

Siemens 6ES7455-1VS00-0AE0 Manual

Brand	Siemens
Product Series	Siemens
Product Type	2 Yes

Description

6ES7455-1VS00-0AE0

SIMATIC S7-400, control module FM 455 S, 16 channels, step and pulse, 8/16 AI

+ 16 DI+ 32 DO

Supply voltage

Load voltage L+

- Rated value (DC) 24 V
- permissible range, lower limit (DC) 20.4 V
- permissible range, upper limit (DC) 28.8 V

Input current

from load voltage L+ (without load), max. 400 mA; typ. 330 mA

Power loss

Power loss, typ. 10.7 W

Power loss, max. 16.2 W

Digital inputs

Number of digital inputs 16

Input characteristic curve in accordance with IEC 61131, type 2 Yes

Input voltage

- Rated value (DC) 24 V
- for signal "0" -3 to +5V
- for signal "1" 13 to 30V

Input current

- for signal "1", typ. 7 mA

Cable length

- shielded, max. 1 000 m
- unshielded, max. 600 m

Digital outputs

Number of digital outputs 32

Short-circuit protection Yes; Electronic

Limitation of inductive shutdown voltage to L+ (-1.5 V)

Controlling a digital input Yes

Switching capacity of the outputs

- on lamp load, max. 5 W

Load resistance range

- lower limit 240 Ω
- upper limit 4 k Ω

Output voltage

- for signal "1", min. L+ (-2.5 V)

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Output current

- for signal "1" rated value 0.1 A
- for signal "1" permissible range for 0 to 60 °C, min. 5 mA
- for signal "1" permissible range for 0 to 60 °C, max. 150 mA
- for signal "0" residual current, max. 0.5 mA

Parallel switching of two outputs

- for logic links Yes

Switching frequency

- with resistive load, max. 100 Hz
- with inductive load, max. 0.5 Hz
- on lamp load, max. 100 Hz

Cable length

- shielded, max. 1 000 m
- unshielded, max. 600 m

Analog inputs

Number of analog inputs 16; With thermocouples or 2-wire connection; 8 with Pt 100 or 4-wire connection

permissible input voltage for voltage input (destruction limit), max.

20 V

permissible input current for current input (destruction limit), max.

40 mA

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Input ranges

- Voltage Yes
- Current Yes
- Thermocouple Yes
- Resistance thermometer Yes

Input ranges (rated values), voltages

- 0 to +10 V Yes
- Input resistance (0 to 10 V) 100 k Ω
- -1.75 V to +11.75 V Yes
- Input resistance (-1.75 V to +11.75 V) 100 k Ω
- -80 mV to +80 mV Yes
- Input resistance (-80 mV to +80 mV) 10 M Ω

Input ranges (rated values), currents

- 0 to 20 mA Yes
- Input resistance (0 to 20 mA) 50 Ω
- 0 to 23.5 mA Yes
- Input resistance (0 to 23.5 mA) 50 Ω
- -3.5 mA to +23.5 mA Yes
- Input resistance (-3.5 mA to +23.5 mA) 50 Ω

- 4 mA to 20 mA Yes

— Input resistance (4 mA to 20 mA) 50 Ω

Input ranges (rated values), thermocouples

- Type B Yes
- Input resistance (Type B) 10 M Ω
- Type J Yes
- Input resistance (type J) 10 M Ω

- Type K Yes
- Input resistance (Type K) 10 M Ω
- Type R Yes
- Input resistance (Type R) 10 M Ω
- Type S Yes
- Input resistance (Type S) 10 M Ω
- Input ranges (rated values), resistance thermometer
- Pt 100 Yes
- Input resistance (Pt 100) 10 M Ω
- Thermocouple (TC)
- Temperature compensation
- internal temperature compensation Yes; Parameterizable
- external temperature compensation with Pt100 Yes; Parameterizable
- Characteristic linearization
- parameterizable Yes
- for thermocouples Type B, J, K, R, S
- for resistance thermometer Pt100 (standard)
- Cable length
- shielded, max. 200 m; 50 m at 80 mV and thermocouples
- Analog value generation for the inputs

Integration and conversion time/resolution per channel

- Resolution with overrange (bit including sign), max. 14 bit; 12 bit or 14 bit, parameterizable

Encoder

Connection of signal encoders

- for voltage measurement Yes
- for current measurement as 4-wire transducer Yes

Connectable encoders

- 2-wire sensor Yes
- permissible quiescent current (2-wire sensor), max. 1.5 mA

Errors/accuracies

Operational error limit in overall temperature range

- Voltage, relative to input range, (+/-) ± 0.6 to $\pm 1\%$
- Current, relative to input range, (+/-) ± 0.6 to $\pm 1\%$
- Resistance thermometer, relative to input range, (+/-) ± 0.6 to $\pm 1\%$

Basic error limit (operational limit at 25 °C)

- Voltage, relative to input range, (+/-) ± 0.4 to $\pm 0.6\%$
- Current, relative to input range, (+/-) ± 0.4 to $\pm 0.6\%$
- Resistance thermometer, relative to input range, (+/-) ± 0.4 to $\pm 0.6\%$

Interrupts/diagnostics/status information

Substitute values connectable Yes; Parameterizable

Integrated Functions

Control technology

- Number of closed-loop controllers 16; With thermocouples or 2-wire connection; 8 with Pt 100 or 4-wire connection

Potential separation

Potential separation controller

- between the channels No
- between the channels and backplane bus Yes; Optocoupler

Isolation

Isolation tested with 500 V DC

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connection method

required front connector 2x 48-pin

Dimensions

Width 50 mm

Height 290 mm

Depth 210 mm

Weights

Weight, approx. 1 400 g

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