Control Terminals Electrical Data

Characteristics of Terminals

NOTE:

- For a description of the terminal arrangement, refer to Arrangement and Characteristics of Control Terminals and Communication And I/O Ports *(see page 177)*
- For factory setting I/O assignment, refer to the Programming manual *(see page 9)*.
- For cable lengths, refer to the table given in the Wiring The control Part section *(see page 183)*.

Terminal	Description	I/O Type	Electrical characteristics
R1A	NO contact of relay R1	O	**Output Relay 1** ● Minimum switching capacity: 5 mA for 24 Vdc ● Maximum switching current on resistive load: 3 A for 250 Vac (OVC II) and 30 Vdc ● Maximum switching current on inductive load: 2 A for 250 Vac (OVC II) and 30 Vdc. Inductive load must be equipped with a voltage surge suppression device according to ac or dc operation with total energy dissipation greater than the inductive energy stored in the load. Refer to sections Output Relay with Inductive AC Loads *(see page 139)* and Output Relay with Inductive DC Loads *(see page 139)*. ● Refresh time: 5 ms ± 0.5 ms ● Service life: 100,000 operations at maximum switching current
R1B	NC contact of relay R1	O	
R1C	Common point contact of relay R1	O	
R2A	NO contact of relay R2	O	**Output Relay 2** ● Minimum switching capacity: 5 mA for 24 Vdc ● Maximum switching current on resistive load: 5 A for 250 Vac (OVCII) and 30 Vdc ● Maximum switching current on inductive load: 2 A for 250 Vac (OVCII) and 30 Vdc. Inductive load must be equipped with a voltage surge suppression device according to ac or dc operation with total energy dissipation greater than the inductive energy stored in the load. Refer to sections Output Relay with Inductive AC Loads *(see page 139)* and Output Relay with Inductive DC Loads *(see page 139)* ● Refresh time: 5 ms ± 0.5 ms ● Service life: ❍ 100,000 operations at maximum switching current ❍ 1,000,000 operations at 0.5 A
R2C	Common point contact of relay R2	O	
R3A	NO contact of relay R3	O	**Output Relay 3** ● Minimum switching capacity: 5 mA for 24 Vdc ● Maximum switching current on resistive load: 5 A for 250 Vac (OVCII) and 30 Vdc ● Maximum switching current on inductive load: 2 A for 250 Vac (OVCII) and 30 Vdc. Inductive load must be equipped with a voltage surge suppression device according to ac or dc operation with total energy dissipation greater than the inductive energy stored in the load. Refer to sections Output Relay with Inductive AC Loads *(see page 139)* and Output Relay with Inductive DC Loads *(see page 139)* ● Refresh time: 5 ms ± 0.5 ms ● Service life: ❍ 100,000 operations at maximum switching current ❍ 1,000,000 operations at 0.5 A
R3C	Common point contact of relay R3	O	
$\overline{\text{STOA}}$, $\overline{\text{STOB}}$	STO inputs	I	**Safety Function STO Inputs** Refer to the Embedded Safety Function Manual (*EAV64334*) available on *www.schneider-electric.com*
24V	Output power supply for digital inputs and safety function STO inputs	O	Use only PELV standard power supply unit. ● +24 Vdc ● Tolerance: minimum 20.4 Vdc, maximum 27 Vdc ● Current: maximum 200 mA for both 24 Vdc terminals ● Terminal protected against overload and short-circuit ● In Sink Ext position, this supply is powered by external PLC supply
COM	Analog I/O common	I/O	0 V for Analog outputs

Terminal	Description	I/O Type	Electrical characteristics
AQ1	Analog output	O	AQ: Analog output software-configurable for voltage or current ● Voltage analog output 0...10 Vdc, minimum. Minimum load impedance 470 Ω, ● Current analog output X-Y mA by programming X and Y from 0...20 mA, maximum load impedance 500 Ω ● Sampling time: 10 ms + 1 ms maximum ● Resolution 10 bits ● Accuracy: ±1 % for a temperature variation of 60 °C (108 °F) ● Linearity ±0.2 %
AQ2	Analog output	O	
P24	External input supply	I	External input supply +24 Vdc ● Tolerance: minimum 19 Vdc, maximum 30 Vdc ● Current: maximum 0.8 A
0V	0 V	I/O	0 V for P24
DI1-DI6	Digital inputs	I	6 programmable logic inputs 24 Vdc, comply with IEC/EN 61131-2 logic type 1 ● Positive logic (Source): State 0 if ⩽ 5 Vdc or logic input not wired, state 1 if ⩾ 11 Vdc ● Negative logic (Sink):State 0 if ⩾ 16 Vdc or logic input not wired, state 1 if ⩽ 10 Vdc ● Impedance 3.5 kΩ ● Maximum voltage: 30 Vdc ● Sampling time: 2 ms + 0.5 ms maximum Multiple assignment makes it possible to configure several functions on one input (example: DI1 assigned to forward and preset speed 2, DI3 assigned to reverse and preset speed 3).
DI5-DI6	Pulse inputs	I	Programmable Pulse input ● Comply with level 1 PLC, IEC 65A-68 standard ● State 0 if < 0.6 Vdc, state 1 if > 2.5 Vdc ● Pulse counter 0...30 kHz ● Frequency range: 0…30 kHz ● Cyclic ratio: 50 % ±10 % ● Maximum input voltage 30 Vdc, < 10 mA ● Sampling time: 5 ms + 1 ms maximum
10V	Output supply for Analog input	O	Internal supply for the analog inputs ● 10.5 Vdc ● Tolerance ±5 % ● Current: maximum 10 mA ● Short circuit protected
AI1-AI2-AI3	Analog inputs	I	Software-configurable V/A : voltage or current analog input ● Voltage analog input 0...10 Vdc, impedance 30 kΩ, ● Current analog input X-Y mA by programming X and Y from 0...20 mA, with impedance 250 Ω ● Sampling time: 5 ms + 1 ms maximum ● Resolution 12 bits ● Accuracy: ±0.6 % for a temperature variation of 60 °C (108 °F) ● Linearity ±0.15 % of maximum value
COM	Analog I/O common	I/O	0 V for Analog inputs

Terminal	Description	I/O Type	Electrical characteristics
AI2-AI3	Sensor inputs	I	Software-configurable PT100/PT1000 or KTY84 or PTC or Water level sensor ● **PT100** ❍ 1 or 3 thermal sensors mounted in series (configurable by software) ❍ Sensor current: 5 mA ❍ Range –20...200 °C (–4...392 °F) ❍ Accuracy ±4 °C (7.2 °F) for a temperature variation of 60 °C (108 °F) ● **PT1000** ❍ 1 or 3 thermal sensors mounted in series (configurable by software) ❍ Thermal sensor current: 1 mA ❍ Range –20...200 °C (–4...392 °F) ❍ Accuracy ±4 °C (7.2 °F) for a temperature variation of 60 °C (108 °F) ● **PTC** ❍ 6 sensors maximum mounted in series ❍ Sensor current: 1 mA ❍ Nominal value: < 1.5 kΩ ❍ Overheat trigger threshold: 2.9 kΩ ± 0.2 kΩ ❍ Overheat reset threshold: 1.575 kΩ ± 0.75 kΩ ❍ Low impedance detection threshold: 50 Ω –10 Ω/+20 Ω ● **KTYp84** ❍ 1 thermal sensor ❍ Thermal sensor current: 1 mA ❍ Range –20...200 °C (–4...392 °F) ❍ Accuracy ±4 °C (7.2 °F) for a temperature variation of 60 °C (108 °F) ● **Water Level Sensor** ❍ Sensitivity: 0...1 MΩ, adjustable by software ❍ Water level sensor current: 0.3 mA...1 mA maximum ❍ Adjustable delay: 0...10 s