SIEMENS

Data sheet 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 kΩ
Output voltage	
● for signal "1", min.	L+ (-2.5 V)
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

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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
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 kΩ
● -1.75 V to +11.75 V	Yes
— Input resistance (-1.75 V to +11.75 V)	100 kΩ
● -80 mV to +80 mV	Yes
— Input resistance (-80 mV to +80 mV)	10 MΩ
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 MΩ
● Type J	Yes
— Input resistance (type J)	10 MΩ
● Type K	Yes
— Input resistance (Type K)	10 MΩ
● Type R	Yes
— Input resistance (Type R)	10 MΩ
● Type S	Yes
— Input resistance (Type S)	10 MΩ
Input ranges (rated values), resistance thermometer	
● Pt 100	Yes
— Input resistance (Pt 100)	10 MΩ
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	

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● 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
● Conversion time (per channel)	16.67 ms; for 12 bit: 16 2/3 ms for 60 Hz, 20 ms for 50 Hz; for 14 bit: 100 ms for 50 Hz and 60 Hz
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 ±1%
● Current, relative to input range, (+/-)	±0.6 to ±1%
● Resistance thermometer, relative to input range, (+/-)	±0.6 to ±1%
Basic error limit (operational limit at 25 °C)	
● Voltage, relative to input range, (+/-)	±0.4 to ±0.6 %
● Current, relative to input range, (+/-)	±0.4 to ±0.6 %
● Resistance thermometer, relative to input range, (+/-)	±0.4 to ±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
Connection method	
required front connector	2x 48-pin
Dimensions	
Width	50 mm
Height	290 mm
Depth	210 mm
Weights	
Weight, approx.	1 400 g
Classifications	

	Version	Classification
eClass	16	27-24-22-05
eClass	14	27-24-22-05
eClass	12	27-24-22-05
eClass	9.1	27-24-22-05
eClass	9	27-24-22-05
eClass	8	27-24-22-05
eClass	7.1	27-24-22-05
eClass	6	27-24-22-05
ETIM	10	EC001422
ETIM	9	EC001422
ETIM	8	EC001422
ETIM	7	EC001422
IDEA	4	3567

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UNSPSC	15	32-15-17-05	

Approvals / Certificates

General Product Approval



Miscellaneous





Metrological Approval



General Product Approval



China RoHS

Miscellaneous

Manufacturer Declaration

EMV





For use in hazardous locations





FM





Type Examination Certificate

For use in hazardous locations











NK / Nippon Kaiji Kyokai

Maritime application







CCS (China Classification Society)

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