

TIO 16

Test Input Output 16 lines

TECHNICAL MANUAL



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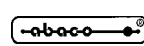
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TIO 16

Edition 3.00

Rel. 29 January 1999

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Test Input Output 16 lines

TECHNICAL MANUAL

It is a test and/or didactic module provided of: standard **I/O ABACO®** interface, on **20 pins** low profile connector. Size: **155x55x15** mm with mounting holes. **16 keys** for digital inputs simulation. **16 LEDs** for digital outputs status display. Keys and LEDs are **colored** to fastly recognize the connected port. One power supply **LED**. Wide range of **demo programs** for all the control cards and for each programming languages.

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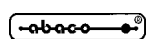
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For specific informations on the components mounted on the card, please refer to the Data Book of the builder or second sources.

SYMBOLS DESCRIPTION

In the manual could appear the following symbols:

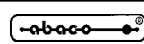


Attention: Generic danger



Attention: High voltage

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TIO 16 DOCUMENTATION

In the following pages are reported all the informations necessary to correctly use the **Test Input Output 16** module.

GENERAL FEATURES

The **TIO 16** module is a test and/or didactic card that can be used to check parallel interface functionality. The main purpose of the card is to provide the user of the necessary hardware to test the management procedures of two 8 bit I/O ports. The **TIO 16** is provided with a comfortable standard connector that can be directly connected to **GPC® xxx** control cards. The 16 I/O lines are connected to keys for digital input simulation and to LEDs for digital outputs status display. A wide range of demo programs based on this card, explain how to manage the I/O lines.

- Standard **I/O ABACO®** interface, on **20 pins** low profile connector.
- Size: **155x55x15** mm with mounting holes.
- **16 keys** for digital inputs simulation.
- **16 LEDs** for digital outputs status display.
- Keys and LEDs are **colored** to fastly recognize the connected port.
- One power supply **LED**.
- Wide range of **demo programs** for all the control cards and for each programming languages.

CN1 - DIGITAL I/O LINES CONNECTOR

CN1 is a 20 pins, male, 90°, low profile connector with 2.54 mm pitch.

On CN1 connector are available 16 I/O digital lines and it can be used to connect the module to all external control card; all these signals follow TTL standard and I/O **ABACO**® standard.

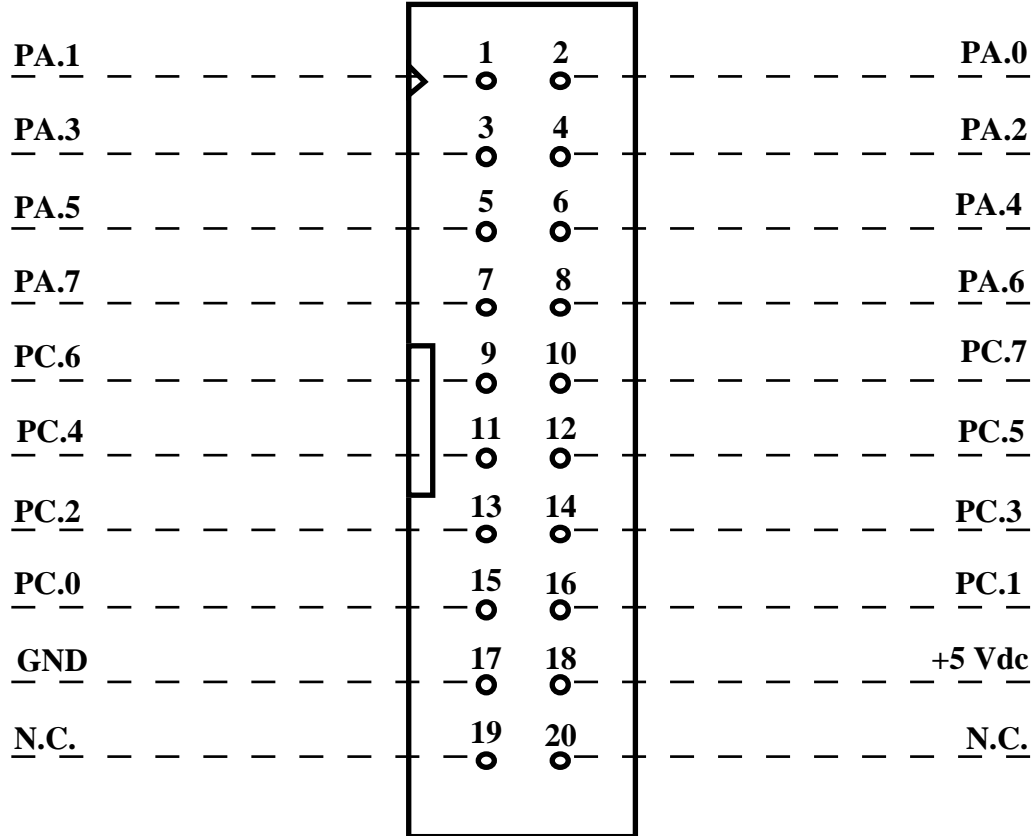


FIGURE 1: CN1 - CONNECTOR FOR DIGITAL I/O LINES

Signals description:

| | | | |
|-----------------|---|-----|--------------------------------|
| PPI PA.n | = | I/O | - Port A digital line n. |
| PPI PC.n | = | I/O | - Port C digital line n. |
| +5 Vdc | = | I | - Line for +5 Vdc power supply |
| GND | = | | - Ground signal |
| N.C. | = | | - Not connected |

LEDS AND KEYS CONNECTIONS

The following table reports the correspondence between the 16 LEDs and 16 keys of **TIO 16** module and the signals of CN1 connector.

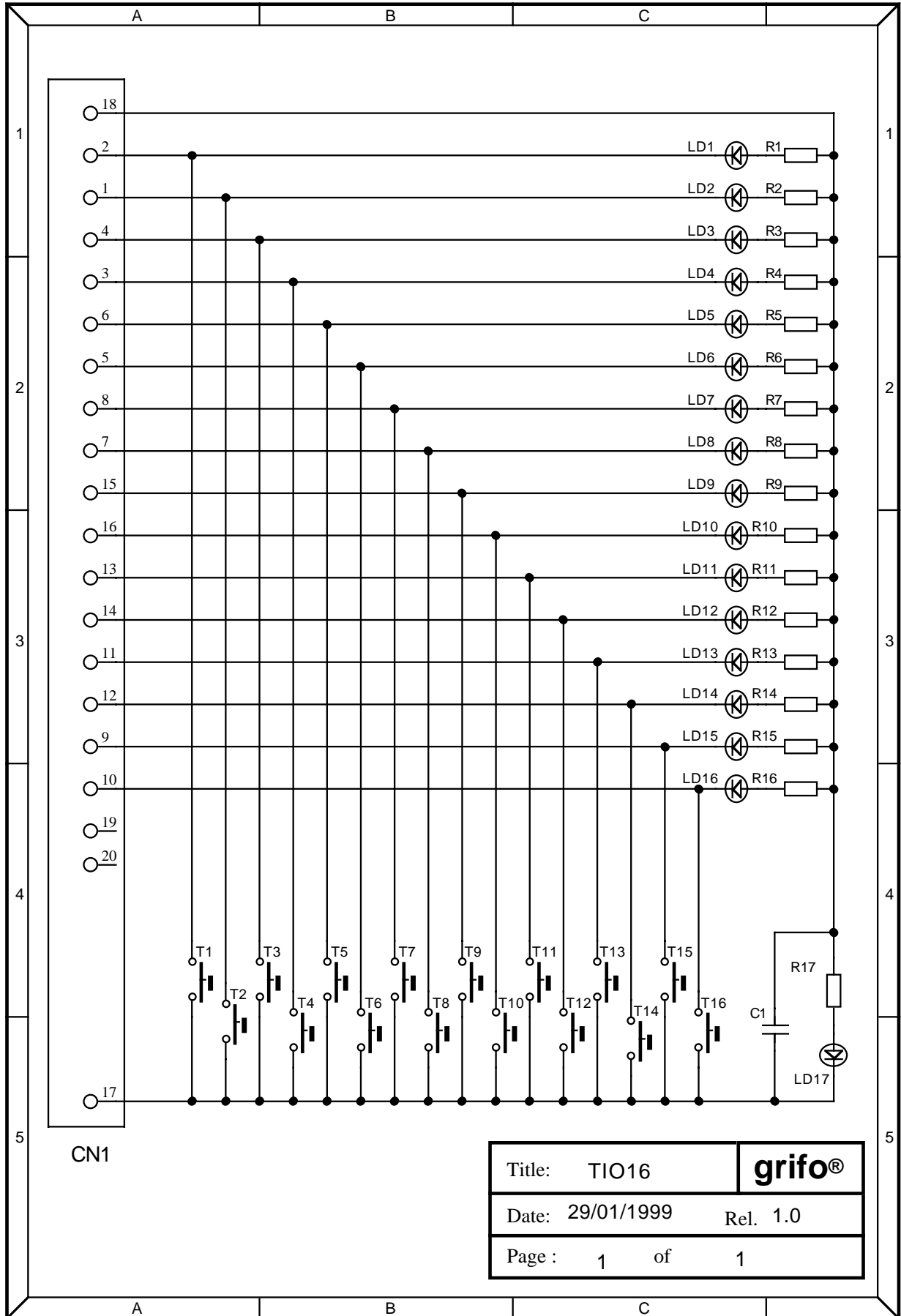
| SIGNAL | CN1 PIN | LED | KEY |
|--------|---------|------|-----|
| PA.0 | 2 | LD1 | T1 |
| PA.1 | 1 | LD2 | T2 |
| PA.2 | 4 | LD3 | T3 |
| PA.3 | 3 | LD4 | T4 |
| PA.4 | 6 | LD5 | T5 |
| PA.5 | 5 | LD6 | T6 |
| PA.6 | 8 | LD7 | T7 |
| PA.7 | 7 | LD8 | T8 |
| PC.0 | 15 | LD9 | T9 |
| PC.1 | 16 | LD10 | T10 |
| PC.2 | 13 | LD11 | T11 |
| PC.3 | 14 | LD12 | T12 |
| PC.4 | 11 | LD13 | T13 |
| PC.5 | 12 | LD14 | T14 |
| PC.6 | 9 | LD15 | T15 |
| PC.7 | 10 | LD16 | T16 |

FIGURE 2: TABLE FOR LEDS AND KEYS CONNECTIONS

COMPONENTS LIST

C1 - 100 KpF multi layered capacitor.
C2 - 22 μ F 6,3V tantalum capacitor .
R1, R2, R3, R4, R5, R6, R7, R8 - 680 Ω , 1/4 W resistor.
R9, R10, R11, R12, R13, R14, R15, R16 - 470 Ω , 1/4 W resistor.
R17 - 1 K Ω , 1/4 W resistor.
LD1, LD2, LD3, LD4, LD5, LD6, LD7, LD8 - 3 or 5 mm red LED.
LD9, LD10, LD11, LD12 - 3 or 5 mm yellow LED.
LD13, LD14, LD15, LD16 - 3 or 5 mm green LED.
LD17 - 3 or 5 mm red LED.
P1, P2, P3, P4, P5, P6, P7, P8 - Normally open push button red key.
P9, P10, P11, P12 - Normally open push button yellow key.
P13, P14, P15, P16 - Normally open push button green key.
P1 - 0 Ω resistor.
CN1 - 20 pins, vertical, male, low profile connector.

ELECTRIC DIAGRAM



| | |
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FIGURE 3: TIO 16 ELECTRIC DIAGRAM

