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Data sheet 6ES7536-1MF00-0AB0



SIMATIC S7-1500, F-analog input module, F-AI 8xI 0(4)..20 mA PROFIsafe; 35 mm, overall width; up to PL e (ISO 13849-1)/ SIL 3 (IEC 61508)

General information	
Product type designation	F-AI 8xI 0(4) ... 20 mA
Firmware version	
● FW update possible	Yes
Product function	
● I&M data	Yes; I&M0 to I&M3
Engineering with	
● STEP 7 TIA Portal configurable/integrated from version	V18 with HSP0394 (FW V1.0) / V19 with HSP0451 (FW V2.0)
Operating mode	
● MSI	Yes; firmware V2.0 or higher
CiR - Configuration in RUN	
Reparameterization possible in RUN	No
Calibration possible in RUN	No
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Input current	
Current consumption (rated value)	75 mA
Current consumption, max.	2.5 A; All channels are supplied from the encoder supply
Encoder supply	
Number of outputs	8
Short-circuit protection	Yes
24 V encoder supply	
● 24 V	Yes; min. L+ (-1.5 V)
● Short-circuit protection	Yes
● Output current per channel, max.	300 mA
Power	
Power consumption from the backplane bus	0.5 W
Power loss	
Power loss, typ.	2.5 W
Address area	
Address space per module	
● Inputs	23 byte
● Outputs	6 byte
Hardware configuration	
Automatic encoding	Yes

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Analog inputs	
Number of analog inputs	8
permissible input current for current input (destruction limit), max.	35 mA
Input ranges (rated values), currents	
● 0 to 20 mA	Yes
— Input resistance (0 to 20 mA)	150 Ω
● 4 mA to 20 mA	Yes
— Input resistance (4 mA to 20 mA)	150 Ω
Cable length	
● shielded, max.	1 000 m
Analog value generation for the inputs	
Measurement principle	Sigma Delta
Integration and conversion time/resolution per channel	
● Resolution with overrange (bit including sign), max.	16 bit
● Integration time, parameterizable	Yes
● Integration time (ms)	20 / 16,667
● Interference voltage suppression for interference frequency f1 in Hz	50 / 60 Hz
Smoothing of measured values	
● Number of smoothing levels	7
● Parameterizable	Yes
● Step: None	Yes; 1x conversion time
● Step: low	Yes; 2x / 4x conversion cycle time
● Step: Medium	Yes; 8x / 16x conversion cycle time
● Step: High	Yes; 32x / 64x conversion cycle time
Encoder	
Connection of signal encoders	
● for current measurement as 2-wire transducer	Yes
— Burden of 2-wire transmitter, max.	650 Ω
● for current measurement as 4-wire transducer	Yes
Errors/accuracies	
Linearity error (relative to input range), (+/-)	0.05 %
Temperature error (relative to input range), (+/-)	0.005 %/K
Crosstalk between the inputs, max.	-70 dB
Repeat accuracy in steady state at 25 °C (relative to input range), (+/-)	0.05 %
Operational error limit in overall temperature range	
● Current, relative to input range, (+/-)	0.3 %; without HART communication
Basic error limit (operational limit at 25 °C)	
● Current, relative to input range, (+/-)	0.05 %; without HART communication
Influence of a HART signal modulated on the input signal in relation to input range	
● error occurred at interference frequency suppression: 60 Hz	0.12 %
● error occurred at interference frequency suppression: 50 Hz	0.12 %
Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = interference frequency	
● Series mode interference (peak value of interference < rated value of input range), min.	40 dB
● Common mode voltage, max.	60 V DC/30 V AC
● Common mode interference, min.	70 dB
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Alarms	
● Diagnostic alarm	Yes
● Limit value alarm	No
Diagnoses	
● Monitoring the supply voltage	Yes
● Wire break	Yes
● Short-circuit	Yes

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● Overflow/Underflow	Yes
Diagnostics indication LED	
● RUN LED	Yes; green LED
● ERROR LED	Yes; red LED
● Monitoring of the supply voltage (PWR-LED)	Yes; green PWR LED
● Channel status display	Yes; green LED
● for channel diagnostics	Yes; red LED
Potential separation	
Potential separation analog inputs	
● between the channels	No
● between the channels, in groups of	4
● between the channels and backplane bus	Yes
● between the channels and the power supply of the electronics	Yes
Permissible potential difference	
between the inputs (UCM)	60 V DC/30 V AC
Isolation	
Isolation tested with	707 V DC (type test)
Standards, approvals, certificates	
Highest safety class achievable in safety mode	
● Performance level according to ISO 13849-1	PLe
● Category according to ISO 13849-1	Cat. 4
● SIL acc. to IEC 61508	SIL 3
Probability of failure (for service life of 20 years and repair time of 100 hours)	
— Low demand mode: PFDavg in accordance with SIL3	< 4.00E-05
— High demand/continuous mode: PFH in accordance with SIL3	< 1.00E-09 1/h
Ambient conditions	
Ambient temperature during operation	
● horizontal installation, min.	0 °C
● horizontal installation, max.	60 °C
● vertical installation, min.	0 °C
● vertical installation, max.	40 °C
Dimensions	
Width	35 mm
Height	147 mm
Depth	129 mm
Weights	
Weight, approx.	290 g

Classifications

	Version	Classification
eClass	16	27-24-22-01
eClass	14	27-24-22-01
eClass	12	27-24-22-01
eClass	9.1	27-24-22-01
eClass	9	27-24-22-01
eClass	8	27-24-22-01
eClass	7.1	27-24-22-01
eClass	6	27-24-22-01
ETIM	10	EC001420
ETIM	9	EC001420
ETIM	8	EC001420
ETIM	7	EC001420

Approvals / Certificates

General Product Approval

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Miscellaneous

General Product Approval	For use in hazardous locations

China RoHS | UL | FM | CCC-Ex | ATEX | Type Examination Certificate

For use in hazardous locations			Functional Saftey		Maritime application

IECEx | Miscellaneous | CCC-Ex | TUEV | Type Examination Certificate | ABS

Maritime application

BUREAU VERITAS | DNV | LRS | NK / Nippon Kaiji Kyokai | RINA | CCS (China Classification Society)

Maritime application	other

KR (Korean Register of Shipping) | PROFIsafe

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