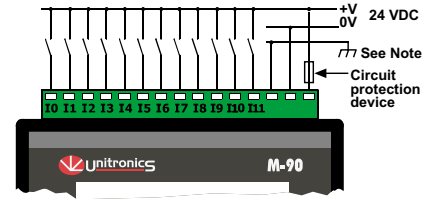


# M91-2-UA2

24 VDC, 12 pnp/npn digital inputs, \*2 universal inputs, high-speed counter/shaft encoder input, 10 transistor outputs, 2 analog outputs, I/O expansion port, RS232/RS485 port

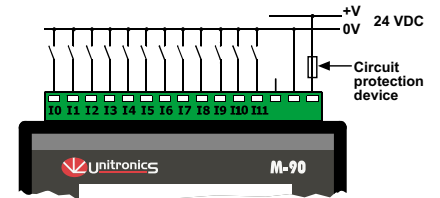
<b>Power supply</b>	24VDC
Permissible range	20.4VDC to 28.8VDC with less than 10% ripple
Maximum current consumption	145mA@24VDC (pnp inputs) 250mA@24VDC (npn inputs)
<b>Digital inputs</b>	12 pnp (source) or npn (sink) inputs. See Note 1.
Nominal input voltage	24VDC. See Note 2
Input voltages for pnp (source)	0-5VDC for Logic '0' 17-28.8VDC for Logic '1'
Input voltages for npn (sink)	17-28.8VDC/<2mA for Logic '0' 0-5VDC/>6mA for Logic '1'
Input current	8mA@24VDC
Input impedance	3KΩ
Response time (except high-speed inputs)	10mS typical
Galvanic isolation	None
Input cable length	Up to 100 meters, unshielded
<b>High-speed counter</b>	Specifications below apply when inputs are wired for use as a high-speed counter input/shaft encoder. See Notes 3 and 4.
Resolution	16-bit
Input freq.	10kHz max.
Minimum pulse	40μs

### Power supply, pnp (source) inputs

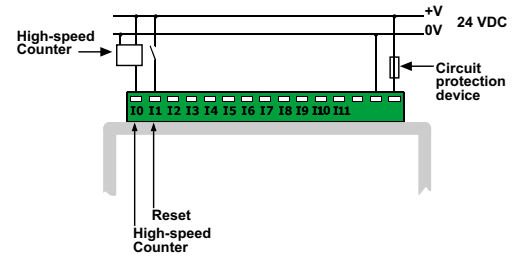


Note:  
To avoid electromagnetic interference, mount the controller in a metal panel/cabinet and earth the power supply. Earth the power supply signal to the metal using a wire whose length does not exceed 10cm. If your conditions do not permit this, do not earth the power supply.

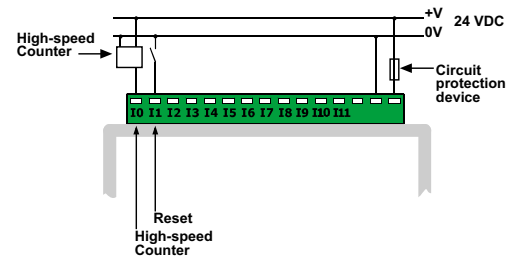
### nnp (sink) inputs



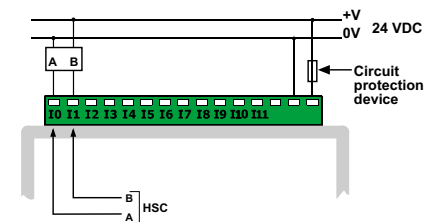
### pnp (source) high-speed counter



### nnp (sink) high-speed counter



### Shaft encoder



Notes:

- All 12 inputs can be set to pnp (source) or npn (sink) via a single jumper and appropriate wiring.
- nnp (sink) inputs use voltage supplied from the controller's power supply.
- Input #0 can function as either high-speed counter or as part of a shaft encoder. In each case, high-speed input specifications apply. When used as a normal digital input, normal input specifications apply.
- Input #1 can function as either counter reset, or as a normal digital input; in either case, specifications are those of a normal digital input.  
This input may also be used as part of a shaft encoder.  
In this case, high-speed input specifications apply.

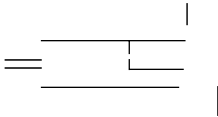
\* Certain inputs can function as normal digital inputs, analog inputs or thermocouple inputs, in accordance with jumper settings and wiring connections.

**Warnings:**

- Unused pins should not be connected. Ignoring this directive may damage the controller.
- Improper use of this product may severely damage the controller.
- Refer to the controller's User Guide regarding wiring considerations.
- Before using this product, it is the responsibility of the user to read the product's User Guide and all accompanying documentation.



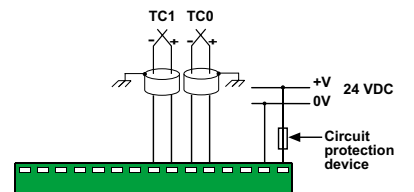
### Voltage / Current connection



- Notes:
- a. Shields should be connected at the signals' source.
  - b. The 0V signal of the analog input must be connected to the controller's 0V.

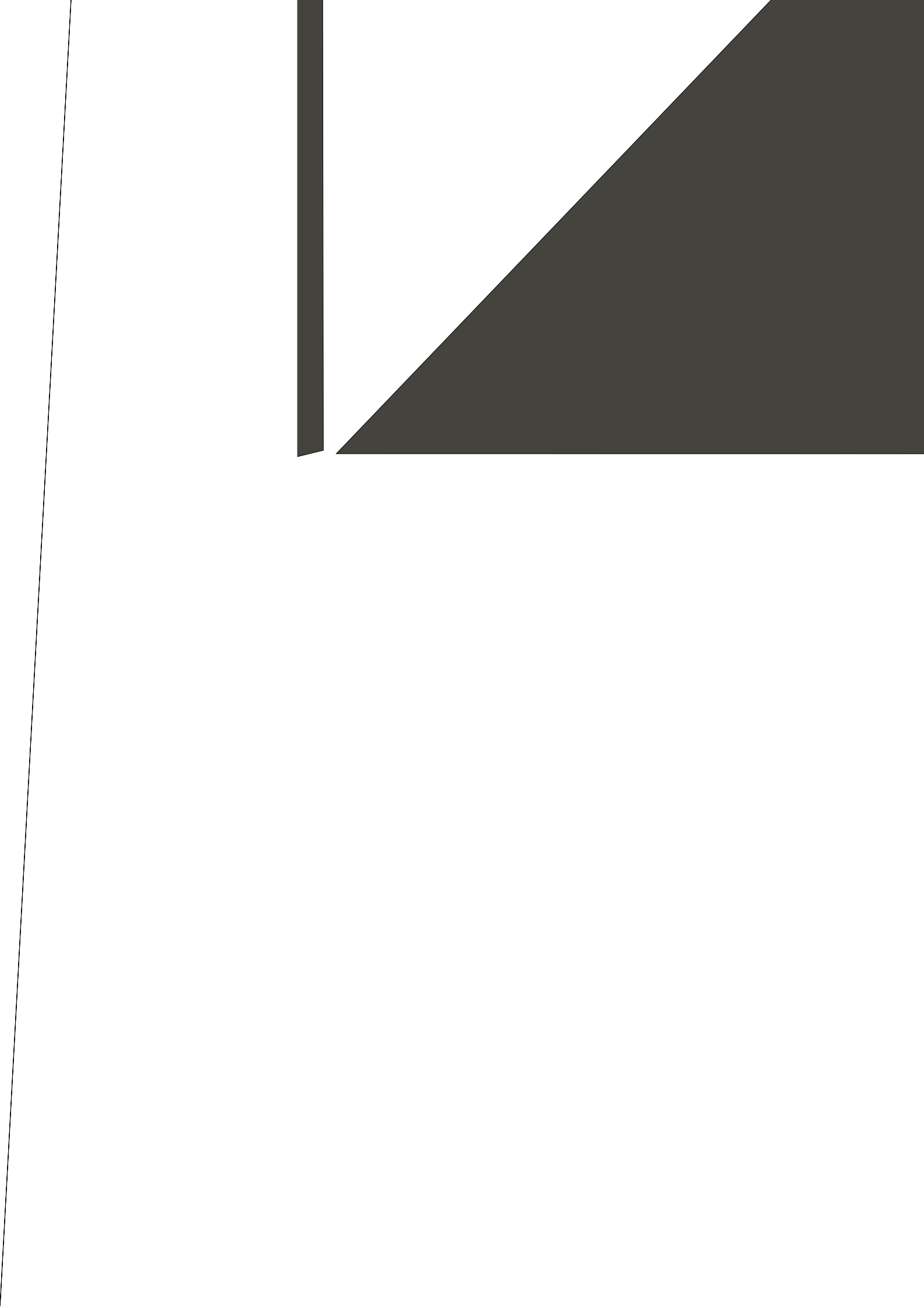
### Current connection

### Thermocouple connection



- Notes:
- a. Shields should be connected at the signals' source.
  - b. The 0V signal of the analog input must be connected to the controller's 0V.

- Note:
- Shields should be connected at the signals' source.



and Input#7 (T-).  
be used as

put #11 and #7-10 when these are set as  
al inputs.

\*Default factory setting

10115-

