

RIO – Remote Input Output is Osai's new line of modular and compact remote I/O systems created to manage and control Inputs and Outputs through a fieldbus.

The modular structure of each **RIO** block guarantees a high grade of flexibility, minimising in this way installation and maintenance costs. Infact, in case of bad functioning, module electronics of each block can be easily replaced without disconnecting the wiring. Furthermore, there are leds on each block that indicate Inputs and Outputs and the external connections are executed by simply inserting the unwrapped wire in the appropriate spring terminal, avoiding in this way the annoying and non reliable traditional screw terminal

RIO Modular System

RIO Modular System is a functional unit that becomes a bus node. Each system is composed of a bus coupler, and of a series of **RIO** blocks (digital, analogic, and intelligent) which are engaged on a support DIN rail.



RIO bus coupler is a coupler that connects **RIO** blocks to the bus available as **EC** low-cost version without any diagnosis function. It can manage up to 8 modules.

RIO

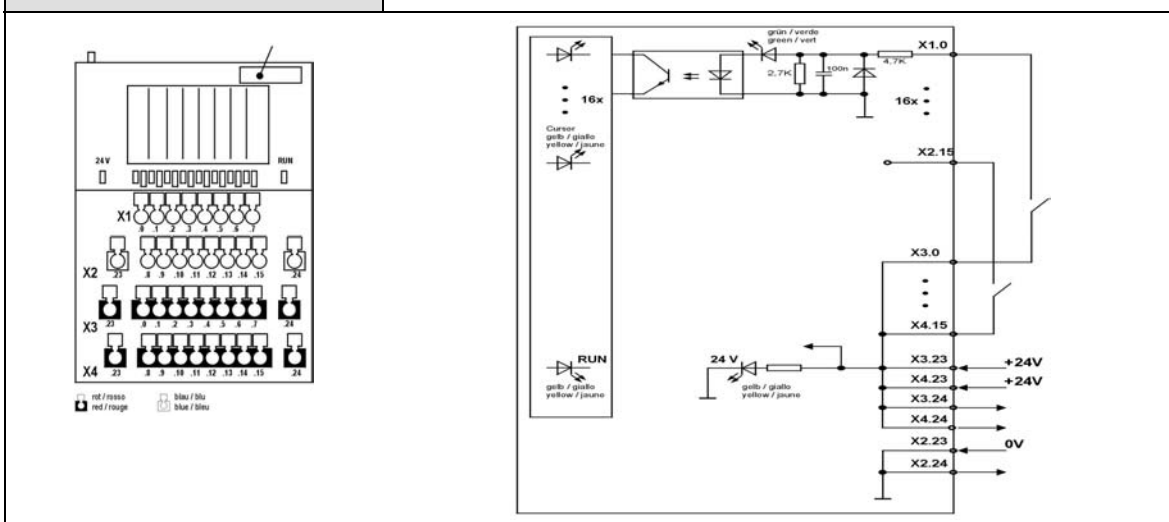
Remote Input Output

RIO I/O modules. are available in these solutions:

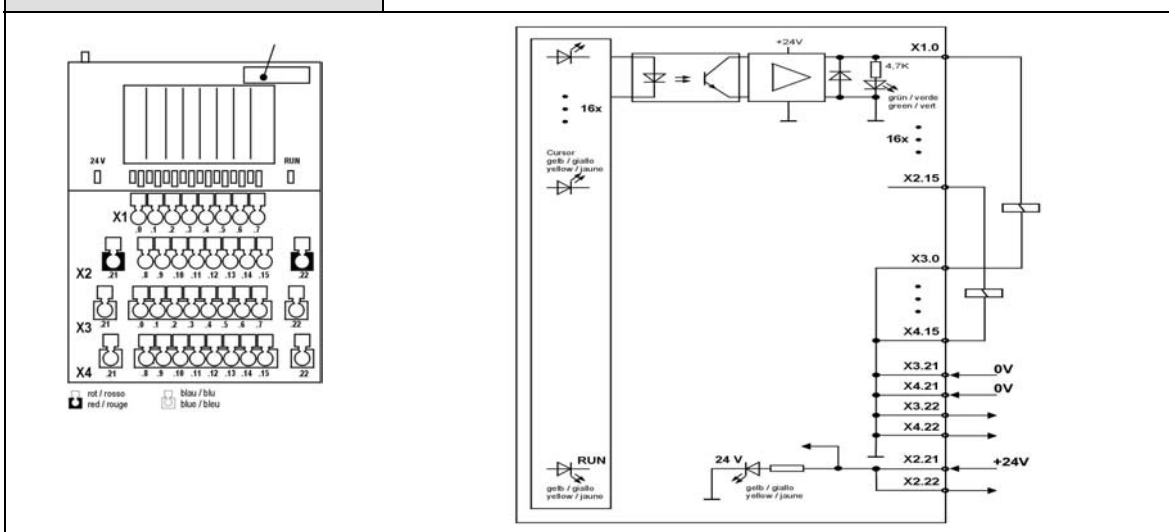
- **DIGITAL I/O**
 - RIO 16 I /KE** - 16 Inputs modules
 - RIO 16O /KE** - 16 Output modules
 - RIO 8 I/O** - 8 configurable I /O
 - RIO 8I 8I/O /KE** - 8 channels user configurable as inputs and outputs.

Characteristics:	Input	Output
	- Vinput from +15V a +30V (high level); from -30V a +5V (low level) - Power consumption at 24Vof 4,5mA - optocoupling on each input	- max output current 1A (max 4 parallel output) - max. 8A for each single module - optocoupling on each output - short circuit proof

RIO 16 I



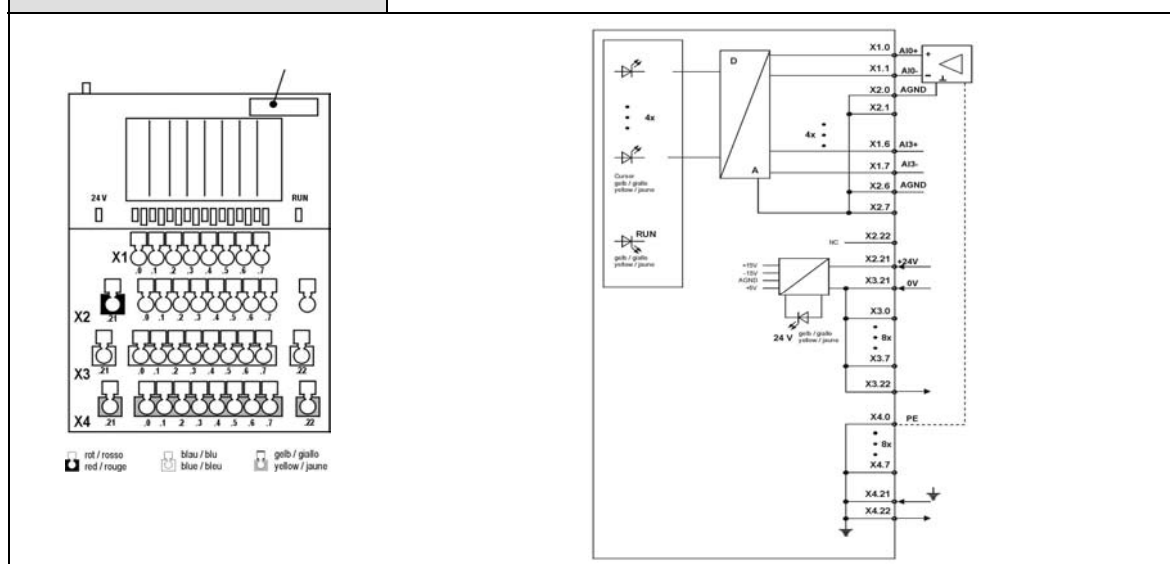
RIO 16 O



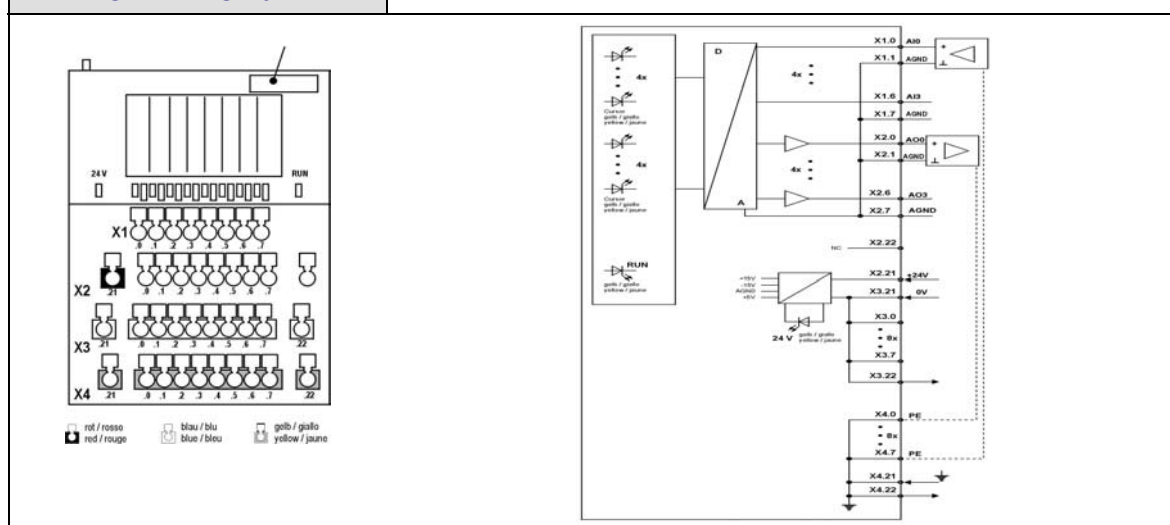
- **ANALOG I/O**
- RIO 4AI $\pm 10V$** - 4 analogue inputs $\pm 10V$
 - RIO 4AI 20mA** - 4 analogue inputs 0-20mA
 - RIO 4AI/4AO $\pm 10V$** - 4 analogue inputs and 4 analogue outputs $\pm 10V$
 - RIO 4AI/4AO 20mA** - 4 analogue inputs and 4 analogue outputs 0-20mA

Characteristics:	I/O $\pm 10V$	I/O 20mA
	- input voltage from $-10V$ a $+10V$ - output voltage from $-10V$ a $+10V$ (current $\pm 10mA$) - 12 resolution bits - optocoupler on each input	- input voltage from $-4V$ a $+4V$ (current 0-20mA) - output voltage 0-10V (current 0-20mA) - 12 resolution bits - optocoupler on each output

RIO 4AI $\pm 10V$



RIO 4AI/4AO 20mA



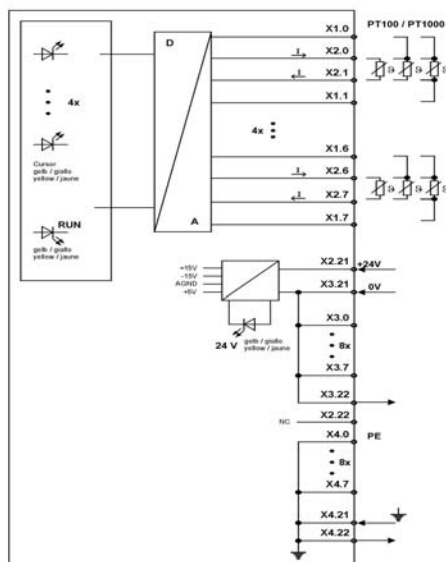
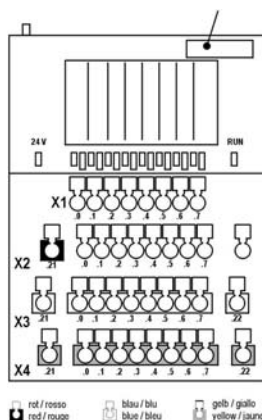
RIO

Remote Input Output

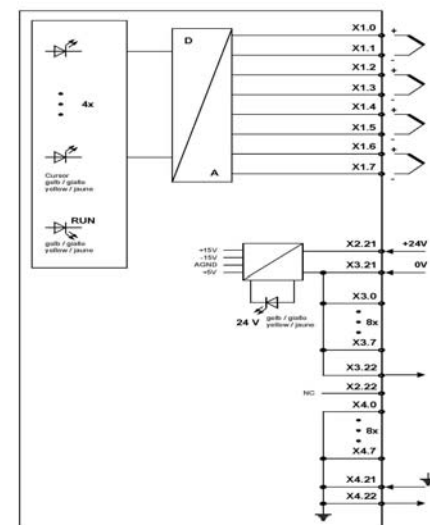
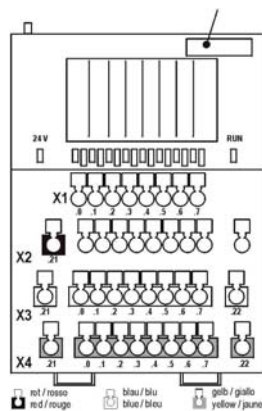
- **EXPERT I/O**
- RIO T10-10** and **RIO T20-10** - for temperature sensing
 - RIO C24-10** - counter
 - RIO P24-10** - positioning

Characteristics:	temperature measures
RIO T10-10: module with 4 inputs to measure temperatures from -100° a $+450^{\circ}$ Pt100/Pt1000 sensors with resolution of converters at 16 bit	
RIO T20-10: module with 4 inputs to measure temperatures with termocouples for K,J and Z sensors with resolution of converters at 24 bit	
- programmable resolution at $0,1^{\circ}$ or $0,2^{\circ}$	
- Possibility of customising the representation of data in input	

RIO T10-10

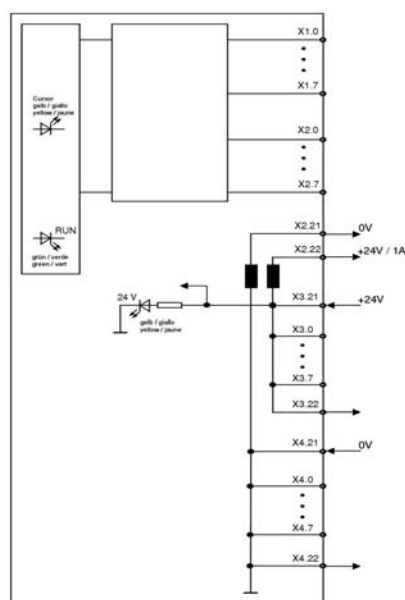
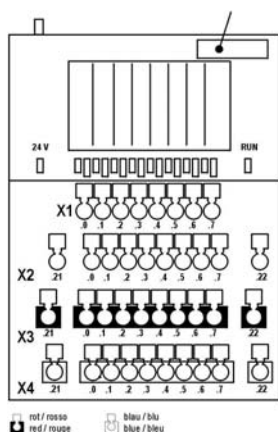


RIO T20-10



Characteristics:	counter
	RIO C24-10: module with four 16-bit counters or two 32-bit counters - counting frequency up to 200KHz - digital noise reduction filters at 200Hz, 2KHz, 20KHz, 200KHz - each counter includes: 1 Input x count +, 1 Input x count -, 1 Input for counting enabling, 1 Output for reached threshold. All the I/O have got the same characteristics of the digital I/O - maximum/minimum counting frequency programmable in software - programmable threshold and displayed digital output to reach the programmed counting (maximum delay 200µsec) - If only two counters are used, it is possible to set two threshold values for each counter

RIO C24-10



RIO

Remote Input Output

Characteristics:	Positioning
	RIO P24-10: positioning of one or two axes. Every axis includes: - evaluation of incremental encoder inputs (A,B,N) at 24V - positive limit switch - negative limit switch (with micro zero functions) - 32-bit counter with frequency counting 200KHz - outputs to enable handling, direction, fast or slow direction, +/- handling or slow/fast handling. - all the I/O have the same characteristics of the digital I/O - it allows both positioning and homing

RIO P24-10

