FBC 20       FBC L22
FBC 25       FBC 26
FBC 34/L34   FBC 234
FBC 35       FBC 50
Flat BLock Contact - Double step

USER MANUAL
FBC 20/L22  Flat BLOCK Contact 20 pins
Interface between two low profile connectors (20 pins male) and field wiring (quick release screw terminal connectors). Version L22 is provided with LEDs that visualize line states on 20 pin connectors. Suitable for DIN 46277-1 and 3 rails.

FBC 25  Flat BLOCK Contact 25 pins
Interface between two DB type connectors (25 pins female) and field wiring (quick release screw terminal connectors). Suitable for DIN 46277-1 and 3 rails.

FBC 26  Flat BLOCK Contact 26 pins
Interface between two low profile connectors (26 pins male) and field wiring (quick release screw terminal connectors). Suitable for DIN 46277-1 and 3 rails.

FBC 34/L34  Flat BLOCK Contact 34 pins
Interface between two low profile connectors (one 20 pins male and one 34 pins male) and field wiring (quick release screw terminal connectors). Version L34 is provided with LEDs that visualize line states on 20 pin connector. Suitable for DIN 46277-1 and 3 rails.

FBC 234  Flat BLOCK Contact 2 x 34 pins
Interface between two low profile connectors (34 pins male) and field wiring (quick release screw terminal connectors). Suitable for DIN 46277-1 and 3 rails.

FBC 35  Flat BLOCK Contact 34 pins
Interface between two low profile connectors (34 pins male) and field wiring (quick release screw terminal connectors). Suitable for DIN 46277-1 and 3 rails.

FBC 50  Flat BLOCK Contact 50 pins
Interface between two low profile connectors (50 pins male) and field wiring (quick release screw terminal connectors). Suitable for DIN 46277-1 and 3 rails.
IMPORTANT

Although all the information contained herein have been carefully verified, grifo® assumes no responsibility for errors that might appear in this document, or for damage to things or persons resulting from technical errors, omission and improper use of this manual and of the related software and hardware.

gifo® reserves the right to change the contents and form of this document, as well as the features and specification of its products at any time, without prior notice, to obtain always the best product.

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

GPC®, grifo®: are trade marks of grifo®.

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, respectively 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 FBC card release:

<table>
<thead>
<tr>
<th>Card Code</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>FBC 20:</td>
<td>130297</td>
</tr>
<tr>
<td>FBC 25:</td>
<td>220888</td>
</tr>
<tr>
<td>FBC 26:</td>
<td>250289</td>
</tr>
<tr>
<td>FBC 34:</td>
<td>130495</td>
</tr>
<tr>
<td>FBC 234:</td>
<td>130297</td>
</tr>
<tr>
<td>FBC L34:</td>
<td>220888</td>
</tr>
<tr>
<td>FBC 35:</td>
<td>031089</td>
</tr>
<tr>
<td>FBC 50:</td>
<td>220888</td>
</tr>
</tbody>
</table>

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.
FBC (Flat BLOCK Contact) are BLOCK type modules, they allow to interface and arrange the signals from flat-cable connectors and the field wiring in the most efficient way. Arranges signals are available from quick release screw terminal connectors. To easy the use of these modules, an univocal correspondance between pins of quick release screw terminal connectors and other connectors has been decided. FBC modules have been designed to make easier the electric panels wiring but also to be used in laboratories. In fact, during test phases it is often required to interface signals available on flat-cables directly with circuits to test.

In general, FBC allow to reach all signals available from ABACO® industrial listing boards' flat cables.

To easy the recognition of the several modules installed in the electric panel, and to locate them faster in the electric diagram, it is possible to put an identification number directly on the BLOCK module. In fact the serigraph features a label, preceeded by BLOCK denomination, where the user can write any kind of identification string. This feature of ABACO® BLOCK serie denotes the care used by grifo® in examining electric panels installation practical problems of one's users.

Another serigraph contains the five figures BLOCK serial number and the three circles indicating the operational tests that the module has overcome successfully.

Modules are provided with isolating support for omega rails type DIN 46277-1 and 46277-3 installation.
FIGURE 1: PHOTO OF SEVERAL FBC (NOT TYPE L)
TECHNICAL FEATURES OF FBC 20

GENERAL FEATURES

Best use: Arrange the signals of a standard ABACO® connector, like, for example I/O ABACO® or A/D ABACO®, to a quick release screw terminal connector.

PHYSICAL FEATURES

Size: 168 x 83 x 41 mm

Weight: 160 g

Connectors:
- CN1: low profile 20 pins, straight, male
- CN2: low profile 20 pins, straight, male
- CN3: quick release screw terminal, 10 pins, 90 degrees, male
- CN4: quick release screw terminal, 10 pins, 90 degrees, male
- CN5: quick release screw terminal, 10 pins, 90 degrees, male
- CN6: quick release screw terminal, 10 pins, 90 degrees, male
**Figure 2:** Photo of an FBC 20 provided with BLOCK container

**Figure 3:** FBC 20 connection diagram
TECHNICAL FEATURES OF FBC L22

GENERAL FEATURES

Best use: Arrange the signals of a standard ABACO® connector, like, for example 16 optocoupled inputs of CI/O-01, CI/O-02, CI/O-T16, CI/O-R16, or section 1 of PCI 01 and visualize them. Signals naming is compliant to standard grifo®.

PHYSICAL FEATURES

Size: 168 x 83 x 41 mm

Weight: 163 g

Connectors:
- CN1: low profile 20 pins, straight, male
- CN2: low profile 20 pins, straight, male
- CN3: quick release screw terminal, 9 pins, 90 degrees, male
- CN4: quick release screw terminal, 9 pins, 90 degrees, male
- CN5: quick release screw terminal, 9 pins, 90 degrees, male
- CN6: quick release screw terminal, 9 pins, 90 degrees, male

![Figure 4: Photo of FBC L22 provided with BLOCK container](image-url)
CN1 - INTERFACE FOR OPTOCOUPLED INPUTS, SECTION 1

CN1 allows to interface directly to optocoupled inputs of CI/O-01, CI/O-02, CI/O-T16, CI/O-R16, or to section 1 of PCI 01. Above mentioned signals are available on quick release screw terminal connectors CN3, CN4 and CN7, to interface the field signals comfortably.

<table>
<thead>
<tr>
<th>Ingresso D3 Byte B</th>
<th>1</th>
<th>2</th>
<th>Ingresso D4 Byte B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingresso D2 Byte B</td>
<td>3</td>
<td>4</td>
<td>Ingresso D5 Byte B</td>
</tr>
<tr>
<td>Ingresso D1 Byte B</td>
<td>5</td>
<td>6</td>
<td>Ingresso D6 Byte B</td>
</tr>
<tr>
<td>Ingresso D0 Byte B</td>
<td>7</td>
<td>8</td>
<td>Ingresso D7 Byte B</td>
</tr>
<tr>
<td>Ingresso D7 Byte A</td>
<td>9</td>
<td>10</td>
<td>Ingresso D0 Byte A</td>
</tr>
<tr>
<td>Ingresso D6 Byte A</td>
<td>11</td>
<td>12</td>
<td>Ingresso D1 Byte A</td>
</tr>
<tr>
<td>Ingresso D5 Byte A</td>
<td>13</td>
<td>14</td>
<td>Ingresso D2 Byte A</td>
</tr>
<tr>
<td>Ingresso D4 Byte A</td>
<td>15</td>
<td>16</td>
<td>Ingresso D3 Byte A</td>
</tr>
<tr>
<td>+Vdc opto</td>
<td>17</td>
<td>18</td>
<td>+Vdc opto</td>
</tr>
<tr>
<td>Comune Vdc opto</td>
<td>19</td>
<td>20</td>
<td>Comune Vdc opto</td>
</tr>
</tbody>
</table>

**Figure 5: CN1 - Interface to optocoupled inputs, Section 1**

Signals description:

- **Input Dn Byte A** = 1 - Open collector NPN input connected to n-th signal of Byte A.
- **Input Dn Byte B** = 1 - Open collector NPN input connected to n-th signal of Byte B.
- **+Vdc opto** = - Positive terminal of inputs power supply.
- **Common Vdc opto** = - Common terminal of inputs power supply.
CN3 - CONNECTOR FOR OPTOCOUPLED INPUTS OF BYTE B, SECTION 1

CN3 is a 9 pins quick release screw terminal connector. It allows to connect 8 out of 16 NPN optocoupled inputs of section 1, in details the ones connected to Byte B. Connector features open collector optocoupled inputs; power supply for inputs must be provided through CN7.

Figure 6: CN3 - Connector for optocoupled inputs Byte B, Section 1

Signals description:

Ingresso Dn Byte B = I - Open collector NPN input connected to n-th signal of Byte B.
Comune Vdc opto = - Common terminal of inputs power supply.
CN4 - CONNECTOR FOR OPTOCOUPLED INPUTS OF BYTE A, SECTION 1

CN4 is a 9 pins quick release screw terminal connector. It allows to connect 8 out of 16 NPN optocoupled inputs of section 1, in details the ones connected to Byte A. Connector features open collector optocoupled inputs; power supply for inputs must be provided through CN7.

![Figure 7: CN4 - Connector for optocoupled inputs Byte A, Sezione 1](image)

Signals description:

- **Ingresso Dn Byte A** = I - Open collector NPN input connected to n-th signal of Byte A.
- **Comune Vdc opto** = - Common terminal of inputs power supply.
CN2 - INTERFACE FOR OPTOCOUPLED INPUTS, SECTION 2

CN2 allows to interface directly to optocoupled inputs of CI/O-01, CI/O-02, CI/O-T16, CI/O-R16, or to section 1 of PCI 01.

Above mentioned signals are available on quick release screw terminal connectors CN3, CN4 and CN7, to interface the field signals comfortably.

**Figures: CN2 Interface to optocoupled inputs, Section 2**

Signals description:

- **Input Dn Byte A** = \( I \) - Open collector NPN input connected to n-th signal of Byte A.
- **Input Dn Byte B** = \( I \) - Open collector NPN input connected to n-th signal of Byte B.
- **+Vdc opto** = - Positive terminal of inputs power supply.
- **Common Vdc opto** = - Common terminal of inputs power supply.
CN5 - CONNECTOR FOR OPTOCOUPLED INPUTS OF BYTE B, SECTION 2

CN5 is a 9 pins quick release screw terminal connector. It allows to connect 8 out of 16 NPN optocoupled inputs of section 2, in details the ones connected to Byte B. Connector features open collector optocoupled inputs; power supply for inputs must be provided through CN7.

**Figure 9: CN5 - Connector for optocoupled inputs Byte B, Section 2**

Signals description:

Ingresso Dn Byte B = I - Open collector NPN input connected to n-th signal of Byte B.
Comune Vdc opto = - Common terminal of inputs power supply.
CN6 - CONNECTOR FOR OPTOCOUPLED INPUTS OF BYTE A, SECTION 2

CN6 is a 9 pins quick release screw terminal connector. It allows to connect 8 out of 16 NPN optocoupled inputs of section 2, in details the ones connected to Byte A. Connector features open collector optocoupled inputs; power supply for inputs must be provided through CN7.

**Figure 10: CN6 - Connector for optocoupled inputs Byte A, Sezione 1**

Signals description:

Ingresso Dn Byte A = I - Open collector NPN input connected to n-th signal of Byte A.
Comune Vdc opto = - Common terminal of inputs power supply.
CN7 - POWER SUPPLY OF OPTOCOUPLED SECTIONS 1 AND 2

CN7 is a 2 pins quick release screw terminal connector. It allows to supply sections 1 and 2 with galvanically isolated power source.

**Figure 11: CN7 - Power supply of optocoupled sections 1 and 2**

Signals description:

+Vdc opto = - Positive terminal of optocoupled inputs power supply.
Comune Vdc opto = - Common terminal of optocoupled inputs power supply.
VISUAL SIGNALATIONS

**FBC-L22** is provided with 32 LEDs that indicated the status of input signal they are connected to (LED ON = Input contact closed); correspondance between optocoupled inputs and LEDs is:

**LEDs OF SECTION 1 INPUTS**

<table>
<thead>
<tr>
<th>LED</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD1</td>
<td>Input D0 Byte A, Section 1</td>
</tr>
<tr>
<td>LD2</td>
<td>Input D1 Byte A, Section 1</td>
</tr>
<tr>
<td>LD3</td>
<td>Input D2 Byte A, Section 1</td>
</tr>
<tr>
<td>LD4</td>
<td>Input D3 Byte A, Section 1</td>
</tr>
<tr>
<td>LD5</td>
<td>Input D4 Byte A, Section 1</td>
</tr>
<tr>
<td>LD6</td>
<td>Input D5 Byte A, Section 1</td>
</tr>
<tr>
<td>LD7</td>
<td>Input D6 Byte A, Section 1</td>
</tr>
<tr>
<td>LD8</td>
<td>Input D7 Byte A, Section 1</td>
</tr>
<tr>
<td>LD11</td>
<td>Input D0 Byte B, Section 1</td>
</tr>
<tr>
<td>LD12</td>
<td>Input D1 Byte B, Section 1</td>
</tr>
<tr>
<td>LD13</td>
<td>Input D2 Byte B, Section 1</td>
</tr>
<tr>
<td>LD14</td>
<td>Input D3 Byte B, Section 1</td>
</tr>
<tr>
<td>LD15</td>
<td>Input D4 Byte B, Section 1</td>
</tr>
<tr>
<td>LD16</td>
<td>Input D5 Byte B, Section 1</td>
</tr>
<tr>
<td>LD17</td>
<td>Input D6 Byte B, Section 1</td>
</tr>
<tr>
<td>LD18</td>
<td>Input D7 Byte B, Section 1</td>
</tr>
</tbody>
</table>

**LEDs OF SECTION 2 INPUTS**

<table>
<thead>
<tr>
<th>LED</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD21</td>
<td>Input D0 Byte A, Section 2</td>
</tr>
<tr>
<td>LD22</td>
<td>Input D1 Byte A, Section 2</td>
</tr>
<tr>
<td>LD23</td>
<td>Input D2 Byte A, Section 2</td>
</tr>
<tr>
<td>LD24</td>
<td>Input D3 Byte A, Section 2</td>
</tr>
<tr>
<td>LD25</td>
<td>Input D4 Byte A, Section 2</td>
</tr>
<tr>
<td>LD26</td>
<td>Input D5 Byte A, Section 2</td>
</tr>
<tr>
<td>LD27</td>
<td>Input D6 Byte A, Section 2</td>
</tr>
<tr>
<td>LD28</td>
<td>Input D7 Byte A, Section 2</td>
</tr>
<tr>
<td>LD31</td>
<td>Input D0 Byte B, Section 2</td>
</tr>
<tr>
<td>LD32</td>
<td>Input D1 Byte B, Section 2</td>
</tr>
<tr>
<td>LD33</td>
<td>Input D2 Byte B, Section 2</td>
</tr>
<tr>
<td>LD34</td>
<td>Input D3 Byte B, Section 2</td>
</tr>
<tr>
<td>LD35</td>
<td>Input D4 Byte B, Section 2</td>
</tr>
<tr>
<td>LD36</td>
<td>Input D5 Byte B, Section 2</td>
</tr>
<tr>
<td>LD37</td>
<td>Input D6 Byte B, Section 2</td>
</tr>
<tr>
<td>LD38</td>
<td>Input D7 Byte B, Section 2</td>
</tr>
</tbody>
</table>
Figure 12: Photo of several FBC (type L)
TECHNICAL FEATURES OF FBC 25

GENERAL FEATURES

Best use: Arrange the signals of any serial electric protocol like RS 232, RS 422, RS 485 or current loop from a D-type 25 pins or 9 pins connector. Arrange thermocouples and thermoresistances of IPC 52 through cables CCR.PT 100 or CCR.TC

D type connector: Contacts can bear a maximum current of 5 A.

PHYSICAL FEATURES

Size: 168 x 83 x 41 mm

Weight: 200 g

Connectors: CN1: D type 25 pins, straight, female
CN2: D type 25 pins, straight, female
CN3: quick release screw terminal, 12 pins, 90 degrees, male
CN4: quick release screw terminal, 13 pins, 90 degrees, male
CN5: quick release screw terminal, 13 pins, 90 degrees, male
CN6: quick release screw terminal, 12 pins, 90 degrees, male
Figure 13: Photo of FBC 25 provided with BLOCK container

Figure 14: FBC 25 connection diagram
TECHNICAL FEATURES OF FBC 26

GENERAL FEATURES

Best use: Arrange the signals of cards like, for example, JMS 34 (axis control), GPC® 15A (general purpose) and I/O of other cards.

PHYSICAL FEATURES

Size: 168 x 83 x 41 mm

Weight: 190 g

Connectors:
- CN1: low profile 26 pins, straight, male
- CN2: low profile 26 pins, straight, male
- CN3: quick release screw terminal, 13 pins, 90 degrees, male
- CN4: quick release screw terminal, 13 pins, 90 degrees, male
- CN5: quick release screw terminal, 13 pins, 90 degrees, male
- CN6: quick release screw terminal, 13 pins, 90 degrees, male
Figure 15: Photo of FBC 26 provided with BLOCK container

Figure 16: FBC 26 connection diagram
TECHNICAL FEATURES OF FBC 34

GENERAL FEATURES

Best use: Arrange the signals of cards like, for example, CI/O 01 and CI/O 02 with field wiring.

PHYSICAL FEATURES

Size: 168 x 83 x 55 mm

Weight: 180 g

Connectors:
- CN1: low profile 34 pins, straight, male
- CN2: low profile 20 pins, straight, male
- CN3: quick release screw terminal, 17 pins, 90 degrees, male
- CN4: quick release screw terminal, 17 pins, 90 degrees, male
- CN5: quick release screw terminal, 10 pins, 90 degrees, male
- CN6: quick release screw terminal, 10 pins, 90 degrees, male

**FIGURE 17: CN2, CN5 AND CN6 OF FBC 34 CONNECTION DIAGRAM**
Figure 18: Photo of FBC 34 provided with Block container

Figure 19: CN1, CN3 and CN4 of FBC 34 connection diagram
TECHNICAL FEATURES OF FBC 234

GENERAL FEATURES

Best use: Arrange the signals of cards like, for example, CI/O 01 and CI/O 02 with field wiring. Signals naming is compliant with grifo® standard.

PHYSICAL FEATURES

Size: 168 x 83 x 41 mm

Weight: 180 g

Connectors: CN1: low profile 34 pins, straight, male
CN2: low profile 34 pins, straight, male
CN3: quick release screw terminal, 11 pins, straight, male
CN4: quick release screw terminal, 11 pins, straight, male
CN5: quick release screw terminal, 11 pins, straight, male
CN6: quick release screw terminal, 11 pins, straight, male

![Figure 20: CN1 and CN2 of FBC 234 connection diagram]
Figure 21: Photo of FBC 234 provided with Block Container

Figure 22: CN3, CN4, CN5 and CN6 of FBC 234 Connection Diagram
TECHNICAL FEATURES OF FBC L34

GENERAL FEATURES

Best use: Arrange the signals of cards like, for example, CI/O 01, CI/O 02, CI/O T16 and CI/O-R16 with field wiring and visualize status of signals on the 20 pins connector. Signals naming is compliant with grifo® standard.

PHISICAL FEATURES

Size: 168 x 83 x 41 mm

Weight: 183 g

Connectors: CN1: low profile 20 pins, straight, male
CN2: quick release screw terminal, 9 pins, straight, male
CN3: quick release screw terminal, 9 pins, straight, male
CN4: quick release screw terminal, 2 pins, straight, male
CN5: low profile 34 pins, straight, male
CN6: quick release screw terminal, 11 pins, straight, male
CN7: quick release screw terminal, 11 pins, straight, male

FIGURA 23: PHOTO OF FBC L34 PROVIDED WITH BLOCK
CN1 - INTERFACE FOR INPUTS OF CI/O-01, CI/O-02, CI/O-T16, CI/O-R16

Allows to interface directly to 16 inputs provided by the above mentioned cards, making available connection to the field for their signals on quick release screw terminal connectors CN2, CN3 e CN4.

Signals description:

Input Dn Byte A  =  I  -  Open collector NPN input connected to n-th signal of Byte A.
Input Dn Byte B  =  I  -  Open collector NPN input connected to n-th signal of Byte B.
+Vdc opto       =  +  -  Positive terminal of inputs power supply.
Common Vdc opto =  -  -  -  -  Common terminal of inputs power supply.

**Figure 24: CN1 - Direct interface to inputs**
CN2 - CONNECTOR FOR OPTOCOUPLED INPUTS OF SECTION B

CN2 is a 9 pins quick release screw terminal connector. It allows to connect 8 out of 16 NPN optocoupled inputs of section B. Connector features open collector optocoupled inputs and their power supply common terminal.

**Figure 25: CN2 - Connector for optocoupled inputs of section B**

Signals description:

- Ingresso Dn Byte B = 1 - Open collector NPN input connected to n-th signal of Byte B.
- Comune Vdc opto = - Common terminal of inputs power supply.
CN3 - CONNECTOR FOR OPTOCOUPLED INPUTS OF SECTION A

CN3 is a 9 pins quick release screw terminal connector.
It allows to connect 8 out of 16 NPN optocoupled inputs of section A.
Connector features open collector optocoupled inputs and their power supply common terminal.

FIGURE 26: CN3 - CONNECTOR FOR OPTOCOUPLED INPUTS OF SECTION A

Signals description:

Ingresso Dn Byte A = 1 - Open collector NPN input connected to n-th signal of Byte A.
Comune Vdc opto = - Common terminal of inputs power supply.
CN4 - CONNECTOR FOR OPTOCOUPLECTRS POWER SUPPLY

CN4 is a 2 pins quick release screw terminal connector. It allows to supply optocouplers circuitry with galvanically isolated power source.

Signals description:

+Vdc opto = - Positive terminal of optocoupled inputs power supply.
Comune Vdc opto = - Common terminal of optocoupled inputs power supply.
CN5 - INTERFACE FOR OUTPUTS OF CI/O-01, CI/O-02, CI/O-T16, CI/O-R16

Allows to interface directly to 16 outputs provided by the above mentioned cards, making available connection to the field for their signals on quick release screw terminal connectors CN6 e CN7.

**Figure 28: CN5 - DIRECT INTERFACE TO OUTPUTS**

Signals description:

- Output Dn Byte A = O - N-th output signal of Byte A.
- Output Dn Byte B = O - N-th output signal of Byte B.
- Comune A or B = - Common terminal of outputs for sections A or B.
- N. C. = - Not connected.

**N.B.**: Boards CI/O-01 and CI/O-02 are provided with only one common point for outputs.
CN6 - CONNECTOR FOR OPTOCOUPLED OUTPUTS OF SECTION A

CN6 is a 11 pins quick release screw terminal connector. It allows to connect 8 out of 16 outputs of section A to the field. Connector features outputs and their common terminal, which is unique for all outputs.

![Diagram of CN6connector](image)

Figure 29: CN6 - Connector for Outputs of Section A

Signals description:

COMUNE A = O - Output connected to n-th signal of Byte A.
OUT n A = - Common terminal of outputs.
CN7 - CONNECTOR FOR OPTOCOUPLED INPUTS OF SECTION B

CN7 is a 11 pins quick release screw terminal connector. It allows to connect 8 out of 16 outputs of section B to the field. Connector features outputs and their common terminal, which is unique for all outputs.

FIGURE 30: CN7 - CONNECTOR FOR OPTOCOUPLED OUTPUTS OF SECTION B

Signals description:

COMUNE B = O - Output connected to n-th signal of Byte B.
OUT n B = - Common terminal of outputs.
**VISUAL SIGNALATIONS**

**FBC-L34** is provided with 16 LEDs that indicated the status of input signal they are connected to; correspondance between optocoupled inputs and LEDs is:

<table>
<thead>
<tr>
<th>LED</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD1</td>
<td>Input D0 Byte B</td>
</tr>
<tr>
<td>LD2</td>
<td>Input D1 Byte B</td>
</tr>
<tr>
<td>LD3</td>
<td>Input D2 Byte B</td>
</tr>
<tr>
<td>LD4</td>
<td>Input D3 Byte B</td>
</tr>
<tr>
<td>LD5</td>
<td>Input D4 Byte B</td>
</tr>
<tr>
<td>LD6</td>
<td>Input D5 Byte B</td>
</tr>
<tr>
<td>LD7</td>
<td>Input D6 Byte B</td>
</tr>
<tr>
<td>LD8</td>
<td>Input D7 Byte B</td>
</tr>
<tr>
<td>LD9</td>
<td>Input D0 Byte A</td>
</tr>
<tr>
<td>LD10</td>
<td>Input D1 Byte A</td>
</tr>
<tr>
<td>LD11</td>
<td>Input D2 Byte A</td>
</tr>
<tr>
<td>LD12</td>
<td>Input D3 Byte A</td>
</tr>
<tr>
<td>LD13</td>
<td>Input D4 Byte A</td>
</tr>
<tr>
<td>LD14</td>
<td>Input D5 Byte A</td>
</tr>
<tr>
<td>LD15</td>
<td>Input D6 Byte A</td>
</tr>
<tr>
<td>LD16</td>
<td>Input D7 Byte A</td>
</tr>
</tbody>
</table>
FIGURE 31: PHOTO OF FBC 20, FBC 25 AND FBC 50
TECHNICAL FEATURES OF FBC 35

GENERAL FEATURES

Best use: Arrange the signals of PCO 01 matched with FBC 50.

PHYSICAL FEATURES

Size: 168 x 75 x 55 mm

Weight: 80 g

Connectors:
- CN1: low profile 50 pins, 90 degreeses, male
- CN2: low profile 34 pins, 90 degreeses, male
- CN3: low profile 34 pins, 90 degreeses, male

**Figure 32: CN1 of FBC 35 connection diagram**
Figure 33: Photo of FBC 35 provided with BLOCK container

Figure 34: CN2 and CN3 of FBC 35 connection diagram
TECHNICAL FEATURES OF FBC 50

GENERAL FEATURES

Best use: Arrange the signals of **PCO 01** matched with **FBC 35**.

PHYSICAL FEATURES

Size: 168 x 83 x 55 mm

Weight: 80 g

Connectors:
- CN1: low profile 50 pins, 90 straight, male
- CN2: quick release screw terminal, 25 pins, 90 degrees, male
- CN3: quick release screw terminal, 25 pins, 90 degrees, male

**FIGURE 35: PHOTO OF FBC 50 PROVIDED WITH BLOCK CONTAINER**
FIGURE 36: FBC 50 CONNECTION DIAGRAM
EXTERNAL CARDS

**BLOCK** modules described in this manual interface directly most of **ABACO®** cards, increasing the possibilities of the system.

Here is a short list of them:

**GPC® 553**

General Purpose Controller 80C552
80C552 µP, 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; **ABACO®** I/O BUS.

**GPC® 323**

General Purpose Controller 51 family
80C32 µP, 14 MHz; Full CMOS; 1 RS 232 line (software); 1 RS 232 or RS 422-485 or Current Loop line; 24 TTL I/O lines; 11 A/D 12 bits lines; 3 Timers Counters; 64K EPROM; 64K RAM; 32K RAM and RTC backed; 32K DIL EEPROM; 8K serial EEPROM; Buzzer; 2 Activity LED; Watch dog; 5 readable DIPs; LCD Interface; **ABACO®** I/O BUS.

**GPC® 153**

General Purpose Controller Z80
84C15 µP, 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; **ABACO®** I/O BUS.

**GPC® 184**

Microprocessor Z80195 at 22 MHz; implementation completely CMOS; 512K EPROM or FLASH; 512K RAM; Back-Up with Lithium battery internal or external; 1 serial line RS 232 + 1 RS 232 or RS 422-485 or current loop + 1 TTL; 18 I/O TTL; 4 timer/counter 8 bits; 2 timer 16 bits; Watch Dog; Real Time Clock; activity LED; EEPROM; interface for **ABACO®** I/O BUS.

**GPC® 154**

“4” Type General Purpose Controller Z80
84C15 µP, 10 MHz; full CMOS; 1 RS 232 line; 1 RS 232 or RS 422-485 line; 16 TTL I/O lines; 512K EPROM or FLASH; 512K RAM and RTC backed; 8K serial EEPROM; 2+4 timers/counters; Watch dog; 2 readable DIPs; LCD Interface; **ABACO®** I/O BUS; 5Vdc power supply. Size 100x50 mm.

**GPC® 324/D**

“4” Type General Purpose Controller 80C32/320
80C32 or 80C320 µP, 14+22 MHz; Full CMOS; 1 RS 232 line; 1 RS 232 or RS 422-485 or Current Loop line; 4+16 TTL I/O lines; 3 Timers Counters; 64K EPROM; 64K RAM; 32K RAM backed; 32K DIL E2; 8K serial EEPROM; Watch dog; 1 readable DIP; LCD Interface; **ABACO®** I/O BUS; 5V Power supply; Size: 100x50 mm.
GPC® 884
General Purpose Controller Am188ES
Microprocessor AMD Am188ES up to 40 MHz; 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; type 4 format; 32K EPROM; 32K SRAM backed with Lithium battery; 32K EPROM, SRAM, EEPROM; RTC; 1 serial line RS 232, RS 422 or RS 485; 10 TTL I/O lines; 3 timers/counters; watch dog; 8 A/D converter signals with 8 bits resolution; 1 synchronous serial line; extremly low power consumption; interface for ABACO® I/O BUS.

GPC® AM4
General Purpose Controller ATmega103
Microprocessor ATmega103 at 5.5 MHz; CMOS implementation; 128K internal FLASH; 32K SRAM; Back-Up with Lithium battery internal or external; 4K internal EEPROM; 1 serial line RS 232, RS 422, RS 485 or current loop; 16 I/O TTL; 8 linee A/D resolution 10 bits; 3 timers/counters; Watch Dog; Real Time Clock; ABACO® I/O BUS expansion. Interface for ISP programming.

MSI 01
Multi Serial Interface 1 line
Interface card for TTL serial line that is buffered in RS 232, RS 422, RS 485, or current loop line. The TTL line is on a mini screw connector and the buffered one is on standard plug connector.

IBC 01
Interface Block Communication
Conversion card for serial communication, 2 RS 232 lines; 1 RS 422 or RS 485 line; 1 optical fibre line; selectable DTE/DCE interface; quick connection for DIN 46277-1 and 3 rails.

GPC® 188F
General Purpose Controller 80C188
80C188 μP 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 SRAM 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.

GPC® 15A
General Purpose Controller 84C15
Full CMOS card, 10÷20 MHz 84C15 CPU; 512K EPROM or FLASH EPROM; 128K RAM; 2K or 8K backed RAM+RTC; 8K serial EEPROM; 1 RS 232 serial line; 1 RS 232, RS 422, RS 485 or current loop line; 40 TTL I/O lines; 2 counters timers; 2 watch dogs; 2 dip switches, buzzer.

GPC® R/T94
General Purpose Relays/transistors 9 inputs 4 outputs
CMOS card, 14 MHz 89C4051 CPU; 4K FLASH; 128 byte RAM; 256 byte SRAM+RTC backed through battery; 1K serial EEPROM; 1 RS 232, RS 422, RS 485 or current loop line; 9 optocoupled NPN inputs; 4 relays outputs (5 A) or transistor (4A 45 Vdc) optocoupled; I/O lines displayed by LEDs; 1 counter timer.+5 Vdc power supply or 8÷24 Vac wide range; plastic container for Ω rails.
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 serial 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.

GPC® 550
General Purpose Controller 80C552
Microprocessor 80C552 at 22 MHz. 32K EPROM; 32 K RAM; 32 K EEPROM or SRAM; RTC; serial EEPROM; serial lines 1 RS 232 + 1 RS 232 or RS 422-485 or current loop; 40 I/O TTL; 2 lines of PWM; 16 bits timer/counter; watch dog; dip switch; 8 lines 10 bit A/D converter; interface for BUS ABACO®; CAN line galvanically isolated. Unique power supply +5 Vdc; EUROCARD format.

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.
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