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Data sheet 6ES7138-4DL00-0AB0

SIMATIC DP, Electronics module for ET 200S, 1 POS U, Controlled positioning with digital outputs for 5 V/24 V incremental encoder, SSI encoder, 30 mm overall width



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
• Reverse polarity protection	Yes
Input current	
from load voltage L+ (without load), max.	55 mA
from backplane bus 3.3 V DC, max.	10 mA
Encoder supply	
5 V encoder supply	
• 5 V	No
24 V encoder supply	
• 24 V	Yes
• Short-circuit protection	Yes
• Output current, max.	500 mA
Absolute encoder (SSI) encoder supply	
• Absolute encoder (SSI)	Yes

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• Type of output voltage	L+ (-0.8 V)
• Short-circuit protection	Yes
• Output current, max.	500 mA
Power loss	
Power loss, typ.	2 W
Digital inputs	
Input characteristic curve in accordance with IEC 61131, type 2	Yes
Input voltage	
• Rated value (DC)	24 V
• for signal "0"	-30 to +5 V
• for signal "1"	+11 to +30V
Input current	
• for signal "0", max. (permissible quiescent current)	2 mA
• for signal "1", typ.	9 mA
Input delay (for rated value of input voltage)	
• Input frequency (with a time delay of 0.1 ms), max.	100 kHz
Cable length	
• unshielded, max.	50 m
Digital outputs	
Short-circuit protection	Yes
• Response threshold, typ.	0.7 to 1.8 A
Limitation of inductive shutdown voltage to	Yes; L+ -(55 to 60 V)
Controlling a digital input	Yes
Switching capacity of the outputs	
• on lamp load, max.	5 W
Output voltage	
• Rated value (DC)	24 V
• for signal "0", max.	3 V
• for signal "1", min.	L+ (-1 V)
Output current	
• for signal "1" permissible range for 0 to 60 °C, min.	7 mA
• for signal "1" permissible range for 0 to 60 °C, max.	600 mA
• for signal "0" residual current, max.	0.3 mA
Output delay with resistive load	
• "0" to "1", max.	typically 150 µs
• "1" to "0", max.	typically 150 µs
Switching frequency	

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• with resistive load, max.	100 Hz
• with inductive load, max.	2 Hz
• on lamp load, max.	10 Hz
Cable length	
• shielded, max.	1 000 m
• unshielded, max.	600 m

Encoder	
Number of connectable encoders, max.	1
Connectable encoders	
• Incremental encoder (symmetrical)	Yes
• Incremental encoder (asymmetrical)	Yes
• Absolute encoder (SSI)	Yes
• 2-wire sensor	Yes; Type 2
Encoder signals, incremental encoder (symmetrical)	
Encoder signal 5 V	
— Signal level	to RS-422
— Terminating resistor	330 Ω
— Differential input voltage, min.	1 V
— Input frequency, max.	500 kHz
— Cable length, shielded, max.	50 m
Encoder signals, absolute encoder (SSI)	
• Cable length, shielded, max.	320 m at 125 kHz, 160 m at 250 kHz, 60 m at 500 kHz, 20 m at 1 MHz, 8 m at 2 MHz, twisted in pairs and shielded
• Monoflop time	64 µs
Updating the encoder value	
— Telegram runtime at 13 bit, min.	7 µs
— Telegram runtime at 25 bit, min.	13 µs

Response times	
Updating time of the feedback messages	1 ms
Latch	In the case of incremental encoders: typ. 400 ms; in the case of SSI encoders: typ. 400 ms + age of the encoder value:
Response time at switchover/switchoff point	In the case of incremental encoders: output delay + 30 µs; in the case of SSI encoders: output delay + message frame runtime + 30 ms

Interrupts/diagnostics/status information	
Diagnostics indication LED	
• Actual value falling DN (green)	Yes
• Actual value rising UP (green)	Yes
• Positioning mode POS (green)	Yes
• Group error SF (red)	Yes
• Status indicator digital input (green)	Yes

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Potential separation	
between backplane bus and all other circuit components	Yes
between the channels and backplane bus	Yes

Dimensions	
Width	30 mm
Height	81 mm
Depth	52 mm

Weights	
Weight, approx.	65 g

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