SIEMENS

Data sheet

6ES7531-7NF00-0AB0

SIMATIC ET 200SP, TM PULSE 2X24V PWM AND PULSE OUTPUT 2 CHANNELS 2 A FOR VALVES AND DC MOTORS



General information	
Product type designation	AI 8xU/I HF
HW functional status	FS01
Firmware version	V1.1.0
• FW update possible	Yes
Product function	
● I&M data	Yes; I&M0 to I&M3
 Measuring range scalable 	No
 Scalable measured values 	Yes
 Adjustment of measuring range 	Yes
Engineering with	
 STEP 7 TIA Portal configurable/integrated as of version 	V14 / -
 STEP 7 configurable/integrated as of version 	V5.5 SP3 / -
 PROFIBUS as of GSD version/GSD revision 	V1.0 / V5.1
 PROFINET as of GSD version/GSD revision 	V2.3 / -
Operating mode	
Oversampling	No
• MSI	Yes

Reparameterization possible in RUN Yes Calibration possible in RUN Yes Supply voltage 24 V Rated value (DC) 20.4 V permissible range, lower limit (DC) 28.8 V Reverse polarity protection Yes Input current Current consumption, max. 50 mA; with 24 V DC supply Power 0.85 W Power loss 0.85 W Power loss 0.85 W Power loss 0.85 W Power loss Power loss Power loss, typ. 1.9 W Analog inputs 8 For current measurement 8 Permissible input voltage for voltage input 28.8 V (destruction limit), max. 40 mA Input ranges (rated values), voltages • 0 to +5 V No • 0 to +5 V No • 0 to +10 V No • 10 v to +10 V Yes • Input resistance (1 V	CiR – Configuration in RUN	
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• -25 mV to +25 mV No • -250 mV to +250 mV No • -5 V to +5 V Yes • Input resistance (-5 V to +5 V) 100 kΩ		100 kΩ
• -250 mV to +250 mV No • -5 V to +5 V Yes • Input resistance (-5 V to +5 V) 100 kΩ		No
• -5 V to +5 V Yes • Input resistance (-5 V to +5 V) 100 kΩ		No
• Input resistance (-5 V to +5 V) $100 \text{ k}\Omega$		Yes
		100 kΩ
• -50 mV to +50 mV No		No
• -500 mV to +500 mV No		
• -80 mV to +80 mV No		
Input ranges (rated values), currents		
• 0 to 20 mA Yes		Yes

 Input resistance (0 to 20 mA) 	25 Ω ; Plus approx. 42 ohms for overvoltage protection by PTC
• -20 mA to +20 mA	Yes
• Input resistance (-20 mA to +20 mA)	25 Ω ; Plus approx. 42 ohms for overvoltage protection by PTC
• 4 mA to 20 mA	Yes
• Input resistance (4 mA to 20 mA)	25 Ω ; Plus approx. 42 ohms for overvoltage protection by PTC
Input ranges (rated values), thermocouples	
• Type B	No
• Type C	No
• Type E	No
• Type J	No
• Туре К	No
• Type L	No
• Type N	No
• Type R	No
• Type S	No
• Туре Т	No
 Type TXK/TXK(L) to GOST 	No
Input ranges (rated values), resistance thermometer	
• Cu 10	No
 Cu 10 according to GOST 	No
• Cu 50	No
 Cu 50 according to GOST 	No
• Cu 100	No
 Cu 100 according to GOST 	No
• Ni 10	No
 Ni 10 according to GOST 	No
• Ni 100	No
 Ni 100 according to GOST 	No
• Ni 1000	No
 Ni 1000 according to GOST 	No
• LG-Ni 1000	No
• Ni 120	No
 Ni 120 according to GOST 	No
• Ni 200	No
 Ni 200 according to GOST 	No
• Ni 500	No
 Ni 500 according to GOST 	No
• Pt 10	No
 Pt 10 according to GOST 	No
• Pt 50	No
 Pt 50 according to GOST 	No

5 Dt 400	No
• Pt 100	NO
 Pt 100 according to GOST 	No
• Pt 1000	No
 Pt 1000 according to GOST 	No
• Pt 200	No
 Pt 200 according to GOST 	No
• Pt 500	No
 Pt 500 according to GOST 	No
Input ranges (rated values), resistors	
• 0 to 150 ohms	No
• 0 to 300 ohms	No
• 0 to 600 ohms	No
• 0 to 3000 ohms	No
• 0 to 6000 ohms	No
• PTC	No
Cable length	
• shielded, max.	800 m

Analog value generation for the inputs	
Integration and conversion time/resolution per channel	
 Resolution with overrange (bit including sign), 	16 bit
max.	
 Integration time, parameterizable 	Yes
 Integration time (ms) 	Fast mode: 2.5 / 16.67 / 20 / 100 ms, standard mode: 7.5 / 50 / 60 / 300 ms
 Basic conversion time, including integration time (ms) 	Fast mode: 4 / 18 / 22 / 102 ms; Standard mode: 9 / 52 / 62 / 302 ms
 Interference voltage suppression for interference frequency f1 in Hz 	400 / 60 / 50 / 10 Hz
 Basic execution time of the module (all channels released) 	Corresponds to the channel with the highest basic conversion time
Smoothing of measured values	
parameterizable	Yes
Step: None	Yes
• Step: low	Yes
• Step: Medium	Yes
• Step: High	Yes
Encoder	
Connection of signal encoders	
 for voltage measurement 	Yes

• Ior voltage measurement	100
• for current measurement as 2-wire transducer	Yes; with external transmitter supply
• for current measurement as 4-wire transducer	Yes

 for resistance measurement with two-wire connection 	No
 for resistance measurement with three-wire connection 	No
 for resistance measurement with four-wire connection 	No
Errors/accuracies	
Linearity error (relative to input range), (+/-)	0.02 %
Temperature error (relative to input range), (+/-)	0.005 %/K
Crosstalk between the inputs, max.	-80 dB
Repeat accuracy in steady state at 25 °C (relative to input range), (+/-)	0.02 %
Operational error limit in overall temperature range	
 Voltage, relative to input range, (+/-) 	0.1 %
• Current, relative to input range, (+/-)	0.1 %
Basic error limit (operational limit at 25 °C)	
 Voltage, relative to input range, (+/-) 	0.05 %
 Current, relative to input range, (+/-) 	0.05 %
Interference voltage suppression for f = n x (f1 +/- 1 %),	f1 = interference frequency
 Series mode interference (peak value of 	80 dB; in the Standard operating mode, 40 dB in the Fast
interference < rated value of input range), min.	operating mode
 Common mode voltage, max. 	60 V DC/30 V AC
Common mode interference, min.	80 dB
la a duran ava una da	
Isochronous mode Isochronous operation (application synchronized up	No
to terminal)	
to terminal)	Yes
to terminal) Interrupts/diagnostics/status information	
to terminal) Interrupts/diagnostics/status information Diagnostics function	
to terminal) Interrupts/diagnostics/status information Diagnostics function Alarms	Yes
to terminal) Interrupts/diagnostics/status information Diagnostics function Alarms • Diagnostic alarm	Yes
to terminal) Interrupts/diagnostics/status information Diagnostics function Alarms • Diagnostic alarm • Limit value alarm	Yes
to terminal) Interrupts/diagnostics/status information Diagnostics function Alarms Diagnostic alarm Limit value alarm Diagnostic messages	Yes Yes Yes; two upper and two lower limit values in each case
to terminal) Interrupts/diagnostics/status information Diagnostics function Alarms Diagnostic alarm Limit value alarm Diagnostic messages Monitoring the supply voltage	Yes Yes; two upper and two lower limit values in each case Yes
to terminal) Interrupts/diagnostics/status information Diagnostics function Alarms Diagnostic alarm Limit value alarm Diagnostic messages Monitoring the supply voltage Wire-break	Yes Yes; two upper and two lower limit values in each case Yes Yes; only for 1 5 V and 4 20 mA
to terminal) Interrupts/diagnostics/status information Diagnostics function Alarms Diagnostic alarm Limit value alarm Diagnostic messages Monitoring the supply voltage Wire-break Overflow/underflow	Yes Yes; two upper and two lower limit values in each case Yes Yes; only for 1 5 V and 4 20 mA
to terminal) Interrupts/diagnostics/status information Diagnostics function Alarms Diagnostic alarm Limit value alarm Diagnostic messages Monitoring the supply voltage Wire-break Overflow/underflow Diagnostics indication LED	Yes Yes Yes; two upper and two lower limit values in each case Yes Yes; only for 1 5 V and 4 20 mA Yes
to terminal) Interrupts/diagnostics/status information Diagnostics function Alarms Diagnostic alarm Limit value alarm Diagnostic messages Monitoring the supply voltage Wire-break Overflow/underflow Diagnostics indication LED RUN LED	Yes Yes Yes; two upper and two lower limit values in each case Yes Yes; only for 1 5 V and 4 20 mA Yes Yes; Green LED
to terminal) Interrupts/diagnostics/status information Diagnostics function Alarms Diagnostic alarm Limit value alarm Diagnostic messages Monitoring the supply voltage Wire-break Overflow/underflow Diagnostics indication LED RUN LED ERROR LED	Yes Yes Yes; two upper and two lower limit values in each case Yes Yes; only for 1 5 V and 4 20 mA Yes Yes; Green LED Yes; Red LED
to terminal) Interrupts/diagnostics/status information Diagnostics function Alarms	Yes Yes Yes; two upper and two lower limit values in each case Yes Yes; only for 1 5 V and 4 20 mA Yes Yes; Green LED Yes; Green LED Yes; Green LED
to terminal) Interrupts/diagnostics/status information Diagnostics function Alarms Diagnostic alarm Limit value alarm Diagnostic messages Monitoring the supply voltage Wire-break Overflow/underflow Diagnostics indication LED RUN LED RUN LED RUN LED Channel status display	Yes Yes Yes; two upper and two lower limit values in each case Yes; two upper and two lower limit values in each case Yes; Yes; only for 1 5 V and 4 20 mA Yes Yes; Green LED Yes; Green LED Yes; Green LED Yes; Green LED

Potential separation	
Potential separation channels	
• between the channels	Yes
 between the channels, in groups of 	1
 between the channels and backplane bus 	Yes
• between the channels and the power supply of the electronics	Yes
Permissible potential difference	
between different circuits	60 V DC/30 V AC; insulation rated for 120 V AC basic insulation: between the channels and the supply voltage L+; between the channels and the backplane bus; between the channels
Isolation	
Isolation tested with	2 000 V DC between the channels and the supply voltage L+; 2 000 V DC between the channels and the backplane bus; 2 000 V DC between the channels; 707 V DC (type test) between the supply voltage L+ and the backplane bus
Ambient conditions	
Ambient temperature during operation	
 horizontal installation, min. 	0°0
 horizontal installation, max. 	60 °C
 vertical installation, min. 	0°0
• vertical installation, max.	40 °C
Decentralized operation	
Prioritized startup	Yes
Dimensions	
Width	35 mm
Height	147 mm
Depth	129 mm
Weights	
Weight, approx.	280 g
last modified:	12/07/2016