

# Compact5

*Compact5*  
*Documentation*

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**Tecnologie e Prodotti per l'Automazione**

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**REVISIONS**

Revision No.	Date	Protocol	Changes and/or changed paragraphs
Rev 0	22/07/2013		First release

**Reference Documents**

<b>Ref.</b>	<b>File Name</b>	<b>Revision</b>	<b>Date</b>	<b>Title</b>
[1]	eTMSBus.pdf	Rev. 4	07.06.2011	TmsBus module – Documentation

# CONTENTS

Description of Compact5 numeric control



## 1 DESCRIPTION

Compact5 is basically a computer embedded with PC104 bus. Compact5 is a little device, that can be installed in an electric cabinet, with mounted DIN rail (omega rail) .

Compact5 presents many advantages:

- reduced dimensions;
- reduced consumption;

Compact5 philosophy is to bring the connections back to the field by means of a set of buses.

## 2 FUNCTIONAL SPECIFICATION

### 2.1 General requirements

General requirements of the device are as follows:

- the system is based on a embedded PC architecture of small sizes.
- Mounting on DIN Rail (both with high and low profile). It is not provided for C rail or wall mounting.
- Connection between the boards is based on the PC104 standard connector. Electric communication is compatible with 16bit PC104/ISA bus.
- System includes 1 TMSBus expansion board.
- Connection with PC supervisor through Ethernet 100 Mb/s.
- Windows CE 6.0 Operating System
- Serigraphics indications
- External 12 Volts power supply.

### 2.2 Device composition

The modules making up the Compact5 device are

- MPU Board
- TMSBus expansion board
- Wall assembly elements or DIN Rail
- Storage Memory Unit. Basically identified in a Compact Flash device. The user should preview a simple replacement.

#### **2.2.1 Mechanical features:**

- Rectangular metal box
- MPU board format 'Capa Board 3.5"'. equipped with PC104 connection.
- System is fanless
- DIN Rail assembly with more directions (horizontal and vertical).
- All the connection are displayed on the front side.

#### **2.2.2 MPU board technical data**

- 'Capa Board 3.5"' Format
- Processor at 500MHz



- RAM DDR266 SoDIMM 256Mbyte (until 1Gbyte).
- Storage drive: COMPACT FLASH 128Mbyte (or more) removable.
- Fanless Board
- n°.1 CRT output for monitor.
- n°.1 PS/2 I/F for mouse + keyboard.
- n°.1 serial RS485.
- n°.1 LAN Ethernet 100BaseT.
- n°.1 PC104 ISA bus connector.

### ***2.2.3 PC104 specific expansion board***

- PC104 standard format
- Front side connectors

### ***2.2.4 Specification of power supply board***

- The power supply for the MPU Board and the expansion board is given through a dedicated connector.
- Power supply input is 12V, +/- 10%.
- Input protected and filtered.

### 3 TECHNICAL SPECIFICATIONS

#### 3.1 System

Processor:	VIA V4 Eden/C7 500MHz
Memory	DDR SODIMM 256 Mb (or greater)
SSD	Compact Flash Type II Socket 128Mb (or greater)
Expansion	1 slot PC104/ISA 16 bits
Operating system	Windows CE 6.0
Operating temperature	5 - 45° C
Storage temp.	NA
Moisture	10 - 95% relative moisture, without condensation
Power Supply	12 V dc $\pm$ 10%, 3 A
Dimensions	56 x 117 mm max, h = 160mm
Weight	700 g max
Assembly	DIN rail DIN EN50022 and EN50035 or wall assembly

#### 3.2 I/O

I/O Module	1 serial RS485 half-duplex 1 PS/2 for keyboard and mouse
Ethernet	n°.1 LAN Ethernet 100BaseT.
CRT	1 out video for monitor
USB	1 USB 2.0

#### 3.3 Configurations

##### 3.3.1 MPU board

SBC84710	Embedded Industrial Computer Capa Board 3.5" format, SBC84710VEA-500 model
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##### 3.3.2 SBC84710

- Board: SBC84710VEA-500
- Processor: VIA V4 C7 EDEN 500 MHz
- Chipset: VIA CX700 + ITE8888G
- Bus clock rate: 500 MHz or 1 GHz
- Main storage: 1 x 200 pin DDR SO-DIMM socket
- Expansion slot: PC104 for ISA bus
- Serial port: 1 RS-485
- SSD: Compact Flash Type II socket
- Dimensions: 'Capa Board 3.5''
- Operation temperature: 0 °C - 60 °C
- Relative moisture content: 10% - 90% not condensed

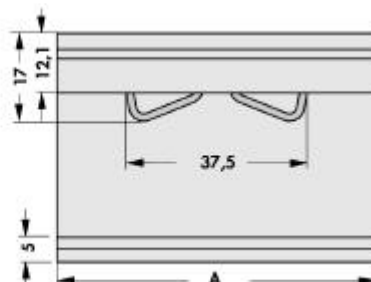
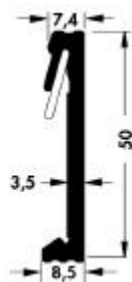
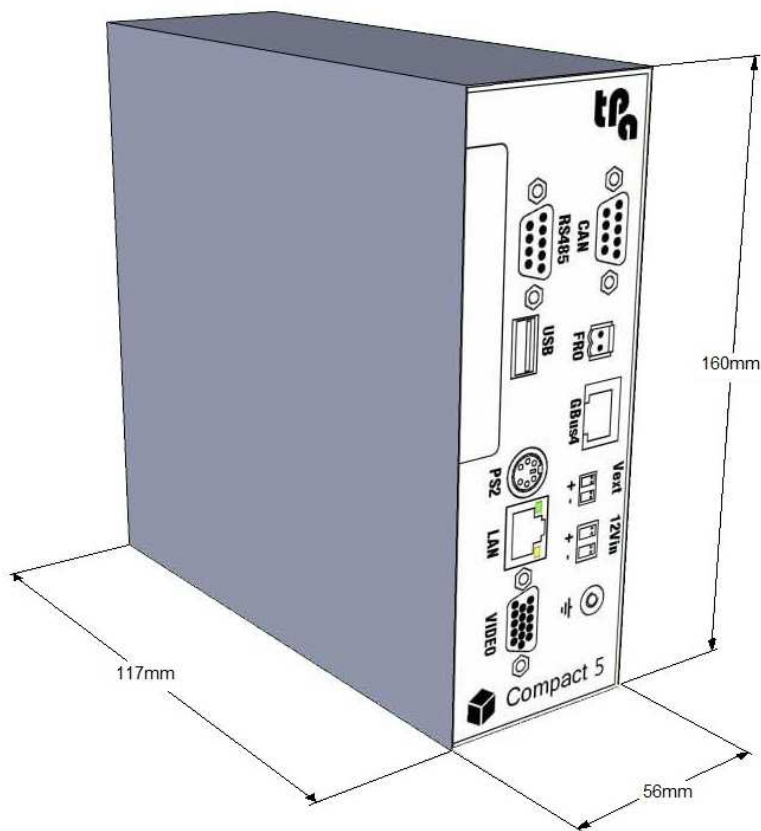
- Ethernet Realtek RTL8139DL

### 3.3.3 Expansion Board

TMSbus	CANBUS Management: can be configurated on request GreenBus 4.0 bus field Possible Feedrate
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Technical data: see relative documents

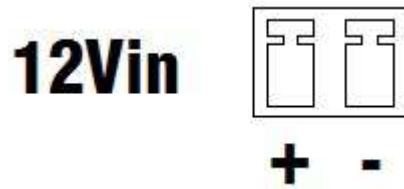
### 3.4 Dimensions and fixing



Fixing flange Compact5 on DIN Rail EN50022 and EN50035

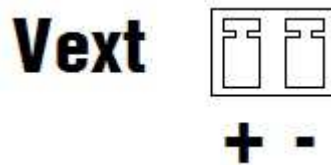
## 4 DESCRIPTION OF THE INTERFACES

### 4.1 Power supply connector



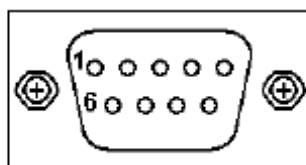
- 12Vdc: power connector with polarization serigraphy

### 4.2 External Power supply connector



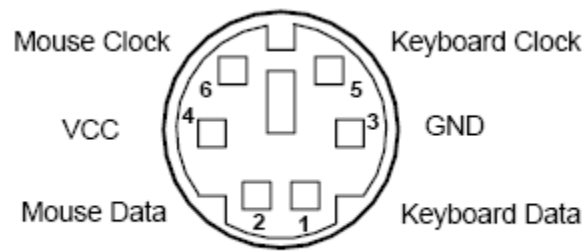
- 12Vdc: power connector with polarization serigraphy

### 4.3 Connector RS-485 (COM1)



Pin	Description
1	Data -
2	Data +
3	nc
4	nc
5	Gnd
6	nc
7	nc
8	nc
9	nc :

#### 4.4 Keyboard and Mouse PS/2 Connector

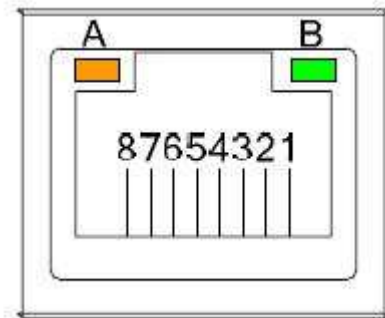


#### 4.5 CRT video out connector

It is a standard VGA connector.

Pin	Description
1	Red
2	Green
3	Blue
4	nc
5	Gnd
6	AGnd
7	AGnd
8	AGnd
9	nc
10	Gnd
11	nc
12	DDC dat
13	HSync
14	VSync
15	DDC Clk

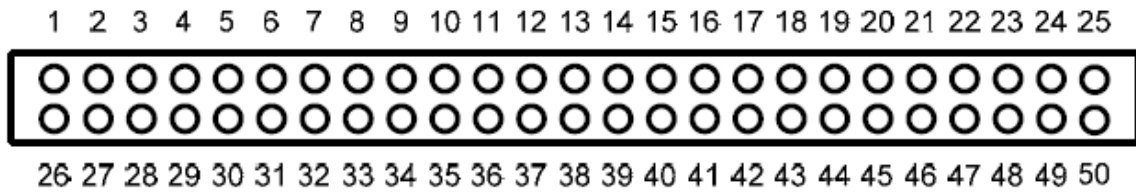
## 4.6 LAN Connector



Pin	Description
1	Tx+
2	Tx-
3	Rx+
4	RJ-1 (for 100BaseT only)
5	RJ-1 (for 100BaseT only)
6	Rx-
7	RJ-1 (for 100BaseT only)
8	RJ-1 (for 100BaseT only)
A	Active LED
B	100/1000 LAN LED

It is used for connection to PC supervisor. Use the specified cables later.

### 4.7 Compact Flash Connector



Pin	Description	Pin	Description
1	GND	26	
2	Data3	27	Data11
3	Data4	28	Data12
4	Data5	29	Data13
5	Data6	30	Data14
6	Data7	31	Data15
7	CS0#	32	CS1#
8	Address10	33	VS1#
9	ATASEL	34	IORD #
10	Address9	35	IOWR#
11	Address8	36	WE#
12	Address7	37	INTR
13	VCC	38	VCC
14	Address6	39	CSEL#
15	Address5	40	VS2#
16	Address4	41	RESET#
17	Address3	42	IORDY#
18	Address2	43	DMAREQ
19	Address1	44	DMAACK-
20	Address0	45	DASP#
21	Data0	46	PDIAG#
22	Data1	47	Data8
23	Data2	48	Data9
24	IOCS16#	49	Data10
25	CD2#	50	GND

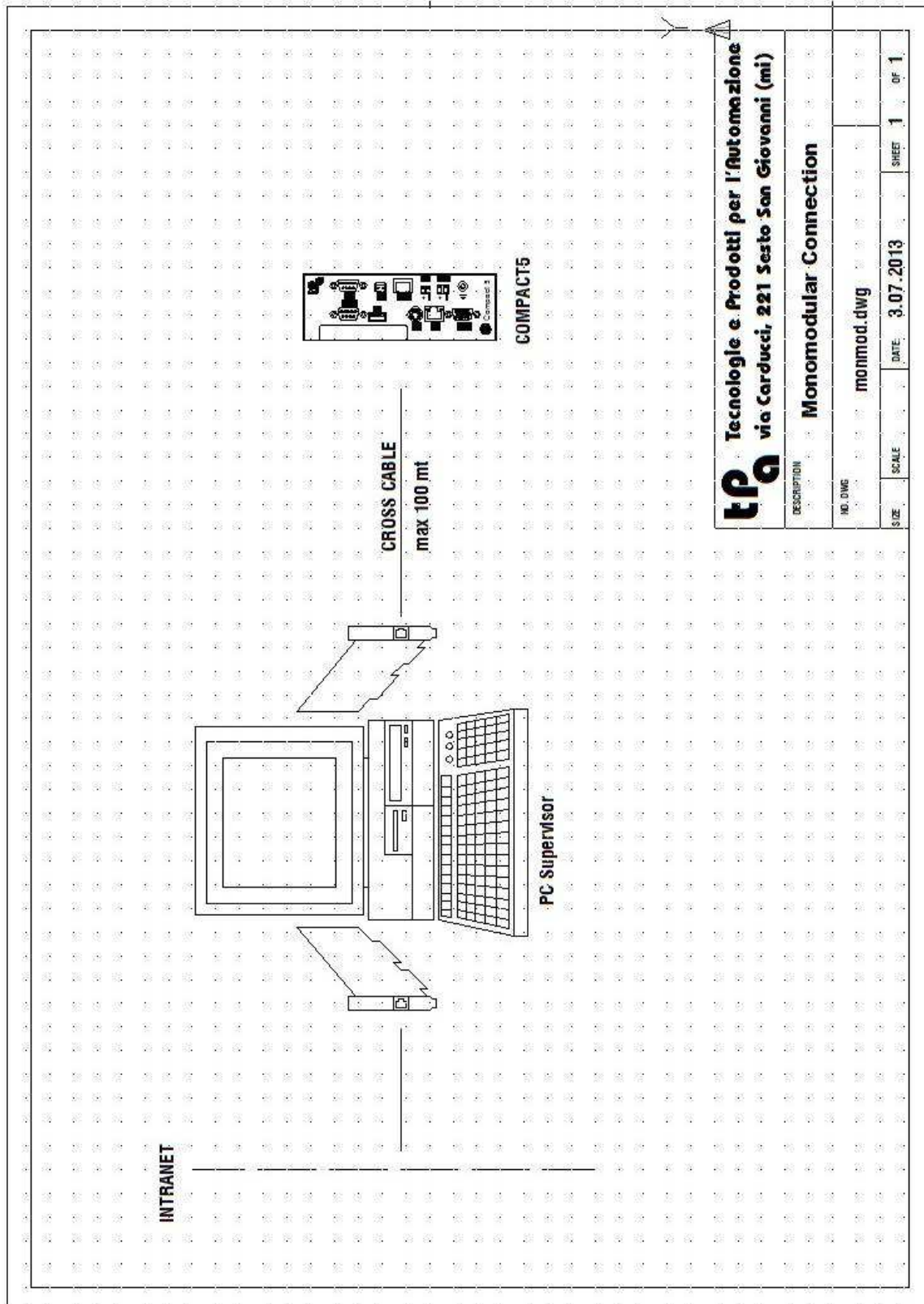
## 4.8 USB connector

USB interface is normally disabled.



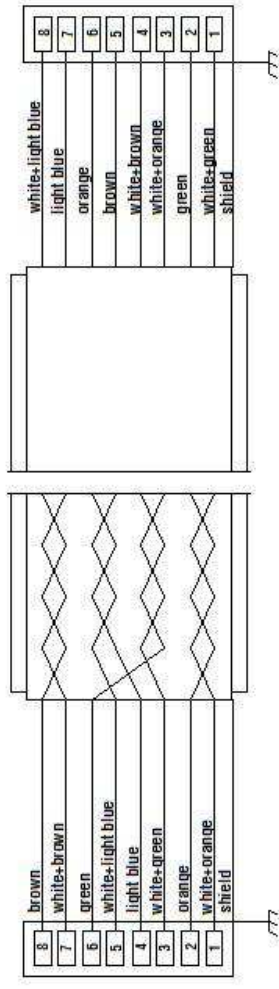
Pin	Description
1	USB Vcc
2	USB -
3	USB +
4	USB Gnd



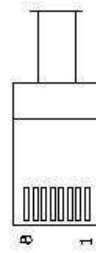


**tpa** Tecnologie e Prodotti per l'Automazione  
 via Carducci, 221 Sesto San Giovanni (mi)

DESCRIPTION	Monomodular Connection		
NO. DWG	monmod.dwg		
SCALE	DATE	SHEET	OF
	3.07.2013	1	1



on RJ45 connector colours sequence is in conformity with the T568B legislation



RJ45 connector with green cap

**PATCH cable SFTP cat. 5E - flexible and shielded**  
 based on IEEE802.3 and 802.3U charts  
 tested at 100 Mbps  
 4 x 2 x AWG26

<b>Tecnologie e Prodotti per l'Automazione</b> via Carducci, 221 Sesto San Giovanni (mi)			
DESCRIPTION: <b>Cross Network Cable</b>			
NO. 0160			
SIZE: <b>B</b>	SCALE: <b>1:1</b>	DATE:	SHEET: <b>01</b>

## **5 SPECIFICATIONS**

Generally, power supply, temperature and moisture must not exceed the values as in chapter 3.

Compact5 must be connected (by means of a special screw) to the earthing.

We suggest to install Compact5 in an electrical cabinet or electric switchboard.

Compact5 is a computerized numeric control for general purposes in the environment of the light industry.

This is a class A product. In a domestic environment this product may cause radio interference: in this case the user may be required to take the due precautions .

### **5.1 Operating temperature**

Temperature in the operational environment of the basic version : from 5°C to 45 ° C.

### **5.2 Power Supply**

To use Compact5 we suggest Mean-Well MDR40-12 (ac/dc converter) power supply.

However, you can also use a power supply unit (ad/dc converter) with the following technical features:  $V_{out} = 12V$  d.c.  $\pm 10\%$ ,  $I_{out} = 3$  A, so that Compact5 functions can be guaranteed in all configurations, (see paragraph 3.3).

### **5.3 Expansion**

As for the TMSBUS expansion board please make reference to the documentation on the installation and cabling rules.



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