TRS - System

TRS-IO-E

Documentation

Tecnologie e Prodotti per l'Automazione

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REVISIONS

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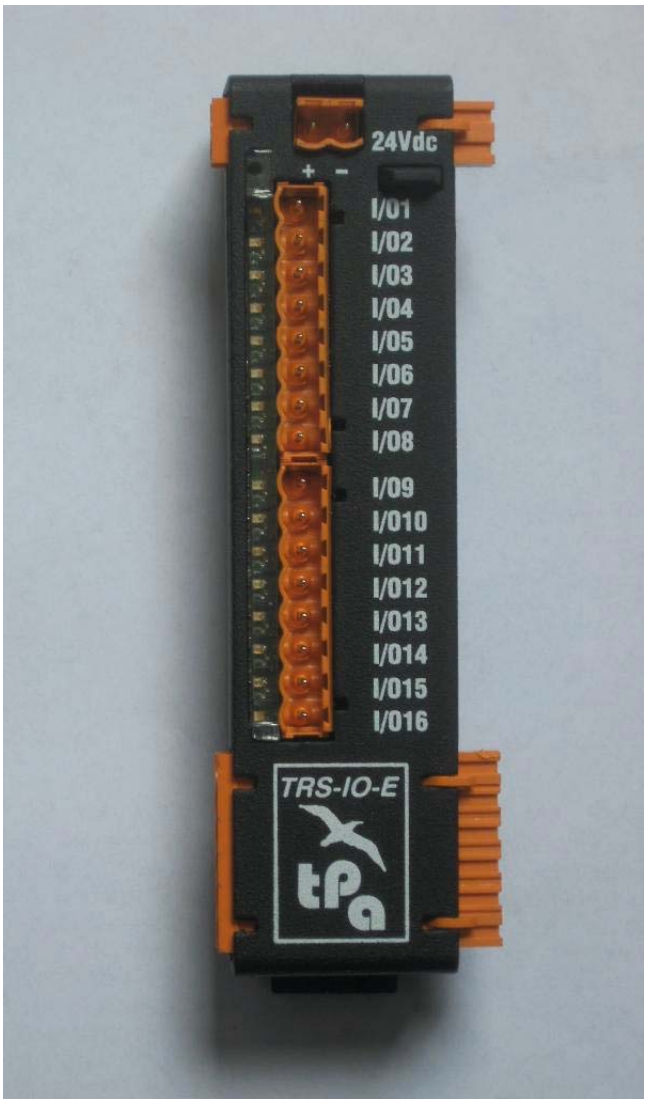
Rev 0	15/07/2010		First release

CONTENTS

Description of requirements and production specifications of TRS-IO-E expansion module.



1 DESCRIPTION

- 16 bidirectional INPUT/OUTPUT lines (PNP logic made with High Side Driver) with yellow led signalling the status
- optoelectronic decoupling of INPUT/OUTPUT
- to activate the outputs a + 24Vdc nominal field power supply is required, which can be taken from the TRS bus or from a dedicated terminal block through a jumper selection.
- 16 OUTPUT power supply and signal of the device in use
- Assembly on DIN rails type EN50022 and EN50035
- Total compatibility with TRS remote modules and TRS expansions
- Through connection to TRS remote module (master on TRS bus):
    - Communication synchronized with the bus cycle time (1-4 ms.)
    - Expansion diagnosis (power supply and output status)
    - Anti-rebound digital filter: the input is considered stable, if persisting in its state for almost 2 ms
    - Continuous read back of the active outputs, disactivation process of the outputs in short circuit (after 4 ms approx.), automatic restore of the output in short circuit (after short circuit removal - within 1 sec.)

2 TECNICAL DATA

- Input threshold levels:
    - 0 = from 0V to 10V
    - 1 = from 14V to 24V
- Max. Output power supply: 0.5 A
- Outputs protection against:
    - short-circuit
    - overload
    - overvoltage (40V)
- 4ms delayed read-back of the activated outputs (by means of TRS Bus)
- 1 terminal for each input/output referred to 0V of +24V power supply.
- Connections to AWG 24 ÷ ,12
- Field power supply galvanically isolated from the power supply of logic circuits and TRS bus interface
- Power Supply from TRS bus
- Software control (by TRS bus) and field supply signal led
- Input/Output status signal led
- Output activation synchronized according to the execution of the GPL instruction (by TRS bus)
- Synchronized sampling of field Inputs with constant delay (by TRS bus)

3 ELECTRICAL CHARACTERISTICS

3.1 Acceptable maximum values

Parameter	Condition	Min	Type	Max	Unit
Vcc, Power Supply	by Bus TRS	2.7		6.5	V
On Output Current max	VO = 24 Volt DC			1	A
VO Output Power Supply	by Bus TRS or external power supply	16		36	V
Icc, Power Supply current max	by Bus TRS			5	A
	by external power supply			8	A
Temperature		0		65	°C

3.2 Operating parameters

Parameter	Condition	Min	Type	Max	Unit
Vcc, Power Supply	by Bus TRS	4.5	5	5.5	V
Iq, Quiescent Current	all off, Vcc=5V			40	mA
Ip, Operating Current	all active outputs, Vcc=5V			55	mA
On Output Current	VO = 24V	0		0.5	A
VO Output Power Supply	by Bus TRS or external power supply	18	24	30	V
Voh, output high state voltage	VO = 24V, Rl = 10KOhm,Cl = 50pF	18			V
Vol, output low state voltage	VO = 24V, Rl = 10KOhm,Cl = 50pF			6	V
Vih, input high state voltage	VO = 24V	18			V
Vil, input low state voltage	VO = 24V			10	V
Operative Temperature		5		60	°C

3.3 Additional parameters

Parameter	Condition	Min	Type	Max	Unit
Logic to ouput isolation	1 minute duration		500		Vac
	100 ms duration		1100		Vac
Input to logic isolation	1 minute duration		2500		Vac

4 SPECIFICATIONS

Generally, power supply, temperature and moisture values must not be exceeded (see chapter 3).
TRS-IO-E must be interfaced through cables/terminals and everything else, as shown in the following chapters.
The terminal connectors must be inserted also when they are not cabled.

TRS-IO-E must be assembled on a EN50022 or EN50035 DIN rail by means of the rear spring connection. For the coupling and removal, the user needs to act on the connecting tongue with a flat-blade screwdriver, in such a way as to move it back and allow the coupling, or the release from the guide.

Warning! The metal coupling for the DIN rail is electrically connected to the circuit earth of TRS-IO-E the connection to earth: MUST be provided through this connection (that is the DIN rail must be earthed).

TRS-IO is an electronic device for general purposes in the environment of the light industry.
It is an A - class product, that, if installed in the home environment, can produce electromagnetic interferences.
Therefore, the final user must take all the necessary precautions.

5 SIGNAL LED

5.1 I/O yellow led

indicates the status of corresponding I/O.

- When the logic status is 1, it is on
- When the logic status is 0, it is off

5.2 +24Vdc green Led

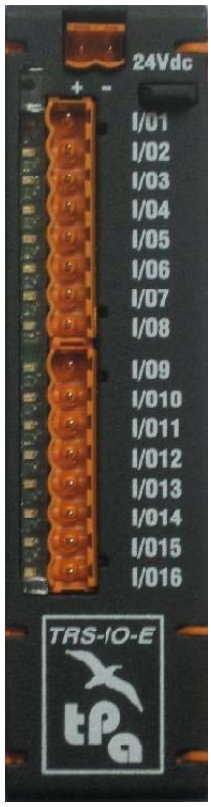
shows a +24Vdc power supply.

- It is on, when it is powered
- It is off, when unpowered or not included within the acceptability range

6 SELF-TEST

TRS-IO expansion self test is managed by the TRS bus master, which performs the appropriate action in order to communicate any system errors toward the Cnc Albatros.

7 CABLING MAPS



1	**+24Vdc**		
2	**GND24**		

1	**I/O 1**		
2	**I/O 2**		
3	**I/O 3**		
4	**I/O 4**		
5	**I/O 5**		
6	**I/O 6**		
7	**I/O 7**		
8	**I/O 8**		

1	**I/O 9**		
2	**I/O 10**		
3	**I/O 11**		
4	**I/O 12**		
5	**I/O 13**		
6	**I/O 14**		
7	**I/O 15**		
8			

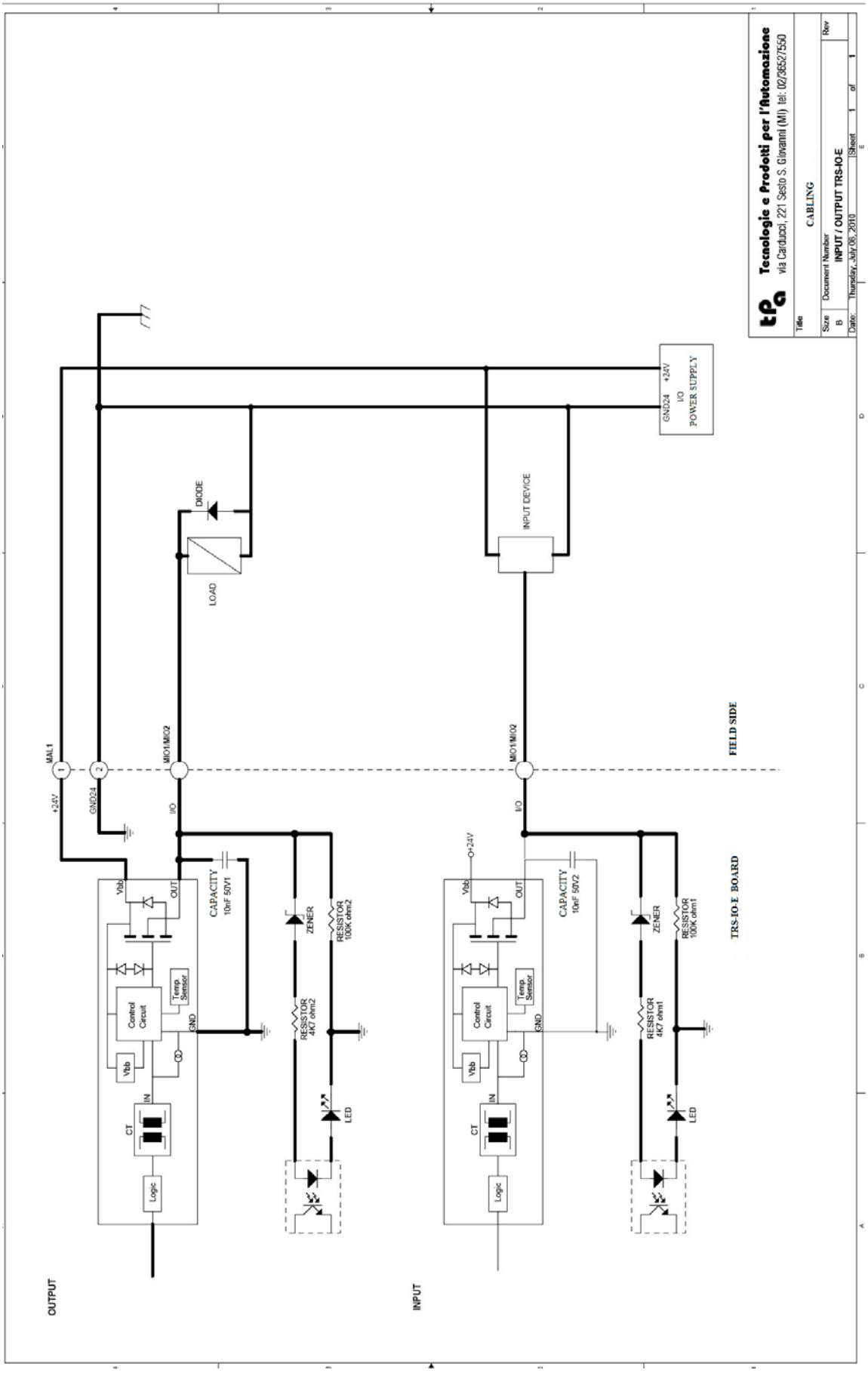
7.1 +24Vdc Power supply

It is possible to draw the +24Vdc power supply directly from the TRS bus by means of the connection to the TRS master, without cabling the power terminal block. Let the J2 Jumper inserted.
It is of note that the maximum current limit availble from the +24Vdc power system along the TRS bus of a remote device (master and possible expansions) is 8A. The total loads controlled by a remote, whose +24Vdc power supply is drawn from the master only, must be dimensioned for a 8A maximum absorption, with the restriction that a TRS-IO-E expansion can absorb no more than 5A.

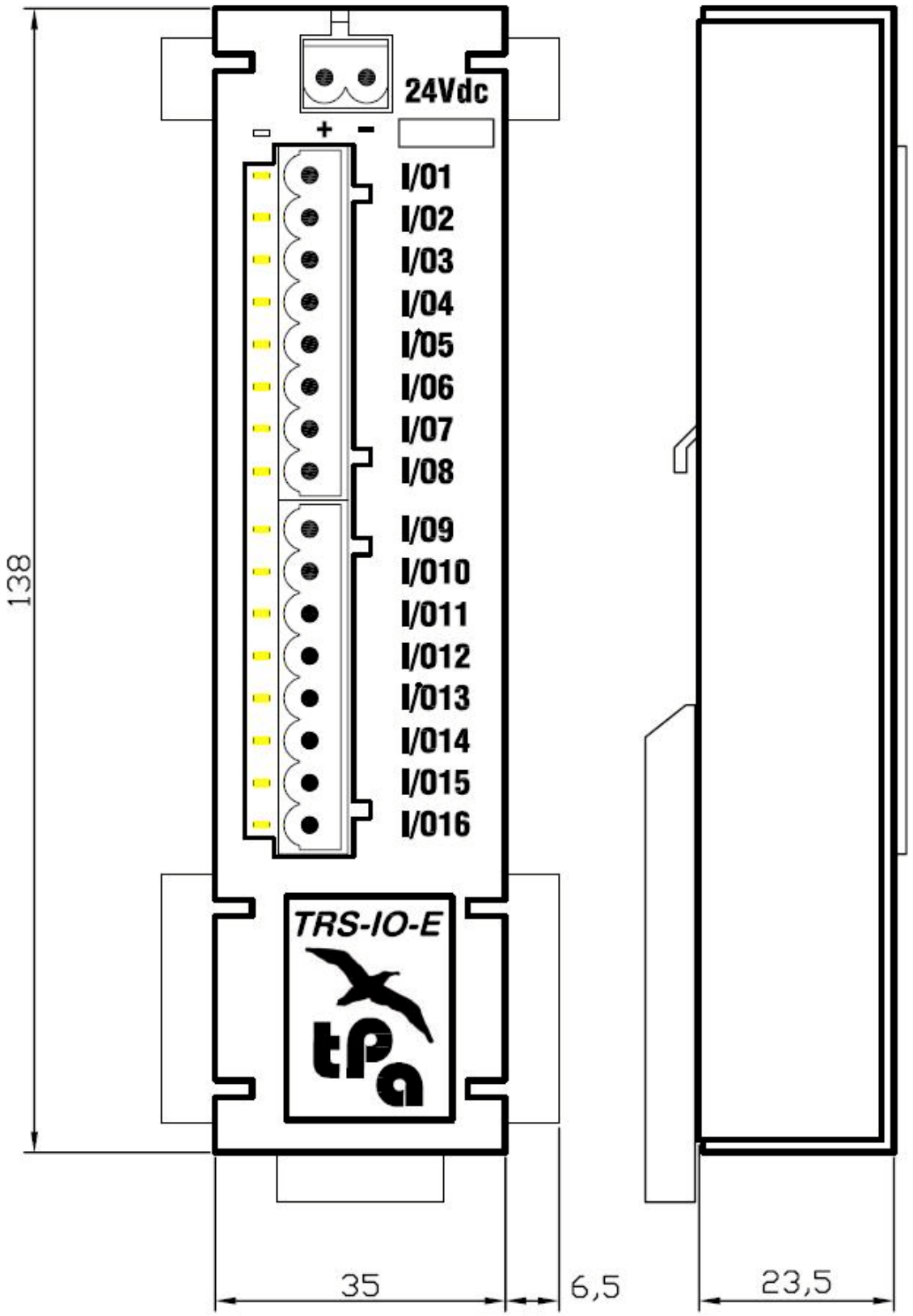
It is also possible to supply a +24Vdc field power by means of a +24Vdc terminal bloc, if the drive of more high current absorption loads is requested. In this mode the j2 jumper must be removed.
Jumper J2 removal switch off the +24Vdc supply on the TRS-IO-E expansion; however, it allows the continuity of the +24Vdc power, supplied by TRS bus on the previous and next expansions.
In this case a TRS-IO-E expansion can drive loads up to 8A totally; according to the technical features each output is able to drive loads up to 0.5A.

In any case the terminal block should be inserted.

8 INPUT/OUTPUT CABLING



9 DIMENSIONS



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T.P.A. S.p.A. Tecnologie e Prodotti per l'Automazione
Via Carducci, 221 - 20099 Sesto S. Giovanni
Tel. +390236527550 – fax: +39022481008
e-mail: marketing@tpaspa.it - www.tpaspa.it
P.I.: IT02016240968 C.F.: 06658040156