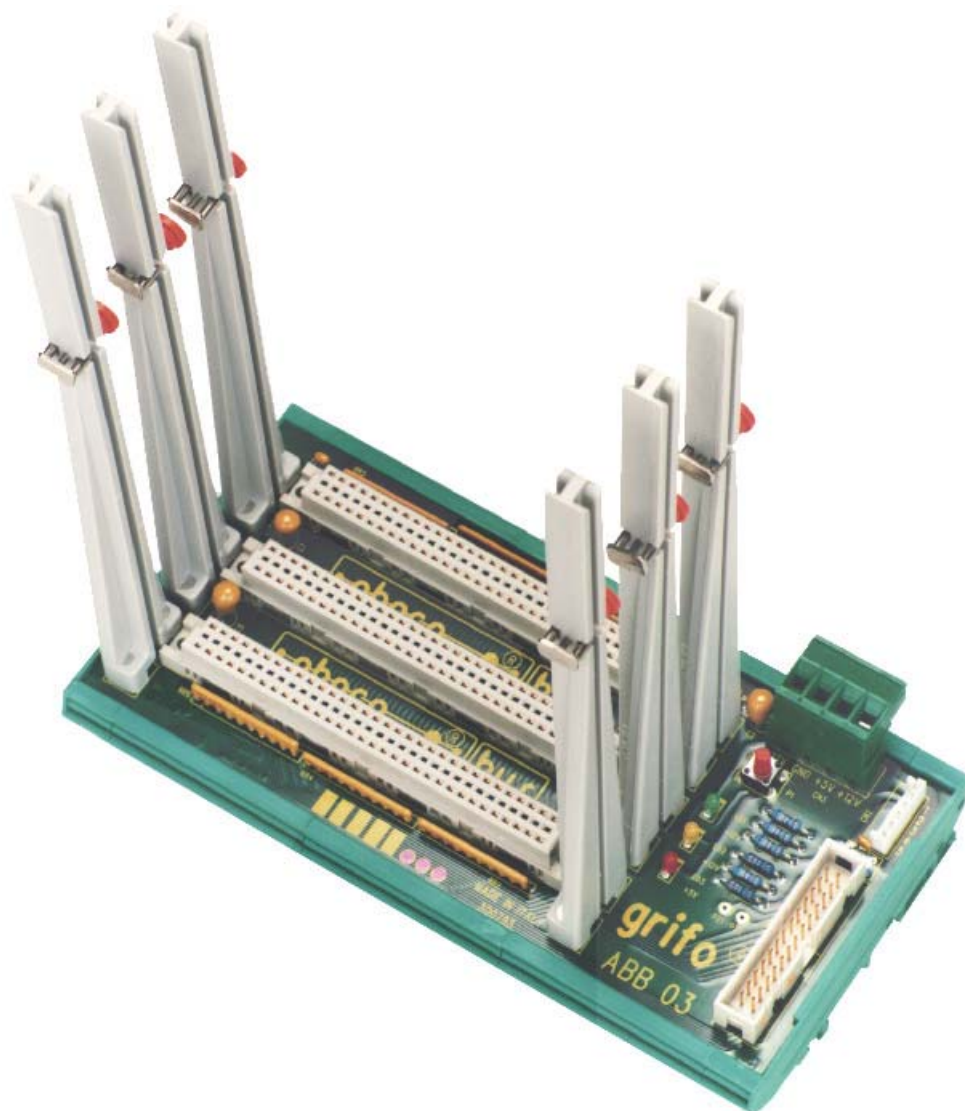


ABB 03

ABACO® Block BUS 3 slot

TECHNICAL MANUAL



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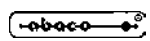


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ABB 03

Rel. 5.00

Rel. 17 March 2003

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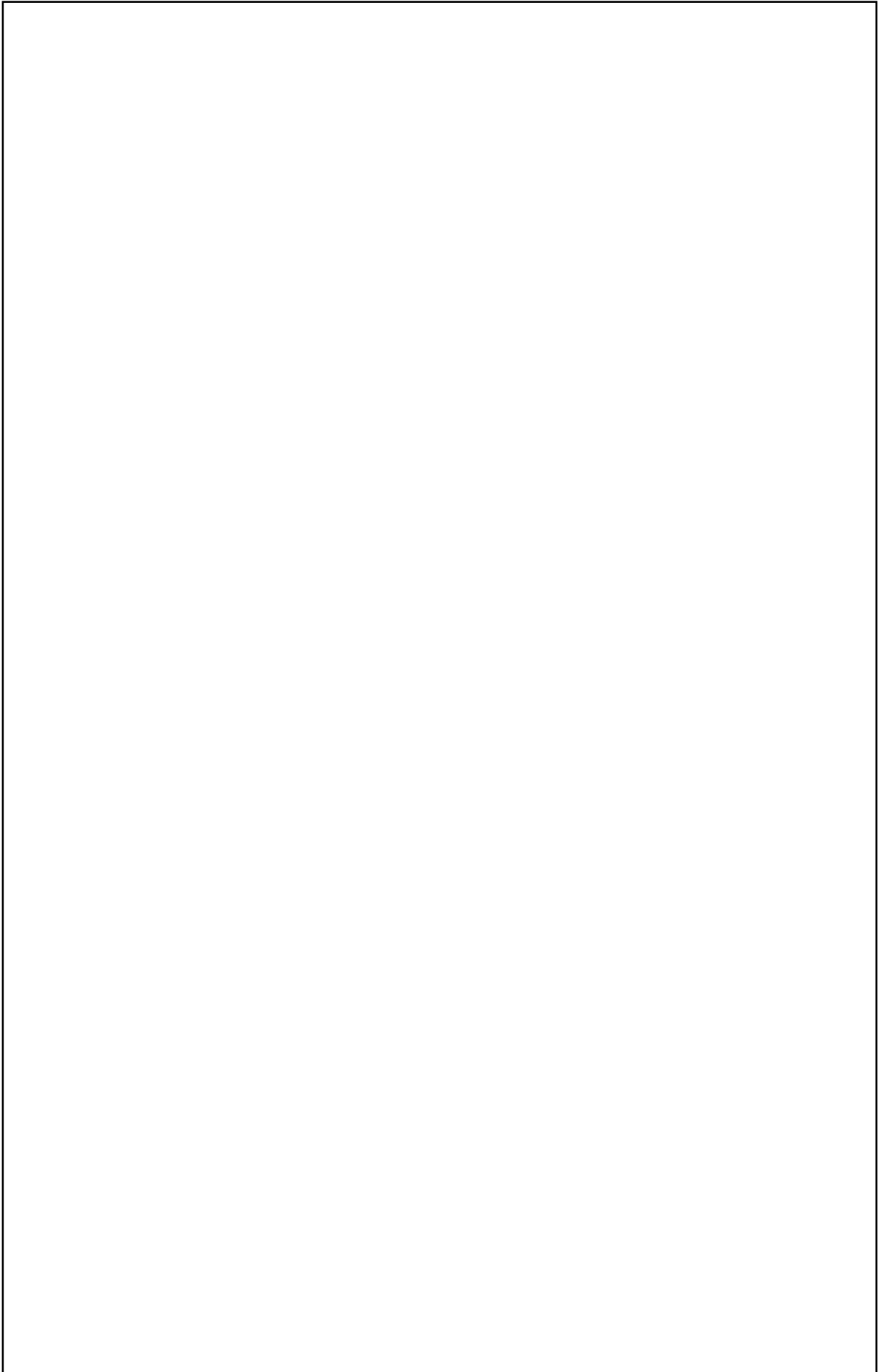


ABB 03

ABACO® Block BUS 3 slot

TECHNICAL MANUAL

Mother Board featuring **3 ABACO® BUS** slots for Eurocard standard 100x160 mm size boards with **DIN 41612 A+C** type C connectors; provided with plastic support for Ω rails type **DIN 46277-1** and **DIN 46277-3**; 3 matches of **rails** for Eurocard size boards; 26 pins connector for **Abaco® I/O BUS** mechanically and electrically linkable to every cards provided of this interface; **termination resistors** on the BUS line to ensure the correct functionality with not connected signals and CMOS interfaces; **3 LEDs** for showing status of power suppliers; local key for **RESET**; low profile connector for **remote connection of LEDs and RESET key**; quick release screw terminal connectors for power supply voltages **+5 Vdc**, **+12 Vdc** and **-12 Vdc** remote connection; noise filters on supply lines.

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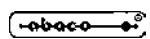


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For specific informations on the components mounted on the card, please refer to the Data Book of the builder or second sources.

SYMBOLS DESCRIPTION

In the manual could appear the following symbols:

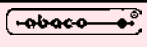


Attention: Generic danger



Attention: High voltage

Trade Marks

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Other Product and Company names listed, are trade marks of their respective companies.

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INTRODUCTION

The use of these devices has turned - IN EXCLUSIVE WAY - to specialized personnel.

The purpose of this handbook is to give the necessary information to the cognizant and sure use of the products. They are the result of a continual and systematic elaboration of data and technical tests saved and validated from the manufacturer, related to the inside modes of certainty and quality of the information.

The reported data are destined- IN EXCLUSIVE WAY- to specialized users, that can interact with the devices in safety conditions for the persons, for the machine and for the environment, impersonating an elementary diagnostic of breakdowns and of malfunction conditions by performing simple functional verify operations , in the height respect of the actual safety and health norms.

The informations for the installation, the assemblage, the dismantlement, the handling, the adjustment, the reparation and the contingent accessories, devices etc. installation are destined - and then executable - always and in exclusive way from specialized warned and educated personnel, or directly from the TECHNICAL AUTHORIZED ASSISTANCE, in the height respect of the manufacturer recommendations and the actual safety and health norms.

The devices can't be used outside a box. The user must always insert the cards in a container that respect the actual safety normative. The protection of this container is not threshold to the only atmospheric agents, but specially to mechanic, electric, magnetic, etc. ones.

To be on good terms with the products, is necessary guarantee legibility and conservation of the manual, also for future references. In case of deterioration or more easily for technical updates, consult the AUTHORIZED TECHNICAL ASSISTANCE directly.

To prevent problems during card utilization, it is a good practice to read carefully all the informations of this manual. After this reading, the user can use the general index and the alphabetical index, respectly at the begining and at the end of the manual, to find information in a faster and more easy way.

CARD VERSION

The present handbook is reported to the **ABB 03** card release **291293** and later. The validity of the bring informations is subordinate to the number of the card release. The user must always verify the correct correspondence among the two denotations. On the card the release number is present in more points both board printed diagram (serigraph) and printed circuit (for example in the bottom at center, on the right side of the serial number).

GENERAL FEATURES

The **ABB 03** mother board belongs to the **BLOCK** modules serie; it interconnects different **grifo**[®] cards and it generates the necessary power supply voltages. This card is equipped with: 3 slots motherboard section for **ABACO**[®] **BUS**; 26 pins expansion connector for **ABACO**[®] **I/O BUS**; mechanical rails for Euro cards; container equipped with hooks for **Ω rails**, normally available into electrical panels; connectors and LEDs for external power supply sources.

The use of **ABB 03** module allows to put the complete control unit into the electrical panel without being obliged to use a structure like **3HE Rack**. This solution means cheaper costs for the entire economy of the equipment and remarkable praticity of use. In case the slots are insufficient for the application, all other **grifo**[®] back panels models can be used. An additional important feature to the above mentioned 3 slots for **Abaco**[®] **BUS** is a 26 pins connector for **Abaco**[®] **I/O BUS** placed on the external side of the card which allows the immediate interface to any of the type 3 and 4 CPU cards (i.e **GPC**[®] **153**, **GPC**[®] **184**, **GPC**[®] **324**, **GPC**[®] **553**, etc.) or to any **BLOCK** peripheral cards (i.e **CAN 14**, **ADC 812**, **ETI 324**, etc.). Through the 26 pins connector the **ABB 03** supplies the power to the external card and it is possible to put all the cards on the same housing for **Ω rails** obtaining, in this way, a compact unit.

Overall features are:

- Mother Board featuring **3 ABACO**[®] **BUS** slots for Eurocard standard 100x160 mm size boards with **DIN 41612 A+C** type C connectors.
- Provided with plastic support for **Ω rails** type **DIN 46277-1** and **DIN 46277-3**.
- Three matches of **rails** for Eurocard size boards.
- 26 pins connector for **Abaco**[®] **I/O BUS** mechanically and electrically linkable to every cards provided of this interface.
- **Termination resistors** on the **BUS** line to ensure the correct functionality with not connected signals and **CMOS** interfaces.
- **3 LEDs** for showing status of power suppliers.
- Local key for **RESET**.
- Low profile connector for **remote connection of LEDs and RESET key**.
- Quick release screw terminal connectors for power supply voltages **+5 Vdc**, **+12 Vdc** and **-12 Vdc** remote connection.
- Noise filters on supply lines.

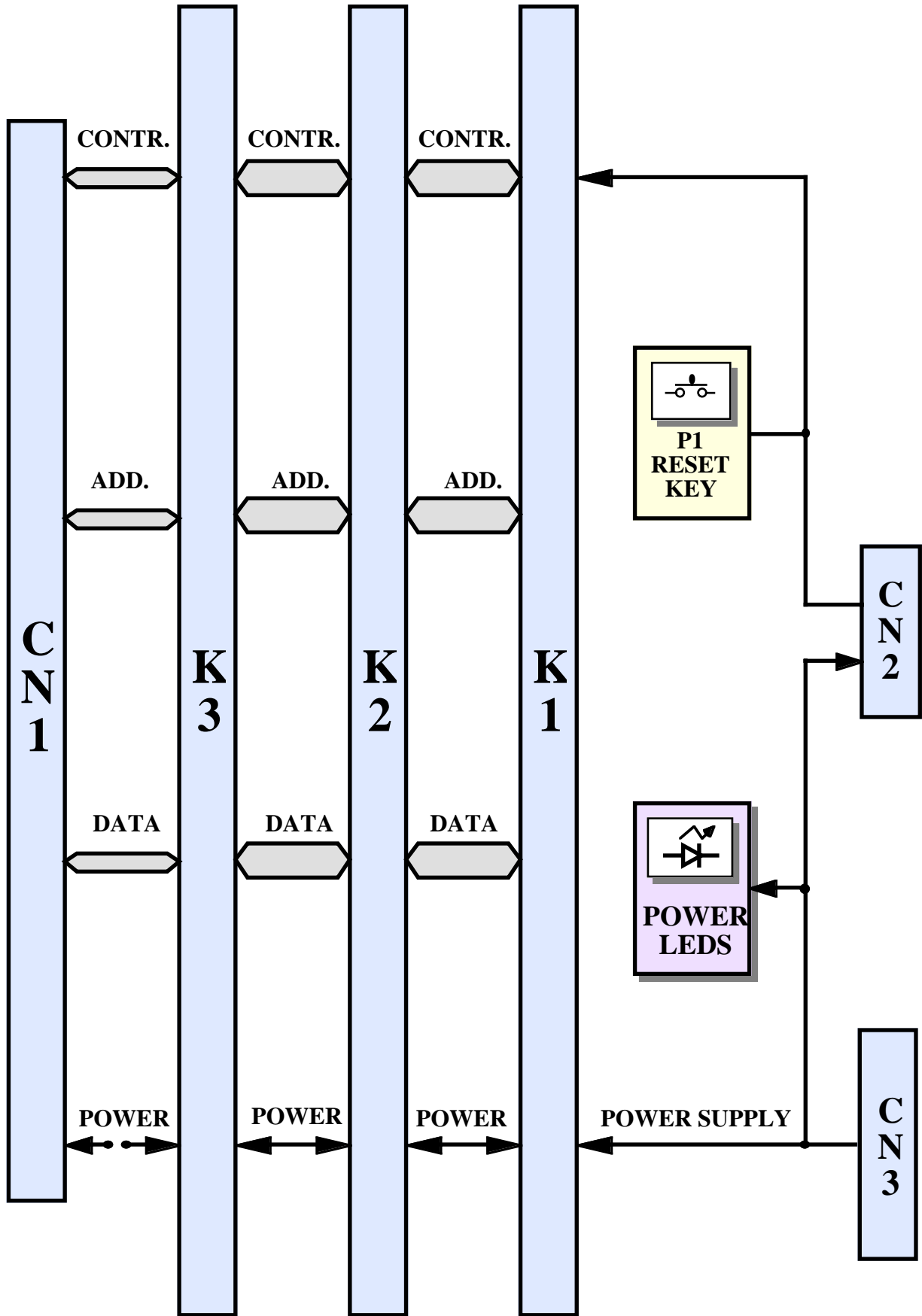


FIGURE 1: BLOCK DIAGRAM

TECHNICAL FEATURES

GENERAL FEATURES

BUS type:	BUS ABACO® and ABACO® I/O BUS
Devices:	3 slots for BUS ABACO® 1 local reset key 1 connector for remote reset key and LEDs 3 LEDs to visualize power supply status
BUS line type:	terminated by resistors
Power supply:	filtered against noise

PHYSICAL FEATURES

Size:	160 x 150 x 80 mm with plastic container
Rack type:	4TE
Mounting:	Ω rails type DIN 46277-1 and DIN 46277-3
Weight:	265 g
Connectors:	CN1: 26 pins, male, vertical, low profile connector CN2: 5 pins, male, vertical, low profile connector CN3: 4 pins quick release screw terminal connector K1÷K3: 64 pins DIN 41612 A+C type C, vertical, female
Temperature range:	0÷70 °C
Relative humidity:	20%÷90% (without condense)

ELECTRIC FEATURES

Power supply:	+5 Vdc	15 mA
	+12 Vdc	15 mA
	-12 Vdc	15 mA

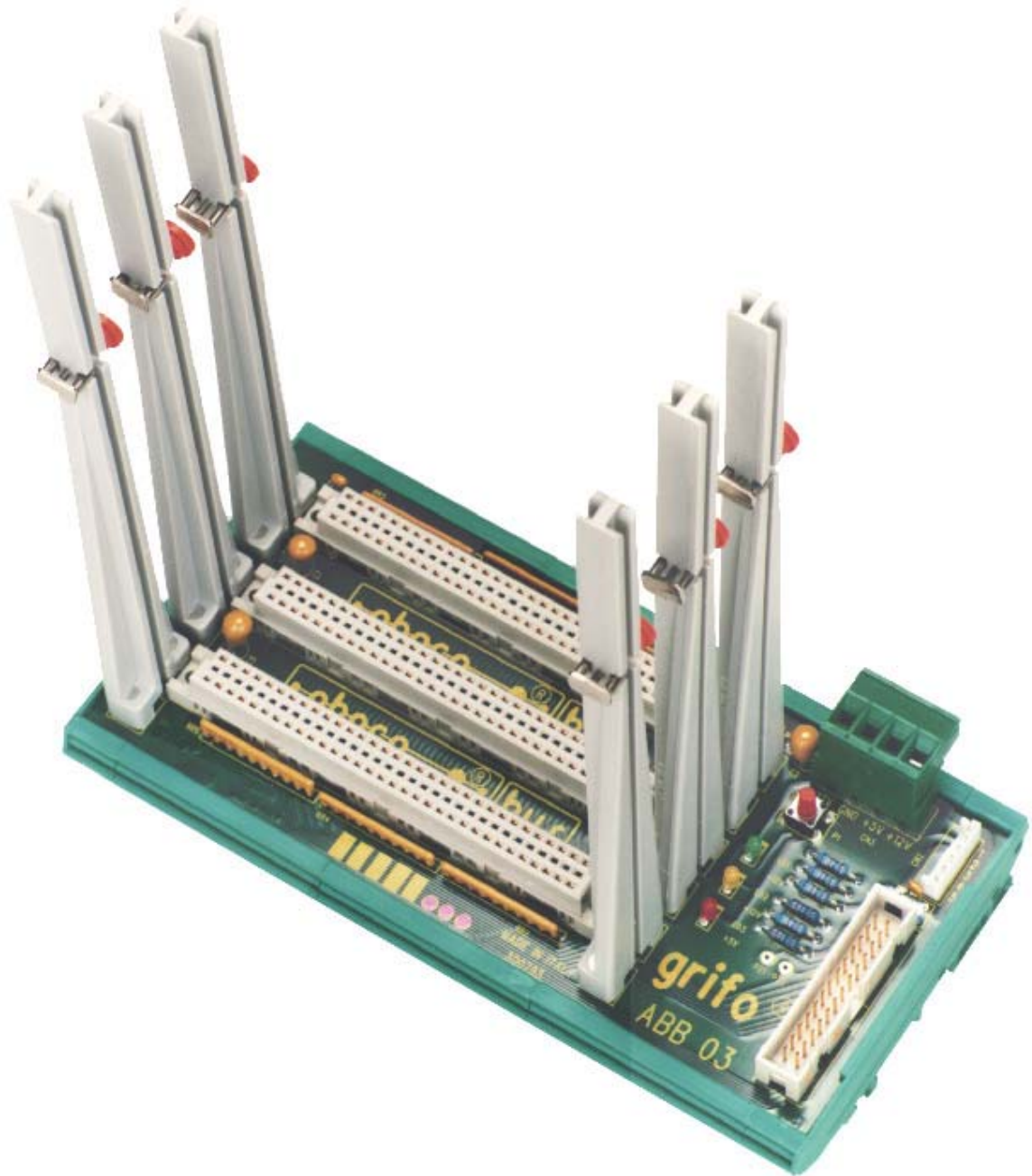


FIGURE 2: CARD OVERALL IMAGE

INSTALLATION

In this chapter there are the information for a right installation and correct use of the card. The user can find the location and functions of each connectors and LEDs and some explanatory diagrams.

CONNECTIONS

The **ABB 03** module has 6 connectors that can be linkeded to control system cards or directly to the field, according to system requirements. In this paragraph there are connectors pin out, a short signals description (including the signals direction) and connectors location (please refer to figure 4). Following figures show the frontal view of connectors; they can be easily recognized because they reproduce exactly the shape of the connectors and also thanks to the serigraph on the board.

CN2 - REMOTE CONNECTION OF RESET KEY AND LEDS

CN2 is a 5 pins, vertical, low profile, male connector, ptch 2.54 mm.

It allows to connect remotely a reset key and up to three LEDs that indicate the power supplies presence. For further information please see the specific paragraphs and the electric diagrams in the following pages.

Female connector can be made using the separated sets of pieces ordereable from **grifo**[®]: code **CSS AUX** (5 pins female connector) and code **CSF Cable** (set of crimped cables, one meter long).

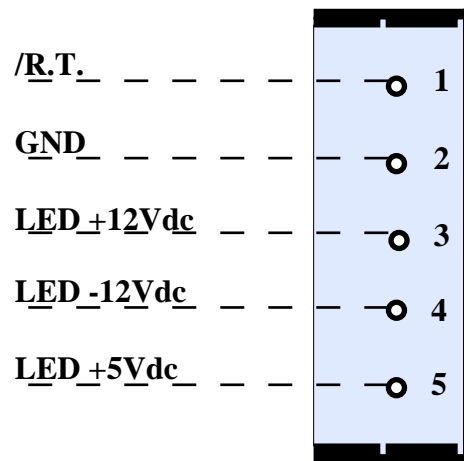


FIGURE 3: CN2 - CONNECTOR FOR REMOTE RESET KEY AND LEDS

Signals description:

- /R.T.** = I - RESET key.
- GND** = - Ground.
- LED +12Vdc** = O - Anod of LED that signals the presence of +12 Vdc.
- LED -12Vdc** = O - Cathod of LED that signals the presence of -12 Vdc.
- LED +5Vdc** = O - Anod of LED that signals the presence of +5 Vdc.

As shown in figure 15, LEDs can be connected directly to mother board, which has its drop resistors.

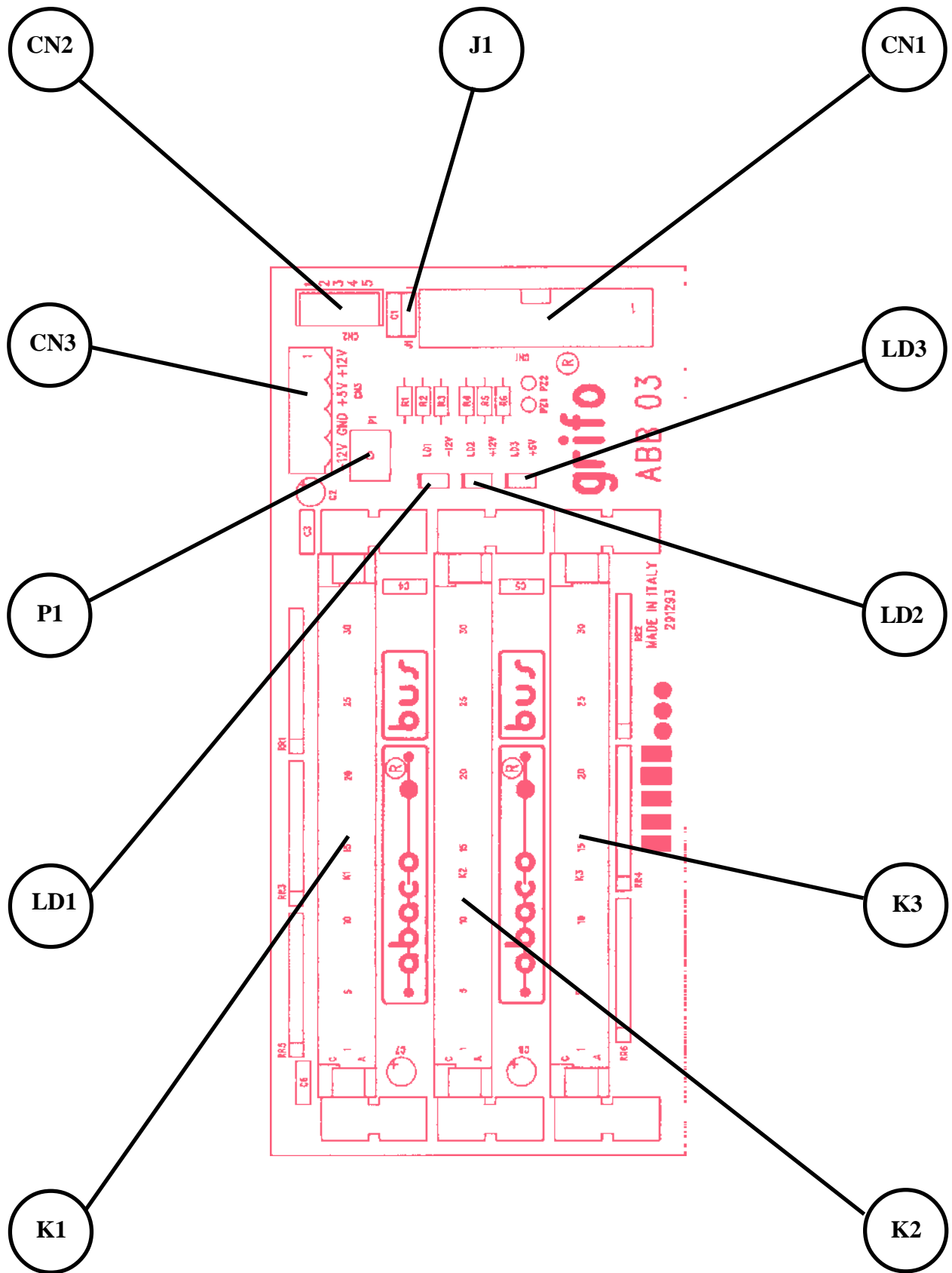


FIGURE 4: LEDS, CONNECTORS, JUMPERS, ETC. LOCATION

CN1 - ABACO® I/O BUS CONNECTOR

CN1 is a 26 pins, male, vertical, low profile connector with 2.54 mm pitch.

Through CN1 **ABACO® I/O BUS** cards and **ABACO® BUS** can be connected together. All this connector signals are at TTL level and follows the **ABACO® I/O BUS** standard.

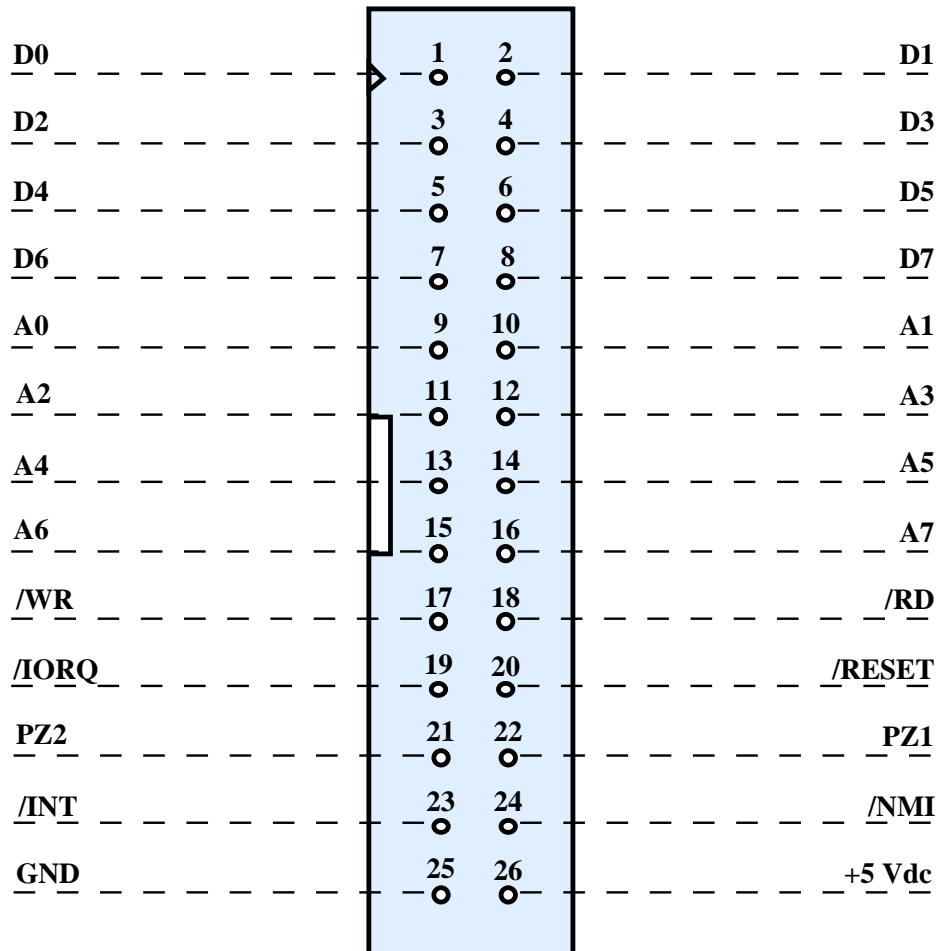


FIGURE 5: CN1 - ABACO® I/O BUS CONNECTOR

Signals description:

A0-A7	=	I	- Address BUS.
D0-D7	=	I/O	- Data BUS.
/INT	=	I	- Interrupt request (open collector type).
/NMI	=	I	- Non maskable interrupt (open collector type).
/IORQ	=	O	- Input output request.
/RD	=	O	- Read cycle status.
/WR	=	O	- Write cycle status.
/RESET	=	O	- Reset.
+5 Vdc	=	I	- +5 Vdc power supply.
GND	=		- Ground signal.
PZ1	=		- Signal connected to pod PZ1 on the board.
PZ2	=		- Signal connected to pod PZ2 on the board.

CN3 - POWER SUPPLY CONNECTOR

CN3 is a 4 pins quick release screw terminal connector, pitch 5.12 mm.

Any external power source, like for example a power supply, can provide standard supply voltages to **ABACO**® slots through CN3. Pin out of this connector is standard, so replacing present mother board with another one provided with a greater number of slots is not a problem.

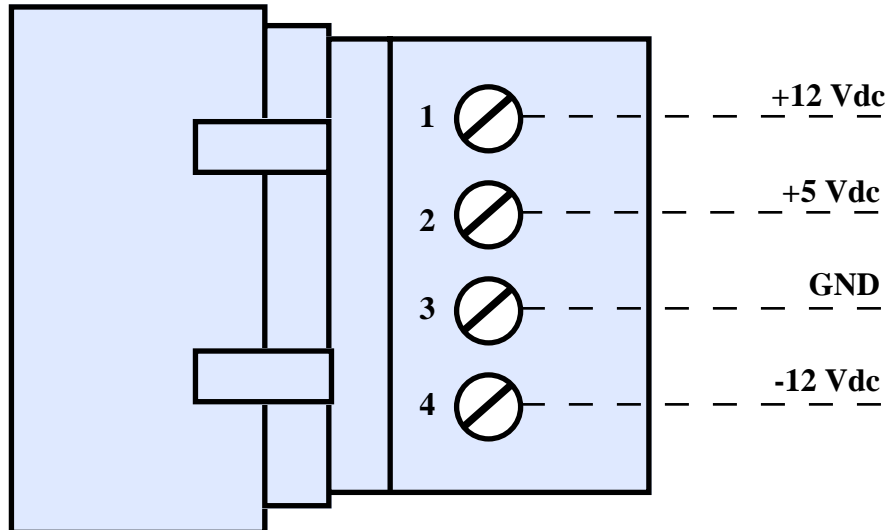


FIGURE 6: CN3 - POWER SUPPLY CONNECTOR

Signals description:

+12Vdc	=	I - Supply voltage +12 Vdc for BUS ABACO ®.
-12Vdc	=	I - Supply voltage -12 Vdc for BUS ABACO ®.
+5Vdc	=	I - Supply voltage +5 Vdc for BUS ABACO ® and ABACO ® I/O BUS.
GND	=	- Ground.

Please remember that only the boards to install can determine which supply voltages should be provided, in fact mother board does not require any supply, it just indicates presence of voltages. Also power to provide must be calculated summing the power required by the boards to install, considering that on board visualization requires additional 15 mA and eventual remote visualization would require another additional 15 mA.

Please remark also that **ABB 03** is provided with noise reduction filters on all the supply lines, made by tracks shielding and several capacitors.

These capacitors will have to be loaded during power on, this produces an peak of current that the generator must be able to provide.

Connector CN3 can be used also to provide power supply to **ABACO**® I/O BUS, to obtain all the possible supply combinations jumper J1 has been installed; please refer to paragraph JUMPER for further information.

K1÷K3 - ABACO® BUS CONNECTORS

K1÷K3 are 64 pins DIN 41612 A+C type C female connectors, to interface with the industrial **ABACO® BUS**.

Here follows the standard 8 bits and 16 bits **ABACO® BUS** pin-out.

Please remark that all the signals here described are TTL, except for the power supplies.

16 bit BUS	Row A 8 bit BUS	PIN	Row C 8 bit BUS	Row C 16 bit BUS
GND	GND	1	GND	GND
+5 Vdc	+5 Vdc	2	+5 Vdc	+5 Vdc
D0	D0	3	-	D8
D1	D1	4	-	D9
D2	D2	5	-	D10
D3	D3	6	/INT	/INT
D4	D4	7	/NMI	/NMI
D5	D5	8	/HALT	D11
D6	D6	9	/MREQ	/MREQ
D7	D7	10	/IORQ	/IORQ
A0	A0	11	/RD	/RDLDS
A1	A1	12	/WR	/WRLDS
A2	A2	13	/BUSAk	D12
A3	A3	14	/WAIT	/WAIT
A4	A4	15	/BUSRQ	D13
A5	A5	16	/RESET	/RESET
A6	A6	17	/M1	/IACK
A7	A7	18	/RFSH	D14
A8	A8	19	/MEMDIS	/MEMDIS
A9	A9	20	VDUSEL	A22
A10	A10	21	/IEI	D15
A11	A11	22	-	-
A12	A12	23	CLK	CLK
A13	A13	24	-	/RDUDS
A14	A14	25	-	/WRUDS
A15	A15	26	-	A21
A16	-	27	-	A20
A17	-	28	-	A19
A18	-	29	/R.T.	/R.T.
+12 Vdc	+12 Vdc	30	-12 Vdc	-12 Vdc
+5 Vdc	+5 Vdc	31	+5 Vdc	+5 Vdc
GND	GND	32	GND	GND

FIGURE 7: K1÷K3 - ABACO® BUS CONNECTORS

Signals description:

8 bits CPU

A0-A15	=	O	- Address BUS
D0-D7	=	I/O	- Data BUS
/INT	=	I	- Interrupt request
/NMI	=	I	- Non Maskable Interrupt
/HALT	=	O	- Halt state
/MREQ	=	O	- Memory Request
/IORQ	=	O	- Input Output Request
/RD	=	O	- Read cycle status
/WR	=	O	- Write cycle status
/BUSAK	=	O	- BUS Acknowledge
/WAIT	=	I	- Wait
/BUSRQ	=	I	- BUS Request
/RESET	=	O	- Reset
/M1	=	O	- Machine cycle one
/RFSH	=	O	- Refresh for dynamic RAM
/MEMDIS	=	I	- Memory Display
/VDUSEL	=	O	- VDU Selection
/IEI	=	I	- Interrupt Enable Input
CLK	=	O	- System clock
/R.T.	=	I	- Reset button
+5 Vdc	=	I	- Power supply at +5 Vdc
+12 Vdc	=	I	- Power supply at +12 Vdc
-12 Vdc	=	I	- Power supply at -12 Vdc
GND	=		- Ground signal

16 bits CPU

A16-A22	=	O	- Address BUS
D8-D15	=	I/O	- Data BUS
/RD UDS	=	O	- Read Upper Data Strobe
/WR UDS	=	O	- Write Upper Data Strobe
/IACK	=	O	- Interrupt Acknowledge
/RD LDS	=	O	- Read Lower Data Strobe
/WR LDS	=	O	- Write Lower Data Strobe

NOTE

Directionality indications as above stated are referred to a master (**GPC®**) board and have been kept untouched to avoid ambiguity in case of multi-boards systems.

ABACO® BUS is not multimaster. Please remark that only one CPU intelligent control board can be installed in the **ABACO®** BUS and **ABACO®** I/O BUS chain.

RESET KEY

ABB 03 module features a reset key called P1, whose purpose is to activate the signal **/R.T.** of **ABACO® BUS**. Using this key the user can easily reset the whole application installed on the module without any need to use an external device; please remark that key P1 has an effect only when a CPU card (**GPC®**) is installed on the **BUS**, in fact only CPU cards activate the **/RESET** signal in response to the activation of **/R.T.** signal.

Mother board **ABB 03** is provided with a connector (CN2) featuring the signals to remote the reset key, if needed. The main purpose of this connector is to provide the possibility to install the reset key in a place distant from the board, like an electrical panel, etc.

Signal **/R.T.** is active low, so it must be connected to **GND** for activating. This allow to use a simple normally-open button connected to **GND** and **/R.T.** as remote reset key.

For further information about the reset key connections please refer to the following figure, while to locate key P1 and connector CN2 please refer to figure 4.

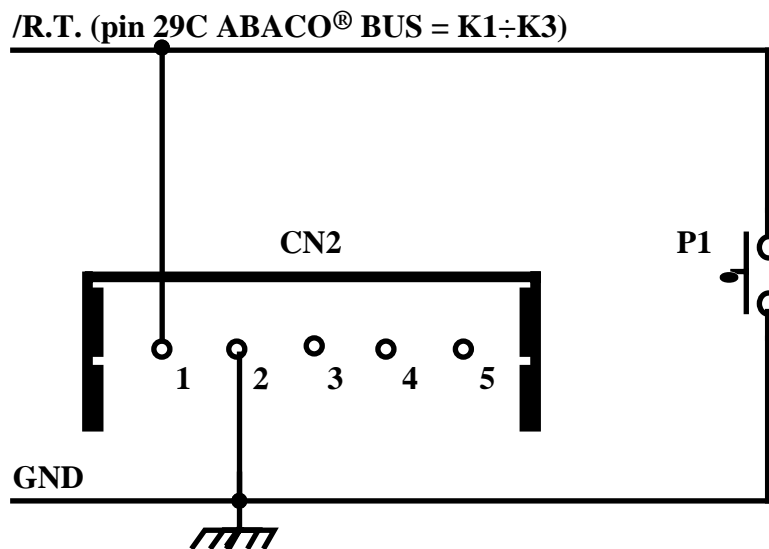


FIGURE 8: RESET KEY CONNECTION DIAGRAM

JUMPER

ABB 03 features a jumper that allows to connecte the stabilized +5 Vdc supply voltage to connector CN1 for **ABACO® I/O BUS**.

Pin numeration is reported in the serigraph on the board or in figure 10, while to locate the jumper on the board please refer to figure 4.

In the table of figure 9, * indicates default connection, that is the connection set after the board test phase. Board is delivered with this connection.

JUMPER	CONNECTION	PURPOSE	DEF.
J1	Position 1-2	Connects pin 26 of CN1 to +5 Vdc, that is connects ABACO ® BUS power supply to ABACO ® I/O BUS power supply.	*
	Position 2-3	Does not connect pin 26 of CN1 to +5 Vdc, that is disconnects ABACO ® BUS power supply from ABACO ® I/O BUS power supply.	

FIGURE 9: JUMPER TABLE

Typical purposes of this jumper are:

- supply the **ABACO**® I/O BUS boards through supply provided by CN3 (position 1-2)
- supply the BUS **ABACO**® boards through the supply voltage available on **ABACO**® I/O BUS connector (position 1-2)
- avoid conflicts between supply signals coming from different generators (position 2-3), for example when both **ABACO**® I/O BUS and BUS **ABACO**® boards are provided with power supply

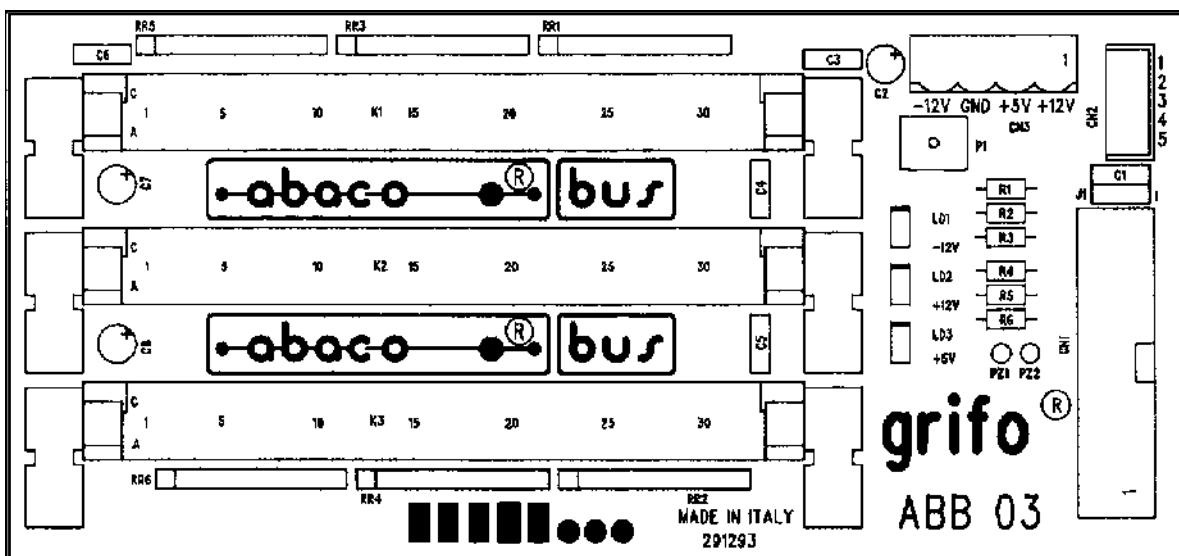


FIGURE 10: COMPONENTS MAP

VISUAL SIGNALATIONS

ABB 03 board is provided with three LEDs for visual signalations as described here:

LED	COLOUR	DESCRIPTION
LD1	Green	When ON indicates the presence of -12 Vdc power supply voltage.
LD2	Yellow	When ON indicates the presence of +12 Vdc power supply voltage.
LD3	Red	When ON indicates the presence of +5 Vdc power supply voltage.

FIGURE 11: VISUAL SIGNALATIONS TABLE

The main purpose of these LEDs is to provide a visual indication of supply normalized voltages, making easier to verify the working status of the system. In addition, connector CN2 allows to remote these signalations and install them, for example, on an indicator board, etc. LEDs can be connected directly from the **ABB 03** board, in fact this latter features also the drop resistors. To easily locate the visual signalations, please refer to figure 4.

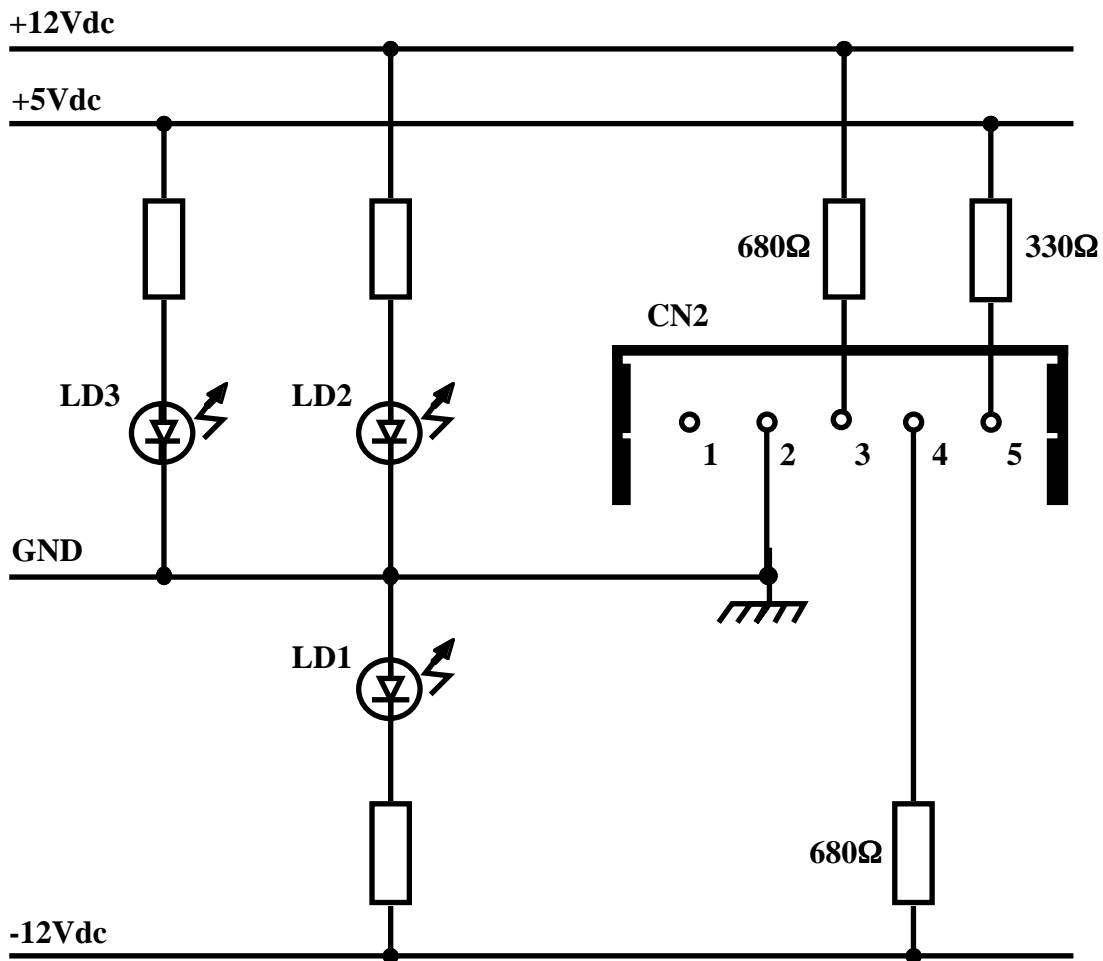


FIGURE 12: LEDs CONNECTION DIAGRAM

TERMINATION RESISTORS

A very important feature of **ABB 03** mother boards is that all the signals of **ABACO®** BUS are provided with a termination resistor.

This feature minimizes the eventual effects due to signals that otherwise would remain floating and in the meantime it warrants the functionality and the perfect interfacing to all the **grifo®** industrial boards listing. Thanks to the termination resistors in fact, also boards provided with CMOS BUS interfaces can be connected, obtaining an overall reduction of the power consumption for the application system.

BOARD CONNECTIONS

To prevent possible connecting problems between **ABB 03** board and the external systems, the user has to read carefully the information of the previous paragraphs and he must follow these instructions:

- The TTL signals can be connected directly only to a device featuring the same type of interface. About the correspondance between logic signals and TTL output status, remember that a logic **0** generates a TTL 0 Vdc, while a logic **1** generates a TTL +5 Vdc.

PODS PZ1 AND PZ2

Pins 21 and 22 of **ABACO®** I/O BUS (connector CN1) are connected to pods PZ2 and PZ1 respectively. The signals present on those two pins change according to which **GPC®** card is installed (they can be chip selects, power failure, etc.) so the user can take advantage of these pods to connect these signals.

EXTERNAL CARDS

ABB 03 mother board can interface to most of **grifo**[®] industrial boards. Their main purpose is to perform a digital Inpu/Output interfacement between CPU (**GPC**[®]) cards in EUROCARD format installed on an electric rack provided with Ω rails and the external world.

It can also be used as a converter between **ABACO**[®] I/O BUS and BUS **ABACO**[®] standard bus fromats; in this case please remark that **ABACO**[®] BUS is not multimaster, so there must be only one **GPC**[®] card installed on the BUS.

Here is reported an illustrative list of cards capable to interact with **ABB 03** mother board with a short description of their features; for further informations please request the specific documentation.

SPB 04-SPB 08

Switch Power BUS 4-8 slots

Motherboard featuring 4-8 slots of **ABACO**[®] industrial BUS; pitch 4 TE; standard power supply connectors; termination resistances; connector type F for **SPC xxx** supply ; holes for rack docking.

SBP 02-xx

Switch BLOCK Power xx version

Low cost switching power supply able to generate voltage from +5 to +40 Vdc and current up to 2.5 A; Input from 12 to 24 Vac; Connection for DIN C Type and Ω rails.

JMS 34

Jumbo Multifunction Support for Axis control

Generic peripheral axis control card. 3 optocoupled acquisition channels, with 16 bits bidirectional counter, for incremental encoder. 4 12bits ± 10 Vdc D/A channels. 8 Opto-in; 8 NPN Opto-output 40Vdc 500 mA. All I/O lines displayed with LEDs.

IPC 52

Intelligent Peripheral Controller, 24 analogic input

This intelligent peripheral card acquires 24 indipendent analogic input lines: 8 PT 100 or PT 1000 sensors, 8 J,K,S,T termocouples, 8 analog input ± 2 Vdc or 4+20mA; 16 bits + sign A/D section; 0.1 °C resolution; 32K RAM for local data logging; buzzer; 16 TTL I/O lines; 5 or 8 conversion per second; facility of networking up to 127 IPC 52 cards using serial line. BUS interfacing or through RS 232, RS 422, RS 485 or current loop line. Only 5Vdc power supply.

GPC[®] 188F

General Purpose Controller 80C188

80C188 μ P 20MHz; 1 RS 232 line; 1 RS 232, RS 422-485 or Current Loop line; 24 TTL I/O lines; 1M EPROM or 512K FLASH; 1M RAM Lithium battery backed; 8K serial EEPROM; RTC; Watch Dog; 8 Dip switch; 3 Timer Counter; 8 13 bit A/D lines; Power failure; activity LEDs; single power supply +5Vdc.

GPC[®] 150

General Purpose Controller 84C15

Microprocessor Z80 at 16 MHz; implementation completely CMOS; 512K EPROM or FLASH; 512K SRAM; RTC; Back-Up through external Lithium battery; 4M serail FLASH ; 1 serial line RS 232 plus 1 RS 232 or RS 422-485 or current loop; 40 I/O TTL; 2 timer/counter; 2 watch dog; dip switch; EEPROM; A/D converter with resolution 12 bit; activity LED.

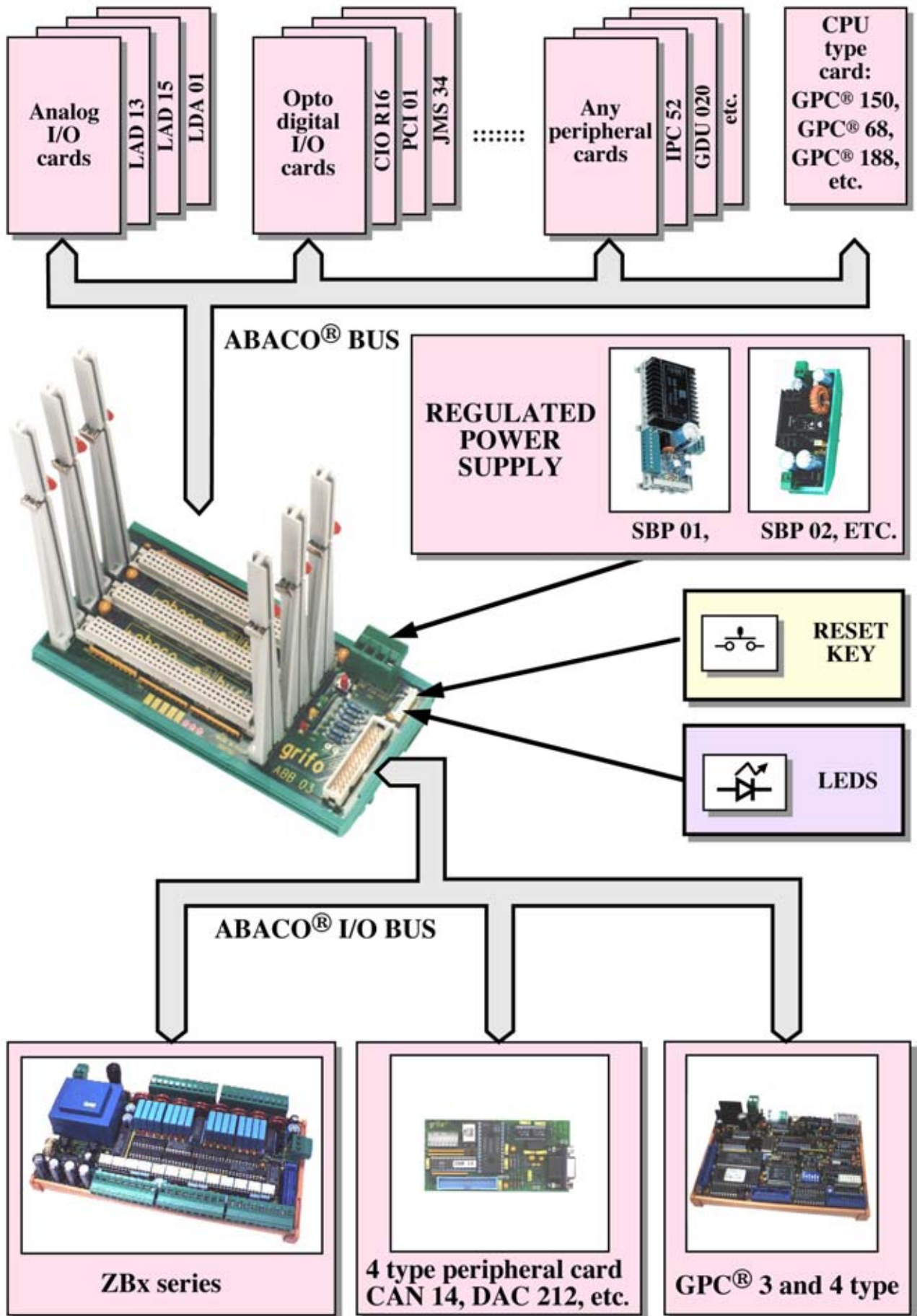


FIGURE 13: POSSIBLE CONNECTIONS DIAGRAM

GPC® 15R

General Purpose Controller 84C15

84C15 μ P, 10÷16 MHz; 1 RS 232 line; 1 RS 232 or RS 422-485 or C. L. line; 16÷24 TTL I/O lines; 16 Opto-in; 8 Relays; 4 Opto Coupled Timers Counters; 512K EPROM or FLASH; 512K RAM and RTC backed; 8K serial EEPROM; 8K Backed RAM modul; Buzzer; 1 Activity LED; Watch dog; 4÷12 readable DIPs; LCD Interface.

GPC® 15A

General Purpose Controller 84C15

Full CMOS card, 10÷20 MHz 84C15 CPU; 512K EPROM or FLASH; 128K RAM; 8K RAM and RTC backed; 8K serial EEPROM; 1 RS 232 line; 1 RS 232 line or RS 422-485 or Current Loop line; 32 or 40 TTL I/O lines; CTC; Watch dog; 2 Dip switches; Buzzer.

GPC® 550

General Purpose Controller 80C552

Microprocessor 80C552 at 22 MHz. 32K EPROM; 32 K SRAM; 32 K EEPROM or SRAM; RTC; serial EEPROM; 1 line RS 232 + 1 RS 232 or RS 422-485 or current loop; 40 I/O TTL; 2 PWM lines; 16 bits timer/counter; watch dog; dip switch; 8 A/D lines with resolution 10 bit; interface for BUS **ABACO**®; galvanically isolated CAN serial line. Unique power supply +5 Vdc; EUROCARD format.

GPC® 553

General Purpose Controller 80C552

80C552 μ P, 22÷33 MHz; 1 RS 232 line (software); 1 RS 232 or RS 422-485 or Current Loop line; 16 TTL I/O lines; 8 A/D 10 bits lines; 3 Timers Counters; 64K EPROM; 64K RAM; 32K RAM and RTC backed; 32K DIL EEPROM; 8K serial EEPROM; 2 PWM lines; 1 Activity LED; Watch dog; 5 readable DIPs; LCD Interface.

GPC® 153

General Purpose Controller Z80

84C15 μ P, 10÷16 MHz; Full CMOS; 1 RS 232 line; 1 RS 232 or RS 422-485 or Current Loop line; 16 TTL I/O lines; 8 A/D 12 bits lines; 2÷4 Timers Counters; 512K EPROM or FLASH; 512K RAM and RTC backed; 8K serial EEPROM; Buzzer; 1 Activity LED; Watch dog; 8 readable DIPs; LCD Interface.

GPC® 183

General Purpose Controller Z180

Z180 μ P, 10÷16 MHz; Full CMOS; 1 RS 232 line; 1 RS 232 or RS 422-485 or Current Loop line; 24 TTL I/O lines; 11 A/D 12 bits lines; 2 Timers Counters; 512K EPROM or FLASH; 512K RAM and RTC backed; 8K serial EEPROM; Buzzer; 2 Activity LED; Watch dog; 4 readable DIPs; LCD Interface.

GPC® 884

General Purpose Controller Am188ES

Microprocessor AMD Am188ES up to 40 MHz 16 bits; implementation completely CMOS; serie 4 format; 512K EPROM or FLASH; 512K SRAM backed with Lithium battery; RTC; 1 RS 232 serial line + 1 RS 232 or RS 422-485 or current loop; 16 I/O TTL; 3 timer/counter; watch dog; EEPROM; 11 signals A/D converter with 12 bit resolution; interface for **ABACO**® I/O BUS.

GPC® 114

General Purpose Controller 68HC11

Microprocessor 68HC11A1 at 8 MHz; implementation completely CMOS; serie 4 format; 32K EPROM; 32K SRAM backed with Lithium battery; 32K EPROM, SRAM, EEPROM; RTC; 1 serial line RS 232 or RS 422-485; 10 I/O TTL; 3 timer/counter; watch dog; 8 signals A/D converter with resolution 8 bit; 1 asynchronous serial line; extremely low power consumption; interface for **ABACO®** I/O BUS.

GPC® AM4

General Purpose Controller ATmega103

Microprocessor ATmega103 at 5.5 MHz; implementation completely CMOS; 128K internal FLASH; 32K SRAM; Back-Up with Lithium battery internal or external; 1 serial line RS 232 or RS 422-485 or current loop; 16 I/O TTL; 8 linee A/D resolution 10 bits; 2 timer/counter; Watch Dog; Real Time Clock; 4K internal EEPROM; interface for ISP programming; interface for **ABACO®** I/O BUS.

LDA 01

Low cost Digital to Analog converter 12 bits

2 D/A converter resolution 12 bit; 8 open collector da 45 Vdc transistor outputs, 500 mA, optocoupled; data view by LED; selectable analog output: 0÷5, 0÷10, ±5 and ±10 Vdc; gain and offset regulation; 8 or 16 bit BUS; extended addressing.

LAD 12

Low cost Analog to Digital conv. 12 bits

Dual slope 16 lines A/D converter; 12 bit + sign conversion; 12,5 conversions per second rate; range ±2,048 Vdc or 0÷20 mA; automatic running mode; 1 LED, 2 TTL input lines; 8 bit Bus; front panel.

LAD 15

Low cost Analog to Digital conv. 15 bits

Dual slope 16 lines A/D converter; 15 bit + sign conversion; 2,5 conversions per second rate; range ±3,2768 Vdc or 0÷20 mA; automatic running mode; 2 LEDs; 2 TTL input lines; 8 bit Bus; front panel.

CI/O R16

16 Coupled Input Output Relé

16 optocoupled input with π -filter; input voltage 24 Vdc. 16 micro-relays 1 A with disturb suppression by MOV 24 Vac. I/O visualized through LEDs; 8 bit BUS; standard addressing.

PCI 01

32 Peripheral Coupled Input

16 optocoupled input with π -filter; input voltage 24 Vdc; I/O visualized through LEDs; 8 or 16 bit BUS; standard addressing.

PIO 01

Peripheral Input/Output

96 I/O TTL signals grouped in 12 ports 8 bit wide; 6 standard 20 pins I/O connectors; 4 PPI 82C55 drive the signals; Watch dog with intervention time and modality selectable.

UCC 08

UART Communication Card 8 linee

8 independent serial lines RS 232 or RS 422-485. Each line: 4 chars buffer; asynchronous communication; Baud rate (50 up to 38.4K baud), parity, stop bit and data bit are software selectable; 3 Dip Switch; 8 bit BUS; extended addressing.



APPENDIX A: ALPHABETICAL INDEX

SYMBOLS**Ω 4****A****ABACO® 15****ABACO® I/O BUS 8, 15****B****BOARD CONNNECTIONS 15****BUS LINE TYPE 4****C****CMOS BUS 15****CONNECTORS****CN1 8****CN2 6****CN3 9****K1÷K3 10****G****GPC® 15****J****J1 13****JUMPER 12****L****LEDS 6, 14****P****P1 12****POWER SUPPLY 4, 9****PZ1 15****PZ2 15**

R

RACK TYPE 4

RELATIVE HUMIDITY 4

RESET 6, 12

S

SIZE 4

T

TEMPERATURE RANGE 4

TERMINATION RESISTORS 15

TTL 15

V

VERSION 1

W

WEIGHT 4