



SIMATIC S7-1500, F digital input module, F-DI 16x 24 V DC PROFI-safe; 35 mm width; up to PL E (ISO 13849-1)/ SIL 3 (IEC 61508)

General information	
Product type designation	F-DI 16x24VDC
Firmware version	
<ul style="list-style-type: none"> FW update possible 	Yes
Product function	
<ul style="list-style-type: none"> I&M data 	Yes; I&M0 to I&M3
Engineering with	
<ul style="list-style-type: none"> STEP 7 TIA Portal configurable/integrated from version 	V13 SP1 with HSP 0086
Operating mode	
<ul style="list-style-type: none"> DI 	Yes
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
power supply according to NEC Class 2 required	No
Input current	
Current consumption (rated value)	50 mA; without load
Current consumption, max.	60 mA; without load
Encoder supply	
Number of outputs	4
Short-circuit protection	Yes; Electronic (response threshold 0.7 A to 1.8 A)
24 V encoder supply	
<ul style="list-style-type: none"> 24 V Short-circuit protection Output current, max. 	Yes; min. L+ (-1.5 V) Yes 300 mA; Max. 100 mA when mounted vertically
Power	
Power available from the backplane bus	0.9 W
Power loss	
Power loss, typ.	4.6 W
Address area	
Address space per module	
<ul style="list-style-type: none"> Inputs Outputs 	9 byte; S7-300/400F CPU, 8 byte 5 byte; S7-300/400F CPU, 4 byte
Hardware configuration	
Automatic encoding	Yes
<ul style="list-style-type: none"> Electronic coding element type F 	Yes
Digital inputs	

Number of digital inputs	16
Source/sink input	Yes; P-reading
Input characteristic curve in accordance with IEC 61131, type 1	Yes
Input voltage	
<ul style="list-style-type: none"> Rated value (DC) for signal "0" for signal "1" 	24 V -30 to +5 V +15 to +30 V
Input current	
<ul style="list-style-type: none"> for signal "1", typ. 	3.7 mA
Input delay (for rated value of input voltage)	
for standard inputs	
<ul style="list-style-type: none"> parameterizable at "0" to "1", min. at "0" to "1", max. at "1" to "0", min. at "1" to "0", max. 	Yes 0.4 ms 20 ms 0.4 ms 20 ms
Cable length	
<ul style="list-style-type: none"> shielded, max. unshielded, max. 	1 000 m 500 m
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Alarms	
<ul style="list-style-type: none"> Diagnostic alarm Hardware interrupt 	Yes No
Diagnoses	
<ul style="list-style-type: none"> Monitoring the supply voltage Wire-break Short-circuit Group error 	Yes No Yes Yes
Diagnostics indication LED	
<ul style="list-style-type: none"> RUN LED ERROR LED Channel status display for channel diagnostics for module diagnostics 	Yes; green LED Yes; red LED Yes; green LED Yes; red LED Yes; red LED
Potential separation	
Potential separation channels	
<ul style="list-style-type: none"> between the channels and backplane bus 	Yes
Isolation	
Isolation tested with	707 V DC (type test)
Standards, approvals, certificates	
Suitable for safety functions	Yes
Highest safety class achievable in safety mode	
<ul style="list-style-type: none"> Performance level according to ISO 13849-1 SIL acc. to IEC 61508 	PLe SIL 3
Probability of failure (for service life of 20 years and repair time of 100 hours)	
<ul style="list-style-type: none"> Low demand mode: PFDavg in accordance with SIL3 High demand/continuous mode: PFH in accordance with SIL3 	< 5.00E-05 < 1.00E-09 1/h
Ambient conditions	
Ambient temperature during operation	
<ul style="list-style-type: none"> horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. 	0 °C 60 °C 0 °C 40 °C
Dimensions	
Width	35 mm
Height	147 mm

Depth	129 mm
Weights	
Weight, approx.	280 g
last modified:	10/7/2021 