IB200

I-BUS isolators

DCMIINIEIB200 **MANUAL CODE**

1.21 **VERSION**

General description 1

Isolators from the IB200 series peripherals can be connected directly to the I-BUS, in order to increase both its length and performance.

FUNCTIONS

Each isolator has 4 input terminals and 4 output terminals for the BUS connection with the following functions:

- galvanic isolation, up to 2750V, for the BUS data lines (“D” and “S”) between input and output
- galvanic isolation for the BUS power lines (“+” and “-”) between input and output, trough the cutting of the isolation jumpers on the board
- regeneration of the communication signals, thus limiting signal/power loss due to the excessive wire length of the I-BUS
- detection of anomalies towards the output section and its consequent isolation.

MODELS

The isolator is available in 3 versions:

- **IB200/P**, model with BUS isolation functions, regeneration of the communication signals, power supply not isolated, housed in closed box, manages open-tamper but not dislodgemnent-tamper signals
- **IB200/U**, model with BUS isolation functions, regeneration of the communication signals, power supply not isolated, housed in box with on-view terminals, no tamper management
- **IB200/A**, model with BUS and power supply isolation functions, regeneration of the communication signals, isolated DC/DC convertor, housed in closed box, manages open and dislodgement-tamper

ISOLATION

The isolator allows you to configure two groups of peripherals by means of galvanic isolation of the electrical power, Ground and the D and S data channels of each group. Using this principle, the group of peripherals connected and powered directly from the control panel (“group A”) can be separated from the group connected to the control panel via the isolator, therefore, not powered by the control panel (“group B”).

The protection function isolates the group B from the rest of line and it is engaged when the isolator detects in this group one of the following faults:

- short-circuit between “**+**” and “**-**” terminals
- short-circuit between “**D**” and “**+**” terminals or “**D**” and “**-**” terminals
- short-circuit between “**S**” and “**+**” terminals or “**S**” and “**-**” terminals
- short-circuit between “**D**” and “**S**” terminals
- current absorption between “**+**” and “**-**” terminals higher than 1A (only with the IB200/A model)

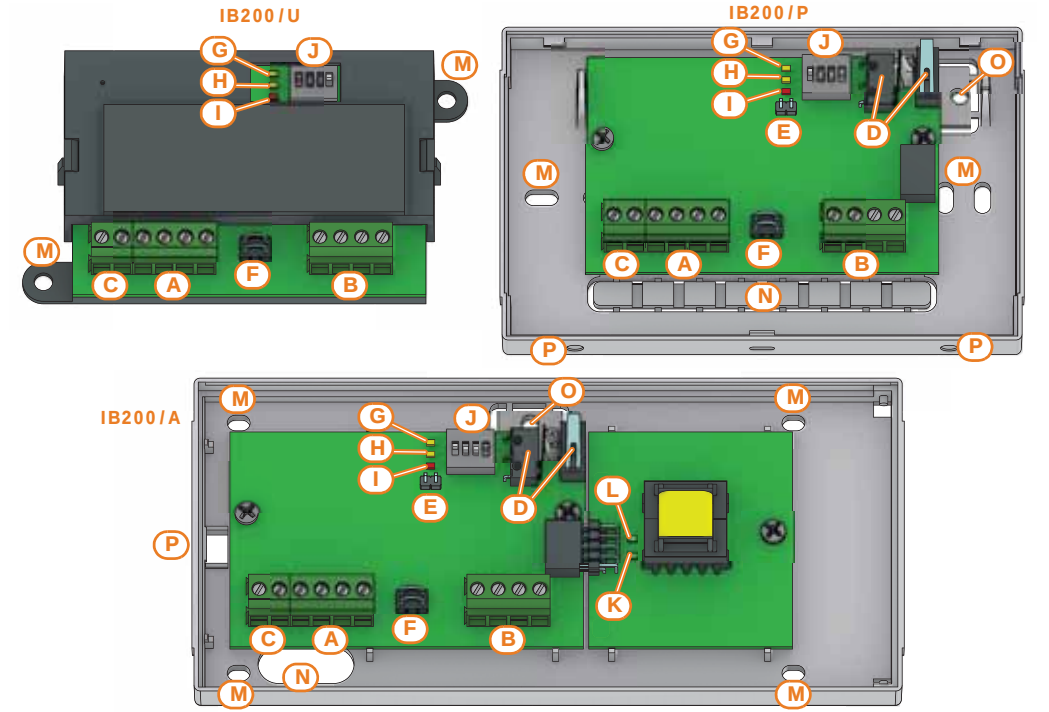
  When one of this faults is detected, the IB200 isolates the BUS B group, thus protecting the BUS A group. The isolation lasts for 10 seconds or until the control panel reset.
- mains power (230V) on the group B.
  Devices of the BUS B group and the B section of the isolator will be damaged, while the devices of the BUS A group will be kept safe.

Technical description 2

Table 1: Technical specifications

Model			IB200/U	IB200/P	IB200/A
Voltage	minimum input voltage		9,5V⎓		
	maximum input voltage		15V⎓		
	output voltage		/	/	13,8V⎓
Maximum output current			/	/	1A
Current draw	maximum from control panel	@ 9,5Vin	/	/	1.8A
		@ 12Vin			1.4A
		@ 13.8Vin			1.2A
	typical		110mA	110mA	130mA
Environmental operating conditions	temperature		from -10 to +40°C		
	relative humidity		≤75% without condensation		
Environmental class			II		
Box dimensions (L x A x P)			107x59x21mm	126x80x27mm	172x80x27mm
Weight			60g	100g	170g

Table 2: Description of the parts



A	I-BUS A terminal board (to control panel)
B	I-BUS B terminal board
C	Tamper terminal board
D	Tamper microswitch
E	Connectors for tamper enablement jumper
F	Power isolation jumpers
G	I-BUS B communiction LED (yellow)
H	I-BUS A communiction LED (yellow)
I	Isolation activated LED (red)

J	Addressing dip-switch
K	BUS A power supply LED (green)
L	BUS B power supply LED (green)
M	Mounting screw hole
N	Cable entry
O	Hole for ant-dislodgement device
P	Hook with screw for lid closure

Table 3: Terminal board

n.	symbol/name	description
1 2	TAMPER	Tamper terminals
3	+	Terminal "**+**" for the I-BUS A group connection
4	Da	Terminal "**D**" for the I-BUS A group connection
5	Sa	Terminal "**S**" for the I-BUS A group connection
6	-	Terminal "**-**" for the I-BUS A group connection
7	+	Terminal "**+**" for the I-BUS B connection
8	Db	Terminal "**D**" for the I-BUS B connection
9	Sb	Terminal "**S**" for the I-BUS B group connection
10	-	Terminal "**-**" for the I-BUS B group connection

LED

The blinking of the I-BUS A and B yellow LEDs (*table 2, G* and *table 2, H*) indicate communication on the relative group of the BUS.

Red LED (*table 2, I*):

- ON solid indicates that the isolation function is active because of malfunctioning on the BUS
- blinking indicates that the isolation function is active because of current consumption higher than 1A (only for IB200/A model)

Configuration 3

IB200/U AND IB200/P

The IB200/U and IB200/P isolators can be configured as follows:

- Default configuration.
  Without interrupting the power isolation jumpers, the isolator provides galvanic isolation and regeneration of the "D" and "S" signals whereas the electrical power is carried over BUS A and BUS B.
  This configuration must be used in case of low voltage drops and reduced absorption currents of the BUS B group peripherals.
- Interrupting the power isolation jumpers (*table 2, F*).
  This configuration isolates the electrical power and ground ("+" and "-") of BUS A and BUS B. This configuration will allow you to power BUS B from an external power supply via its "+" and "-" terminals.

IB200/A

The IB200/A model operates using the configuration which provides galvanic isolation of the "D" and "S" signals and the electrical power.

It also has an isolated DC/DC convertor which powers the devices connected to BUS B, without the need of an external power supply. The output power voltage supplied by the convertor is 13.8V.

TAMPER PROTECTION

The IB200/P and IB200/A isolators manage open-enclosure and dislodgement tamper signals via microswitch (*table 2, D*) which regenerates the signal to the control panel via terminal "TAMPER" (*table 2, C*).

This terminal is normally closed. By removing the jumper from the anti-sabotage enablement connectors (*table 2, E*), the protection function can be disabled.

Installation 4

For a correct installation of the isolator and of the BUS, it is necessary to size the BUS line in which the isolator is located on the basis of the number of peripherals connected and their total current absorption. This absorption is to be compared with the "Maximum absorption from the control panel" feature.

Another feature of the isolators, which affects their dimensions (sizing) is the length of the line downstream of the isolator, to the next isolator or to the end of the line.

Following is a table with indicative values of the length depending on the BUS speed:

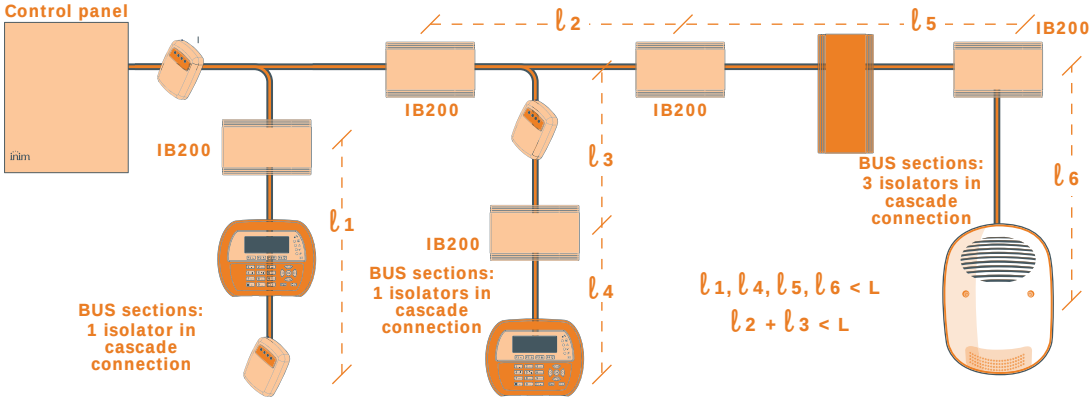
Table 4: Dimensioning (sizing)

BUS speed	Cable length downstream of the isolator (L)	Maximum number of cascaded isolators
38.4kbps	500m	9
125kbps	350m	6
250kbps	200m	2

The lengths (**L**) shown here can be identified with:

- the length of the cables between an isolator and the next peripherals or, in the case of a single line, between two successive isolators.
- the sum of the lengths of all the lines between an isolator and the next isolators or the end of the lines, in the case of branched lines, between two successive isolators.

The following example will help you achieve a correct evaluation for a 125kbps BUS:



It is not recommended to place an insulator immediately after the control panel. Each isolator should be positioned where the quality of the BUS drops drastically.

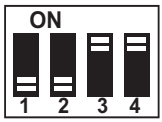
Addressing 5

It is necessary to assign a different address to each isolator. The address must assigned via the dip-switch (*table 2, J*), setting a value from 1 to 1 e 16.

Table 5: Isolator addresses

Address	switches			
	1	2	3	4
1	OFF	OFF	OFF	OFF
2	OFF	OFF	OFF	ON
3	OFF	OFF	ON	OFF
4	OFF	OFF	ON	ON
5	OFF	ON	OFF	OFF
6	OFF	ON	OFF	ON
7	OFF	ON	ON	OFF
8	OFF	ON	ON	ON
9	ON	OFF	OFF	OFF
10	ON	OFF	OFF	ON
11	ON	OFF	ON	OFF
12	ON	OFF	ON	ON
13	ON	ON	OFF	OFF
14	ON	ON	OFF	ON
15	ON	ON	ON	OFF
16	ON	ON	ON	ON

Address “4”



MANUFACTURER'S DETAILS

Manufacturer: INIM Electronics s.r.l.
Production plant: Centobuchi, via Dei Lavoratori 10
63076 Monteprandone (AP), Italy
Tel: +39 0735 705007
Fax: +39 0735 704912
e-mail: info@inim.biz
Web: www.inim.biz

The persons authorized by the manufacturer to repair or replace the parts of this system have authorization to work on INIM Electronics brand devices only.

WEEE

Informative notice regarding the disposal of electrical and electronic equipment (applicable in countries with differentiated waste collection systems)

The crossed-out bin symbol on the equipment or on its packaging indicates that the product must be disposed of correctly at the end of its working life and should never be disposed of together with general household waste. The user, therefore, must take the equipment that has reached the end of its working life to the appropriate civic amenities site designated to the differentiated collection of electrical and electronic waste. As an alternative to the autonomous-management of electrical and electronic waste, you can hand over the equipment you wish to dispose of to a dealer when purchasing new equipment of the same type. You are also entitled to convey for disposal small electronic-waste products with dimensions of less than 25cm to the premises of electronic retail outlets with sales areas of at least 400m2, free of charge and without any obligation to buy.

Appropriate differentiated waste collection for the subsequent recycling of the discarded equipment, its treatment and its environmentally compatible disposal helps to avoid possible negative effects on the environment and on health and favours the re-use and/or recycling of the materials it is made of.