SIEMENS

Product 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 losses	
Power loss, typ.	10.7 W
Power loss, max.	16.2 W
Digital inputs	
Number/binary inputs	16
Input characteristic curve acc. to IEC 1131, Type 2	Yes
Input voltage	
Type of voltage / of the input voltage	

Rated value, DC	24 V
for signal "0"	-3 to +5 V
for signal "1"	13 to 30 V
Input current	
for signal "1", typ.	7 mA
Cable length	
Cable length, shielded, max.	1000 m
Cable length unshielded, max.	600 m
Digital outputs	
Number/binary outputs	32
Functionality/short-circuit strength	Yes ; Electronic
Limitation of inductive shutdown voltage to	L+ (-1.5 V)
Lamp load, max.	5 W
Controlling a digital input	Yes
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
Parallel switching of 2 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
Load resistance range	
lower limit	240 Ω
upper limit	4 kΩ
Cable length	
Cable length, shielded, max.	1000 m
Cable length 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 to +11.75 V	Yes
Input resistance (-1.75 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 to +23.5 mA	Yes
Input resistance (-3.5 to +23.5 mA)	50 Ω
4 to 20 mA	Yes
Input resistance (4 to 20 mA)	50 Ω
Input ranges (rated values), thermoelements	
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 thermometers	
Pt 100	Yes
Input resistance (Pt 100)	10 MΩ
Thermocouple (TC)	
for thermocouples	Type B, J, K, R, S
Resistance thermometer (RTD)	
Characteristic linearization	
for resistance thermometer	Pt100 (standard)
Characteristic linearization	
Parameterizable	Yes
Temperature compensation	
internal temperature compensation	Yes ; Parameterizable
external temperature compensation with Pt100	Yes ; Parameterizable
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Cable length, shielded, max.	200 m ; 50 m at 80 mV and thermocouples
Analog value creation	
Measurement principle	integrating
Integrations and conversion time/ resolution per channel	
Resolution with overrange (bit including sign), max.	14 bit ; 12 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 and 60 Hz
Settling time	
for resistive load	0.1 ms
for capacitive load	3.3 ms
for inductive load	0.5 ms
Encoder	
Connection of signal encoders	
for voltage measurement	Yes

for current measurement as 4-wire transducer	Yes
Connectable encoders	
2-wire BEROS	Yes
permissible quiescent current (2-wire BEROS), max.	1.5 mA
Errors/accuracies	
Linearity error (relative to input area)	+/- 0,05 %
Temperature error (relative to input area)	+/- 0,005 %/K
Operational limit in overall temperature range	
Voltage, relative to input area	+/-0.6 to +/-1%
Current, relative to input area	+/-0.6 to +/-1%
Resistance-type thermometer, relative to input area	+/-0.6 to +/-1%
Basic error limit (operational limit at 25 °C)	
Voltage, relative to input area	+/-0.4 to +/-0.6 %
Current, relative to input area	+/-0.4 to +/-0.6 %
Resistance-type thermometer, relative to input area	+/-0.4 to +/-0.6 %
Interference voltage suppression for f = n x (fI +/- 1%), fI = interference frequency	
Series mode interference (peak value of interference < rated value of input range), min.	40 dB
common mode voltage (USS < 2.5 V) , min.	70 dB
Interrupts/diagnostics/status information	
Substitute values connectable	Yes ; Parameterizable
Control technology	
Number of closed-loop controllers	16 ; With thermocouples or 2-wire connection; 8 with Pt 100 or 4-wire connection
Galvanic isolation	
Galvanic isolation controller	
between the channels	No
between the channels and the backplane bus	Yes ; Optocoupler
Permissible potential difference	
between inputs and MANA (UCM)	2.5 V DC
between M internally and the inputs	75 VDC / 60 VAC
Isolation	

Isolation checked with	500 V DC
Connection method	
required front connector	2x 48-pin
Dimensions	
Width	50 mm
Height	290 mm
Depth	210 mm
Weight	
Weight, approx.	1400 g
Status	Aug 25, 2011