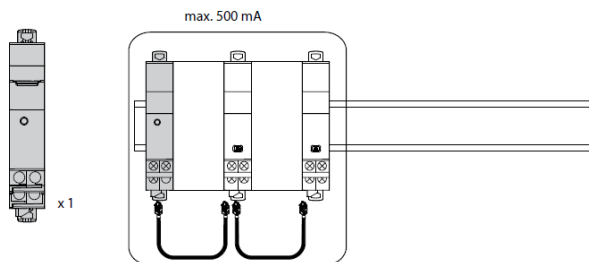
Cat. Nos:

F80BR18/24/36, F80BC250/500/1000, F80BCA, F80BRA, F80BA

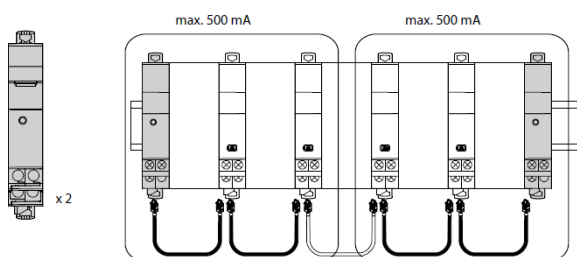
## 4. PREPARATION –CONNECTION (continued)

### Connection with several Power supply modules:

. Each power supply can provide 500 mA of current thus, whenever the absorption of 500 mA is exceeded, it is necessary to add an additional power supply to the system.

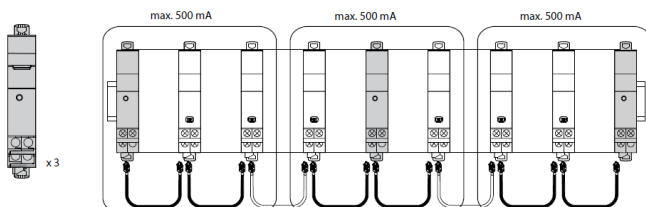


In this case is necessary to separate the two groups of devices with the decoupling white cable (delivered with the EMS BT DIN Power supply module)



**Note:** in a system (beneath an EMS BT DIN/Modbus interface) it is possible to use a maximum of 3 power supply modules = 3 groups of 500 mA.

. in the image below is described the use of the 2 decoupling white cables



## 4. PREPARATION –CONNECTION (continued)

### Max. Nemo SX modules consumptions @ 12 VDC

Cat n°	Description	W	mA
F80B3M63	Closed Rogowski - 3 x Single phase Measure mod. 63A	0,418	34,8
F80BMM63	Closed Rogowski - Single phase Measure mod. 63 A	0,409	34,1
F80BMT63	Closed Rogowski - Three phase Measure mod. 63A	0,418	34,8
F80BMT125	Closed Rogowski - Three phase Measure mod. 125 A	0,418	34,8
F80BMT	Measure mod. with CT	0,391	32,6
F80BMR630	Open Rogowski - Three phase Measure mod. 630 A	0,418	34,8
F80BMR1600	Open Rogowski - Three phase Measure mod. 1600 A	0,418	34,8
F80BMR3200	Open Rogowski - Three phase Measure mod. 3200 A	0,418	34,8
F80BMR6300	Open Rogowski - Three phase Measure mod. 6300 A	0,418	34,8
F80BI	Pulse Concentrator	0,288	24,0
F80BCR	CA+SD Auxiliary	0,236	19,7
F80BVS	Universal Signalling mod.	0,377	31,4
F80BCS	Control & State for modular latching relays and contactors	0,372	31,0
F80BC	Universal Control mod.	0,456	38,0
F80BV	Mini configuration module	0,438	36,5
F80BIM1	EMS BT DIN/RS485 interface	0,344	28,7

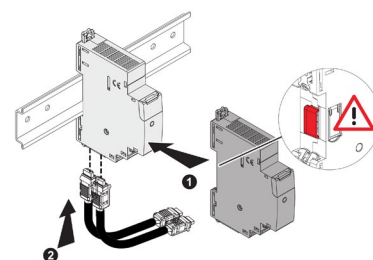
### Data connection (EMS BT DIN modules inter-connection):

. Like all the other EMS BT DIN module, the Power supply module can be indifferently connected:

. via specific communication patch cords (cat. nos F80BC250/500/1000)



**Implementing:** with this configuration, the plastic protection cover of the backside communication ports on the EMS BT DIN module must be keep on.

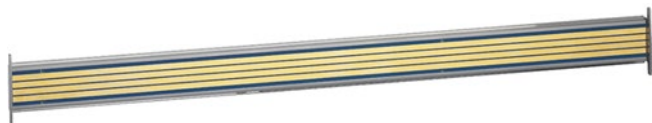


# EMS BT DIN - Power supply & Connection Equipment

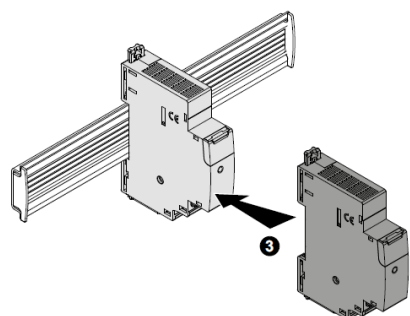
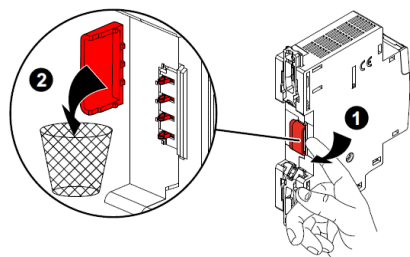
## 4. PREPARATION –CONNECTION *(continued)*

### Data connection (Nemo SX modules inter-connection) *(continued):*

. via specific communication rails (cat. nos F80BR18/24/36).



**Implementing:** with this configuration, the plastic protection cover of the backside communication ports on the EMS BT DIN module must be removed.

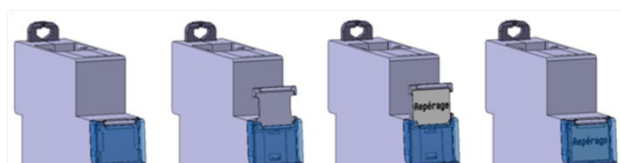


### IMPORTANT:

. It is forbidden to put several power supply modules on the same communicating rail.

### Labelling:

. Circuit identification by way of a label inserted in the label holder situated on the front of the product.



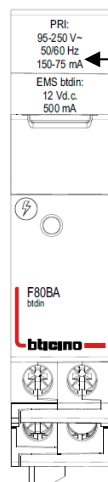
## Cat. Nos:

F80BR18/24/36, F80BC250/500/1000, F80BCA, F80BRA, F80BA

## 5. GENERAL CHARACTERISTICS

### Front face marking:

. By permanent ink pad printing (red line) and laser marking

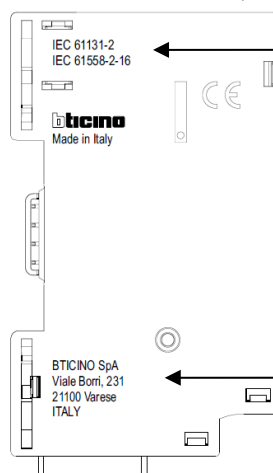


Operating range of the supplier

### Lateral side marking:

. By laser.

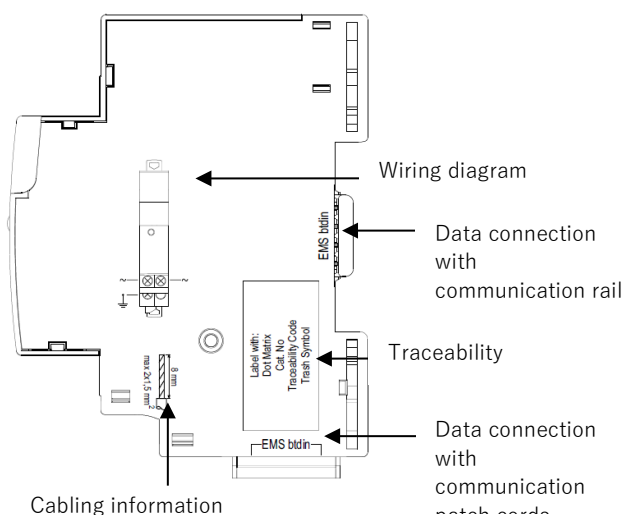
left side: Standard and programming information



Standards

BTicino address

right side: cabling and traceability information



Cabling information



# EMS BT DIN - Power supply & Connection Equipment

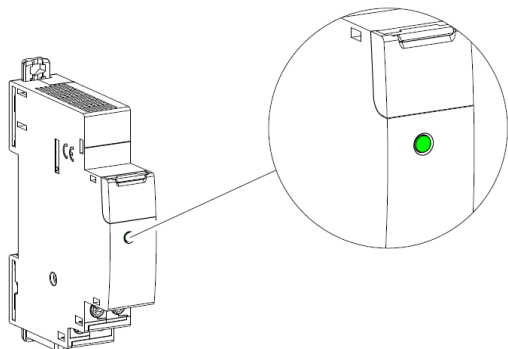
## Cat. Nos:

F80BR18/24/36, F80BC250/500/1000, F80BCA, F80BRA, F80BA

## 5. GENERAL CHARACTERISTICS (continued)

### Frontal Led:

. Indicates the status of operation of the supplier:



- Steady green → system OK
- Steady off → supplier malfunctioning

### Supplier operating voltage:

- . Primary side:  
95 ÷ 250 V ~  
75 ÷ 150 mA
- . EMS side:  
12 VDC  
500 mA

### Rated frequency:

- . 50/60 Hz with standard tolerances.

### Insulation voltage:

- .  $U_i = 400 \text{ V}$

### Impulse withstand voltage $U_{imp}$ :

- . Primary side / EMS ports:  
wave 1,2 / 50  $\mu\text{s}$ : 6 kV  
alternate current 50 Hz / 1 min.: 4,4 kV

### Pollution degree:

- . 2 according to IEC/EN 60898-1.

### Overvoltage category:

- . III

### Dielectric strength:

- . 2500 V

### Plastic material:

- . Self-extinguishing polycarbonate.
- . Heat and fire resistant according to IEC/EN 60695-2-12, glow-wire test at 960° C.
- . Classification UL 94 / IECEN 60695-11-10: V1

### Ambient operating temperature:

- . Min. = -25° C. Max. = +70° C

### Ambient storage temperature:

- . Min. = -40° C. Max. = +70° C

## 5. GENERAL CHARACTERISTICS (continued)

### Protection Index:

- . Protection index of terminals against direct contacts: IP2X (IEC/EN 60529).
- . Protection index of terminals against solid and liquid bodies (wired device): IP 20 (IEC/EN 60529).
- . Protection index of the front face against solid and liquid bodies: IP 40 (IEC/EN 60529).
- . Class II, front panel with faceplate.

### Average weight per device:

	Weight (kg)
Communicating rail 18 modules	<b>0,071</b>
Communicating rail 24 modules	<b>0,095</b>
Communicating rail 36 modules	<b>0,142</b>
Communicating cable 250 mm	<b>0,005</b>
Communicating patch cords 500 mm	<b>0,01</b>
Communicating patch cords 1000 mm	<b>0,018</b>
Communication patch cord connector	<b>0,003</b>
Plastic cover for communicating rail	<b>0,056</b>
EMS BT DIN Power Supply module	<b>0,069</b>

### Volume when packed:

	Volume (dm <sup>3</sup> )
Communicating rail 18 modules in a bag of 1 piece (pack per 10 bags)	<b>3,3</b>
Communicating rail 24 modules in a bag of 1 piece (pack per 10 bags)	<b>3,3</b>
Communicating rail 36 modules in a bag of 1 piece (pack per 10 bags)	<b>4,8</b>
Communicating cable 250 mm in bag of 10 pieces (pack per 5 bags)	<b>3,7</b>
Communicating cable 500 mm in bag of 10 pieces (pack per 5 bags)	<b>3,7</b>
Communicating cable 1000 mm in bag of 5 pieces (pack per 5 bags)	<b>3,7</b>
Communication patch cord connector in bag of 5 pieces (pack. per 5 bags)	<b>3,7</b>
Plastic cover for communicating rail in a bag of 1 piece (pack per 10 bags)	<b>4,8</b>
EMS BT DIN Power supply module + decoupling cable (pack per 1)	<b>0,33</b>



# EMS BT DIN - Power supply & Connection Equipment

Cat. Nos:

F80BR18/24/36, F80BC250/500/1000, F80BCA, F80BRA, F80BA

## 5. GENERAL CHARACTERISTICS (continued)

### Make your own EMS BT DIN patch cord:

. It is given the possibility to build your "self-made" cables using, for each cable, following material.

#### - JST connector:

Code: GHR-04V

Quantity: 2

Characteristics:

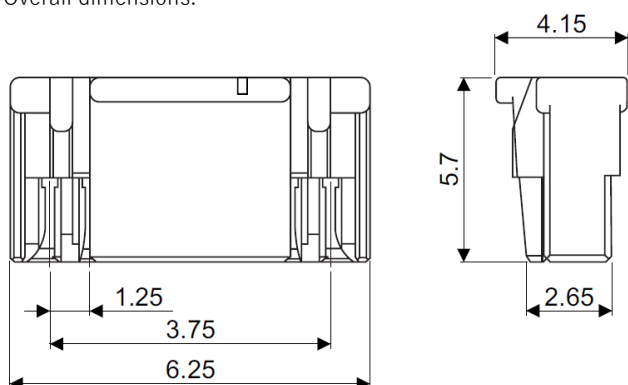
n° of contacts: 4

pitch: 1.25 mm

. View:



. Overall dimensions:



#### - Crimp tool:

Code: SSHL-002T-P0.2

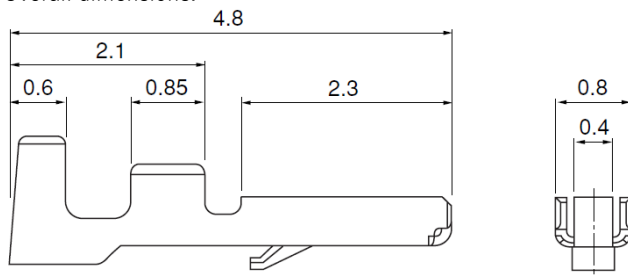
Quantity: 8 (4 for each JST connector)

Applicable wire: 0.05 ÷ 0.13 mm<sup>2</sup> (30 ÷ 26 AVG)

. View:



. Overall dimensions:



## 5. GENERAL CHARACTERISTICS (continued)

### Make your own EMS BT DIN patch cord (continued):

#### - Cables:

Quantity: 4

Type:

PVC insulation

UL1061

Section: 0.13 mm<sup>2</sup> (AVG 26) UL1061

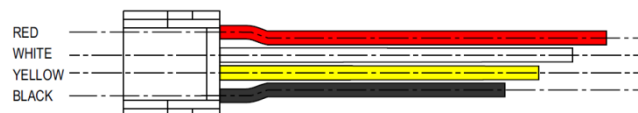
#### Note:

. Use 4 different wire colours to clearly identify the conductors.

. It is possible use:

a multi-core cable (with features mentioned) already sheathed  
4 individual cables (with features mentioned) and a PVC sheath  
(e.g. PVC UL 224 105° diameter.3 mm, Black colour)

. Colour sequence:



#### IMPORTANT:



. The maximum total length allowed for 1 communicating cable cord remains **3 meters**  
. The proper functioning of the system can only be guaranteed by using the pre-cabled EMS BT DIN Communicating patch cords (cat. nos F80BC250/500/1000)

## 6. SYSTEM ARCHITECTURES

### 6.1 Stand-alone system *(continued)*

#### 6.1.2 Stand-alone system with remote addressing (through a computer)

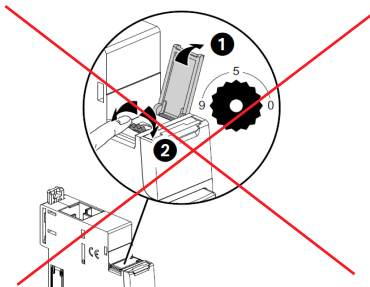
Remote addressing advantages:

- Whole configuration (addresses and functions) can be set up through the EMS Configuration software
- Configuration software available for free
- **Automatic detection of the EMS BT DIN modules** installed in the system (characteristics, functions, configuration...)
- **Increased settings possibilities: load shedding function**
- Increased addressing: **up to 30 Modbus addresses in a system**

#### Programming procedure:

. For EMS BT DIN modules which need some: mandatory through EMS Configuration software *(see § "Module configuration")*

#### Addressing procedure:



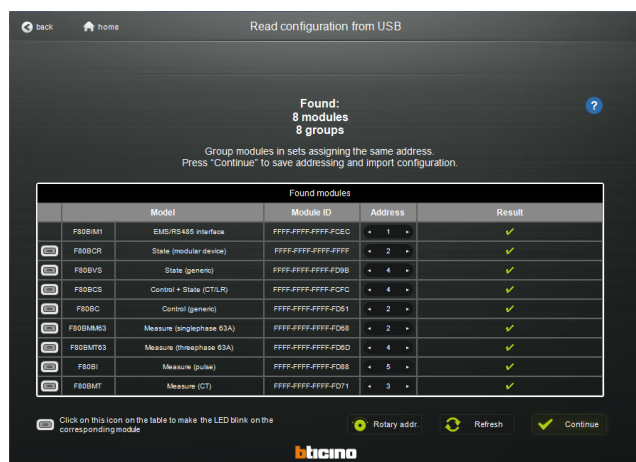
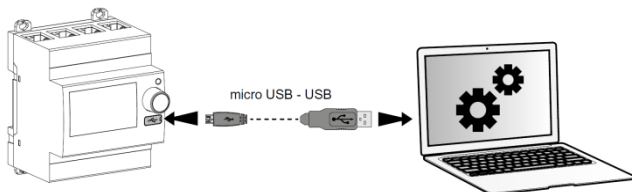
The track wheel must be left in position "0".

. It is not necessary to assign an address via rotary; **The track wheel must be left in default position "0"**.

. All the addressing/configuring procedure will be done with the Configuration Software (available online for free)

. With remote addressing, the software does the automatic detection of modules installed in the system, but the supervision is not possible until the user assigns the remote address and all the characteristics to each module.

**Note: it is mandatory to connect the computer to the mini configuration module with an USB-micro USB cable.** *[For more details, refer to the technical data sheet of the Mini configuration module EMS BT DIN]*



#### Note for Measure Module "3x single phase":

This module is to be consider as 3 modules with 3 different Modbus Address. The module takes automatically the two addresses immediately following the setting one (e.g. Programmed address = 12, Addresses of the module 12, 13, 14)

## 6. SYSTEM ARCHITECTURES

### 6.1 Stand-alone system *(continued)*

#### 6.1.2 Stand-alone system with remote addressing (through a computer)

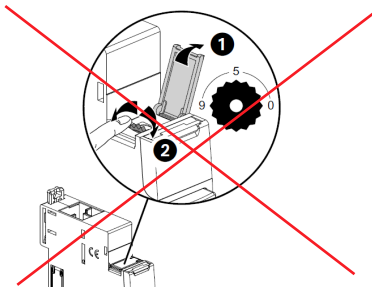
Remote addressing advantages:

- Whole configuration (addresses and functions) can be set up through the EMS Configuration software
- Configuration software available for free
- **Automatic detection of the EMS BT DIN modules** installed in the system (characteristics, functions, configuration...)
- **Increased settings possibilities: load shedding function**
- Increased addressing: **up to 30 Modbus addresses in a system**

#### Programming procedure:

. For EMS BT DIN modules which need some: mandatory through EMS Configuration software *(see § "Module configuration")*

#### Addressing procedure:



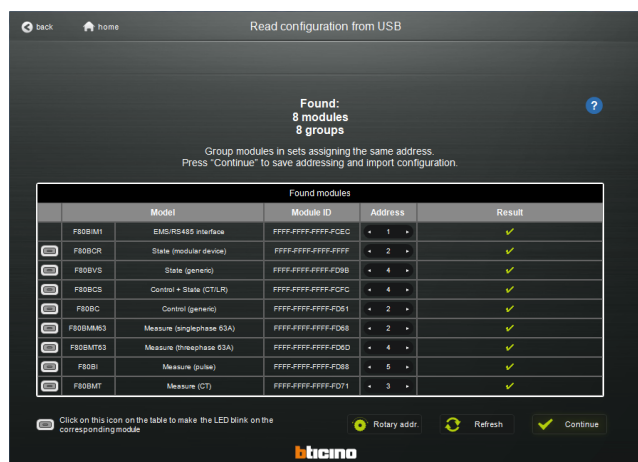
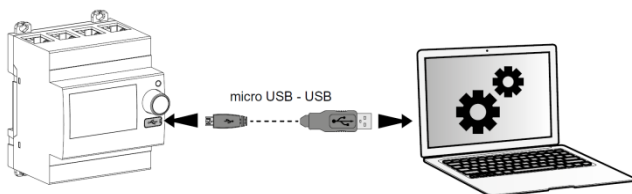
The track wheel must be left in position "0".

. It is not necessary to assign an address via rotary; **The track wheel must be left in default position "0"**.

. All the addressing/configuring procedure will be done with the Configuration Software (available online for free)

. With remote addressing, the software does the automatic detection of modules installed in the system, but the supervision is not possible until the user assigns the remote address and all the characteristics to each module.

**Note: it is mandatory to connect the computer to the mini configuration module with an USB-micro USB cable.** *[For more details, refer to the technical data sheet of the Mini configuration module EMS BT DIN]*



#### Note for Measure Module "3x single phase":

This module is to be consider as 3 modules with 3 different Modbus Address. The module takes automatically the two addresses immediately following the setting one (e.g. Programmed address = 12, Addresses of the module 12, 13, 14)

## 6. SYSTEM ARCHITECTURES

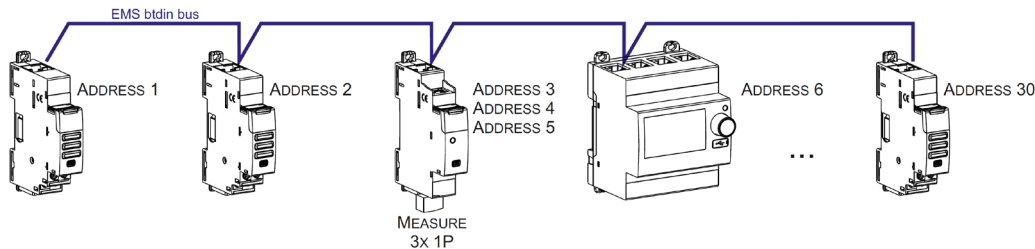
### 6.1 Stand-alone system *(continued)*:

#### 6.1.2 Stand-alone system with remote addressing (through a computer) *(continued)*:

#### Consequences for the system architecture:

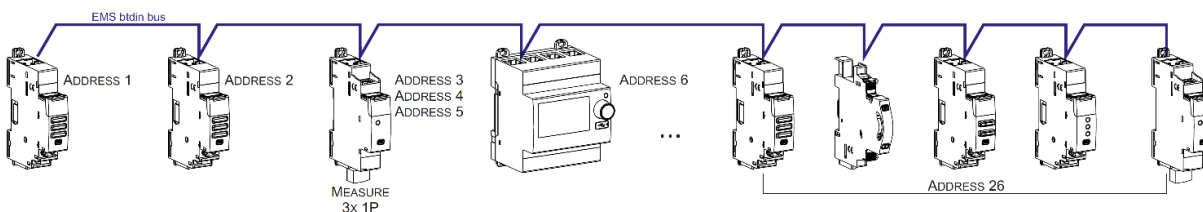
- for 1 mini configuration module (cat. no F80BV)
  - o up to **30 EMS BTDIN modules** (e.g. 30 devices grouped per functions with addresses from 1 to 30)

It is possible to assign to several devices the same address with the purpose of grouping different functions, **because they are related to the same electrical circuit**. For example, it is possible to assign the same address to a signalling auxiliary module (cat. no F80BCR), a universal control module (cat. no F80BC), a measuring module, and so on. In this way on the EMS BTDIN display or in a supervision system the grouped function will be displayed as a unique "device" with all grouped functions. *[Refer to the schemes here under]*



#### Note for the mini configuration module (local display)

- . It is necessary to assign the mini configurator a different address from all the other EMS BTDIN modules through the device programming menu
- . The mini configuration module can be placed everywhere in the EMS BTDIN bus



6.2

### Supervised system (Computer Supervisory System)

- . **Supervised system** = System to be used through a Computer Supervisory System to remotely read data from the EMS BTDIN devices and/or do operations on these devices (e.g. commands of a motor driven or contactor ...).

#### 6.2.1 Supervised system-with local addressing (through the track wheel)

#### Local addressing advantages:

- No configuration software needed to set-up the installation
- Installation can be done without the intervention of a System Integrator

#### Programming procedure:

- . For EMS BTDIN modules which need some use EMS Configurator (see § "Module configuration")

#### Addressing procedure:

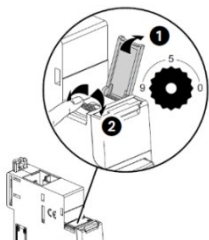
- . For all EMS BTDIN modules: mandatory through the track wheel located on the top upper face of each EMS BTDIN modules

- . Marked from 0 to 9 in order to locally define the Modbus address to EMS BTDIN modules

In this system the Modbus address of an EMS BTDIN module device or group of modules (several functions) is obtained considering the address of the interface Modbus/EMS BTDIN Interface as tenth and the address of a device or group of function as unit (e.g. Interface address 1 = 10 → address of module n° 5 = Modbus address 15)

#### Note for Measure Module "3x single phase":

This module is to be consider as 3 modules with 3 different Modbus Address. The module takes automatically the two addresses immediately following to the programmed one (e.g. Programmed address = 12, Addresses of the



module 12, 13, 14)

## 6. SYSTEM ARCHITECTURES *(continued)*

### 6.2 Supervised system (Computer Supervisory System) *(continued)*

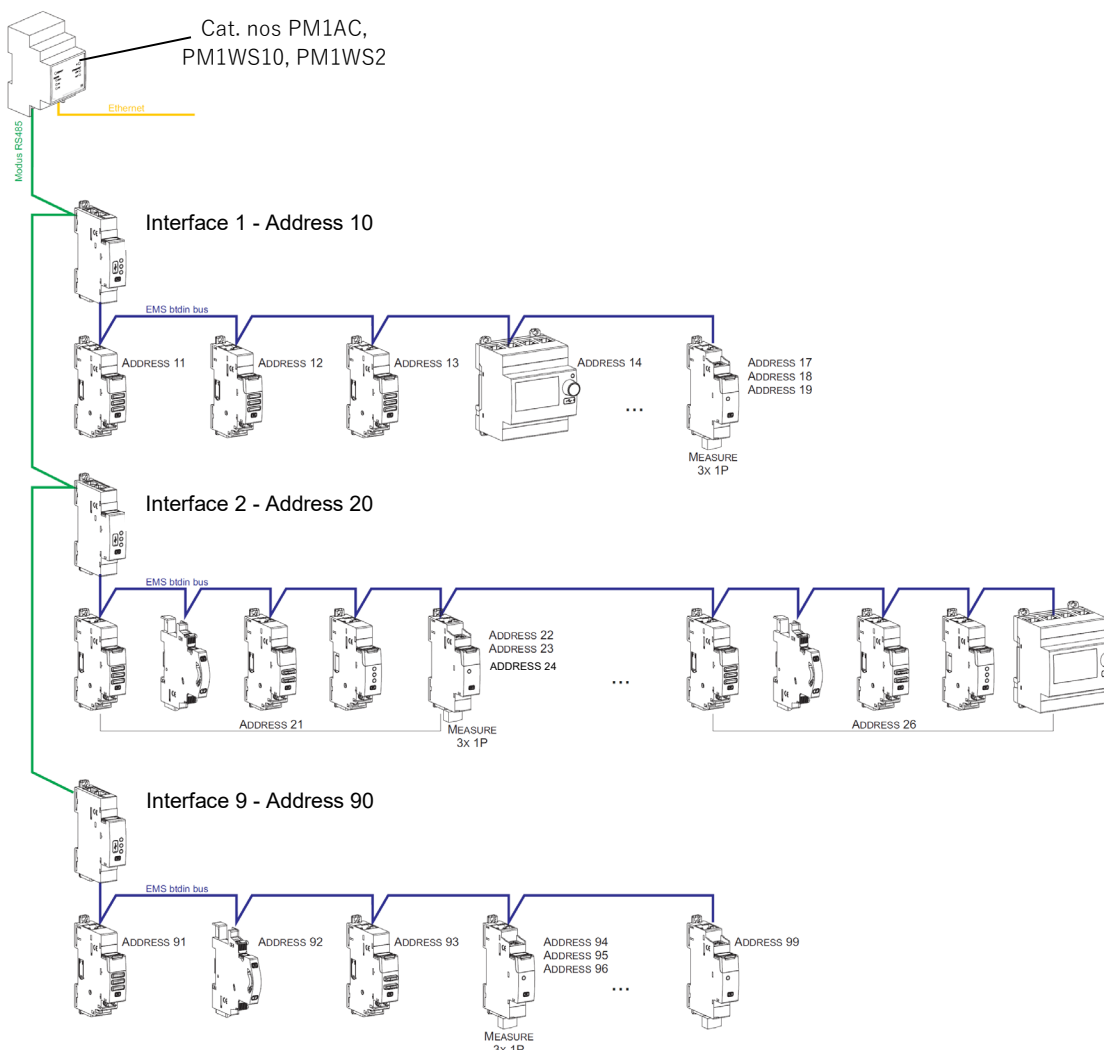
#### 6.2.1 Supervised system with local addressing (through the track wheel) *(continued)*

##### Consequences of the local addressing mode (through the track wheel):

- . Each device of the system must be addressed.
- . Rotary position: from 1 to 9
- . Address 0 not permitted

It is possible to assign to several devices the same address with the purpose of grouping different functions, **because they are related to the same electrical circuit**. For example, it is possible to assign the same address to a signalling auxiliary module (cat. no F80BCR), a universal control module (cat. no F80BC), a measuring module, and so on. In this way on the EMS BTDIN display or in a supervision system the grouped function will be displayed as a unique "device" with all grouped functions. *[Refer to the scheme hereunder]*

**Note:** In this configuration the Modbus address of an EMS BTDIN module device or group of modules (several functions) is obtained considering the address of the interface Modbus/EMS BTDIN Interface as tenth and the address of a device or group of function as unit (e.g. Interface rotary 1 = 10 and device rotary = 5 → Modbus address = 15)



##### Consequences for the system architecture:

- for 1 IP/Modbus gateway (cat. no PM1AC):
  - o up to **81 Modbus address**
  - o mandatory limit of max. **9 Modbus/EMS BTDIN interfaces** or max. **1000 m of Modbus cable** (cable Belden 9842, Belden 3106A or equivalent) or max. **50 m of Category 6 cable** (FTP or UTP).
- for 1 Modbus/EMS BTDIN Interface (cat. no F80BIM1):
  - o up to **30 EMS BTDIN modules** (ex. 30 devices grouped per functions with rotary from 1 to 9)

**Note:** with local addressing, the Modbus/EMS BTDIN interface, does the automatic detection of modules (characteristics, functions, configuration...)

# EMS BT DIN - Power supply & Connection Equipment

Cat. Nos:

F80BR18/24/36, F80BC250/500/1000, F80BCA, F80BRA, F80BA

## 6. SYSTEM ARCHITECTURES *(continued)*

### 6.2 Supervised system (Computer Supervisory System) *(continued)*

#### 6.2.2 Supervised system with remote addressing (through a computer)

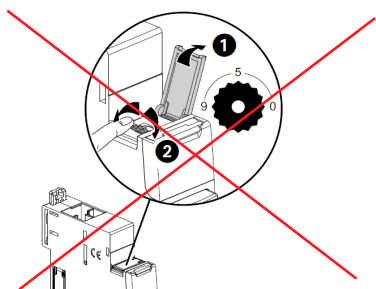
Remote addressing advantages:

- Whole of configuration (addresses and functions) can be done a remotely through the EMS Configuration software
- Configuration software available for free
- **Automatic detection of the EMS BT DIN modules** installed in the system (characteristics, functions, configuration...)
- **Increased settings possibilities: load shedding function**
- Increased addressing: **up to 32 Modbus/EMS BT DIN interfaces**
- Increased addressing: **up to 247 Modbus addresses in a system**

#### Programming procedure:

. For EMS BT DIN modules which need use the configuration software (*see § "Module configuration"*)

#### Addressing procedure:



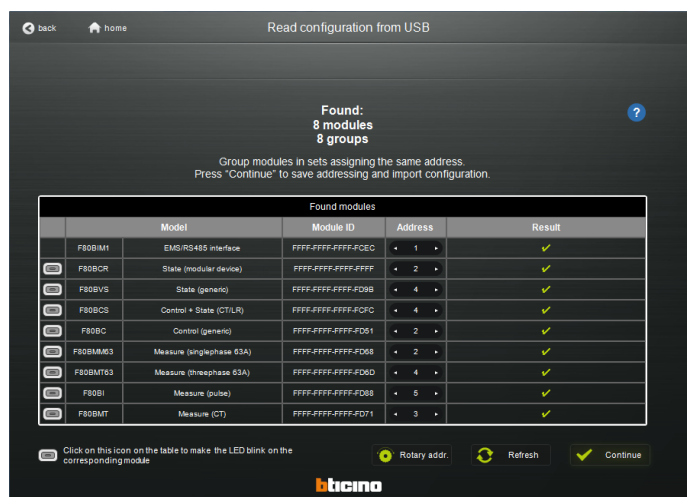
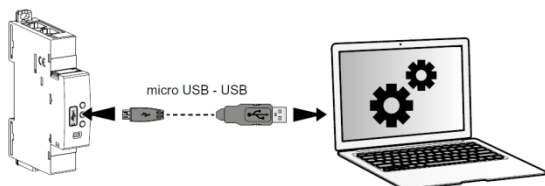
The track wheel must be left in position "0".

. It is not necessary to assign an address via rotary; **The track wheel must be left in default position "0"**.

. All the addressing/configuring procedure will be done with the Configuration Software (available online for free)

. With remote addressing, the software does the automatic detection of modules installed in the system, but the supervision is not possible until the user assigns the remote address and all the characteristics to each module.

**Note: it is mandatory to connect the computer to the different Modbus/EMS BT DIN interface with an USB-micro USB cable (one interface at a time).** [For more details, refer to the technical data sheet of the Modbus/EMS BT DIN interface]



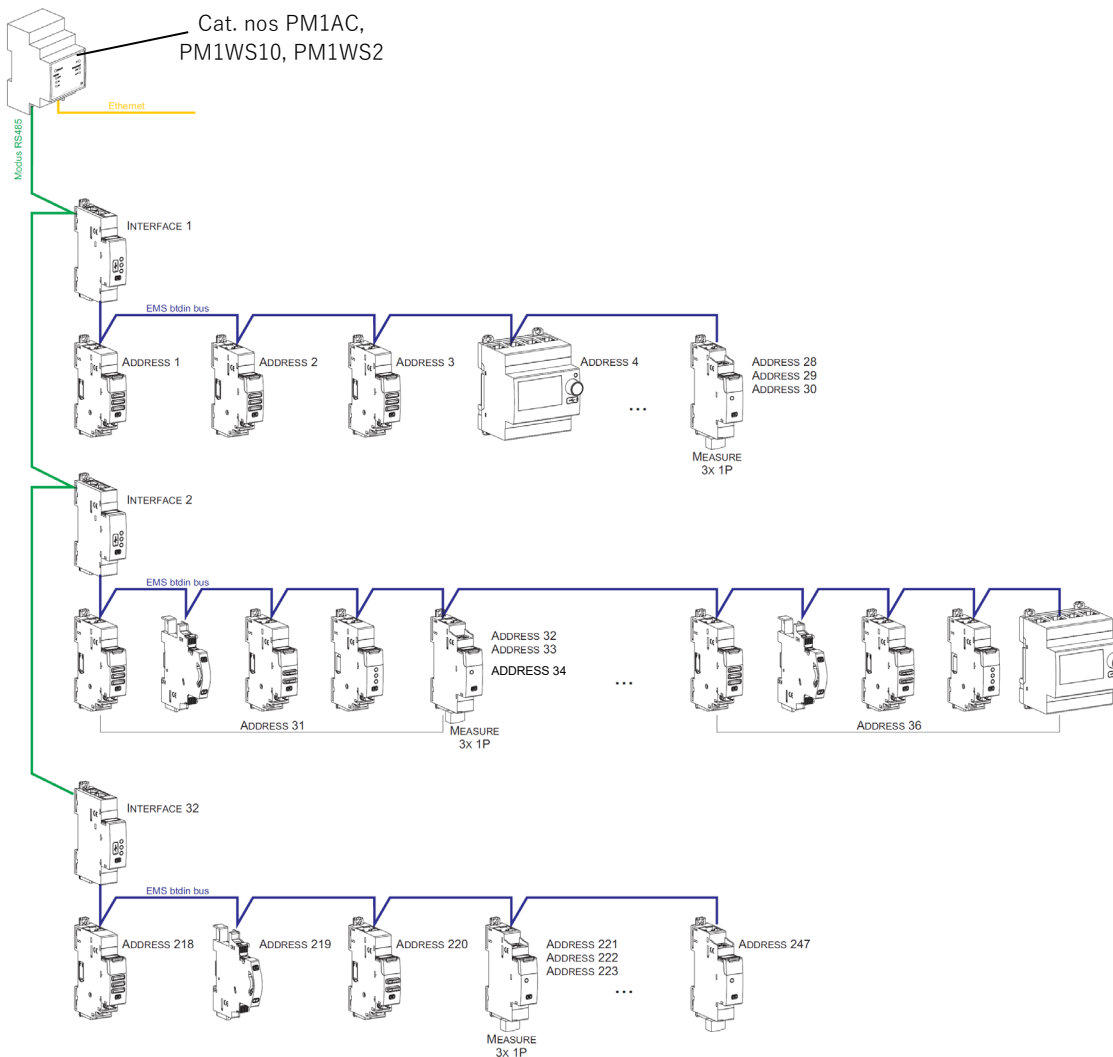
#### Note for Measure Module "3x single phase":

This module is to be consider as 3 modules with 3 different Modbus Address. The module takes automatically the two addresses immediately following to the programmed one (e.g. Programmed address = 12, Addresses of the module 12, 13, 14)

## 6. SYSTEM ARCHITECTURES *(continued)*

### 6.2 Supervised system (Computer Supervisory System) *(continued)*

#### 6.2.2 Supervised system-with remote addressing (through a computer) *(continued)*



#### Consequences for the system architecture:

- for 1 IP/Modbus gateway (cat. no PM1AC):
  - o up to **247 Modbus address**
  - o Because of Modbus: mandatory limit of max. **32 Modbus/EMS BTDIN interfaces** or max. **1000 m of Modbus cable** (cable Belden 9842, Belden 3106A or equivalent) or max. **50 m of Category 6 cable** (FTP or UTP).
- for1 Modbus/EMS BTDIN Interface (cat. no F80BIM1):
  - o up to **30 EMS BTDIN modules** (e.g. 30 devices grouped per functions with addresses from1 to 30)

It is possible to assign to several devices the same address with the purpose of grouping different functions, **because they are related to the same electrical circuit**. For example, it is possible to assign the same address to a signalling auxiliary module (cat. no F80BCR), a universal control module (cat. no F80BC), a measuring module, and so on. In this way on the EMS BTDIN display or in a supervision system the grouped function will be displayed as a unique "device" with all grouped functions. *[Refer to the scheme up here]*



## 7. COMPLIANCE AND APPROVALS

### Compliance to standards:

- . Compliance with Directive on electromagnetic compatibility (EMC) n° 2014/30/EU
- . Compliance with low voltage directive n° 2014/35/EU.
- . Electromagnetic Compatibility:
  - IEC/EN 61131-2
  - IEC/EN 60558-2-16

### Environment respect - Compliance with EU directives:

- . Compliance with Directive 2011/65/EU as amended by Directive 2015/863 (RoHS 2) on the restriction of the use of certain hazardous substances in electrical and electronic equipment.
- . Compliance with REACH regulation (1907/2006): at the date of the publication of this document no element of the SVHC substance list (updated on 27/06/2018) is present in these products.
- . WEEE directive (2012/19/EU): the sale of this product is subject to a contribution to eco-organisations in each country responsible for managing end-of-life products in the field of application of the European Waste Electronic and Electrical Equipment Directive.

### Plastic materials:

- . Halogens-free plastic materials.
- . Marking of parts according to ISO 11469 and ISO 1043.

### Packaging:

- . Design and manufacture of packaging compliant to decree 98-638 of the 20/07/98 and also to directive 94/62/CE.

### Environmental profile:

- . PEP document available