## Data sheet 6ES7526-1BH00-0AB0



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

General information	
Product type designation	F-DI 16x24VDC
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	V13 SP1 with HSP 0086
Operating mode	
• 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	
• 24 V	Yes; min. L+ (-1.5 V)
<ul> <li>Short-circuit protection</li> </ul>	Yes
<ul> <li>Output current, max.</li> </ul>	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	
• Inputs	9 byte; S7-300/400F CPU, 8 byte
Outputs	5 byte; S7-300/400F CPU, 4 byte
Hardware configuration	
Automatic encoding	Yes
Electronic coding element type F	Yes
Digital inputs	

SourceShirk Input   Yes; P-reading   Yes	Number of digital inputs	16
Input voltage	Number of digital inputs	
type 1	· · · · · · · · · · · · · · · · · · ·	-
Input voltage		163
Petade value (DC)		
• for signal "1" + 15 to 1-30 V	· · ·	24 V
• for signal "1"   + 15 to +30 V   input current   • for signal "1", typ.   3.7 mA   input clay (for rated value of input voltage) for standard inputs		-30 to +5 V
Input clearly (for rated value of input voltage)	_	+15 to +30 V
• nor signal "1", typ.   3.7 mA		
Input delay (for ratest value of input voltage)  for standard inputs  - parameterizable - at "0" to "1", min at "1" to "0", min unshielded, max unshielded, max unshielded, max unshielded, max unshielded, max Unspecification  Ves  Alarms  - Diagnostic sfunction  Alarms - No  Diagnostic sfunction  Alarms - No  No  Diagnostic survive - Non  No  No  No  No  No  No  No  No  No	·	3.7 mA
For standard inputs		•
— parameterizable — at "0" to "1", min.		
at "0" to "1", min.		Yes
	·	
Shielded, max.   1000 m   1		
• shielded, max.         1 000 m           unshielded, max.         500 m           unshielded, max.         500 m           unshielded, max.         500 m           unshielded, max.         500 m           Diagnostic sfunction         Yes           • Alarms         • Light part of the supply voltage           • Hardware interrupt         No           Diagnoses         • Monitoring the supply voltage           • Wire-break         No           • Short-circuit         Yes           • Group error         Yes           • Bont-circuit         Yes           • Group error         Yes           • RIN LED         Yes; green LED           • ERROR LED         Yes; red LED           • Channel status display         Yes; red LED           • Cor channel diagnostics         Yes; red LED           • for module diagnostics         Yes           • between the channels and backplane bus         Yes           • Stolation         Yes           Stolation         Stolation tested with		20 1110
• unshielded, max. 500 m  Interrupt/diagnostics/status information  Diagnostic place incition Alarms  • Diagnostic alarm • Hardware interrupt • No  Diagnoses  • Monitoring the supply voltage • Ves • Wire-break • No • Short-circuit • Group error • RUN LED • RENCR LED • Channel status display • for channel diagnostics • for module diagnostics • for module diagnostics • for module diagnostics • Short-circuit • Pess; green LED • Channel status display • Fer RCR LED • Channel status display • for channel diagnostics • for module diagnostics • for module diagnostics • for module flagnostics • Pess; red LED  Potential separation  Potential separation Annels • between the channels and backplane bus • for seafly functions  Potential safety functions  Ves  Standards, approvals, certificates  Suitable for safety functions  Pischadrads, approvals, certificates  Suitable for safety functions  Potential safety diass achievable in safety mode • Performance level according to ISO 13494-1 • Stl. acc. to IEC 61508  Sul acc. to IEC 61508  Probability of failure (for service life of 20 years and repair time of 100 hours)  — Low demand mode: PFDavg in accordance with Stl.3 — High demand/continuous mode: PFH in accordance with Stl.3 — High demand/continuous mode: PFH in accordance with Stl.3 — High demand/continuous mode: PFH in accordance with Stl.3 — High demand/continuous mode: PFH in accordance with Stl.3 — High demand/continuous mode: PFH in accordance with Stl.3 — High demand/continuous mode: PFH in accordance with Stl.3 — High demand/continuous mode: PFH in accordance with Stl.3 — High demand/continuous mode: PFH in accordance with Stl.3 — High demand/continuous mode: PFH in accordance with Stl.3 — High demand/continuous mode: PFH in accordance with Stl.3 — High demand/continuous mode: PFH in accordance with Stl.3 — High demand/continuous mode: PFH in accordance with Stl.3 — High demand/continuous mode: PFH in accordance with Stl.3 — High demand/continuous mode: PFH in accordance with Stl.3 — High demand/continuous mode: PFH	-	1 000 m
Interrupts/diagnostics/status information  Diagnostics function Yes  Alarims  Diagnostic clarm Yes  Hardware interrupt No  Diagnoses  Monitoring the supply voltage Yes  Wire-break Yes  Wire-		
Diagnostics function Yes  Alarms  Diagnostes  Hardware interrupt  No  Diagnoses  Monitoring the supply voltage  Wire-break  Short-circuit  Group error  PUN LED  FROR LED  FROR LED  Channel status display  for channel diagnostics  for module diagnostics  Potential separation  Potential separation  Potential separation channels  between the channels and backplane bus  between the channels and backplane bus  Potential separation tested with  Tor V DC (type test)  Standards, approvals, certificates  Stuidable for safety functions  Highest safety class achievable in safety mode  Performance level according to ISO 13849-1  Fill Sil. 3  Probability of failure (for service life of 20 years and repair time of 100 hours)  — Low demand mode: PFDavg in accordance with Sil. 3  — High demand/continuous mode: PFH in accordance with Sil. 3  — High demand/continuous mode: PFH in accordance with Sil. 3  Ambient conditions  Mibient service in safelation, min.  O °C  horizontal installation, min.  O °C  vertical installation, min.  O °C  vertical installation, min.  O °C  vertical installation, min.  Vertical installation, max.  Vertical installatio		000 III
Alarms		Ves
Diagnostic alarm Hardware interrupt No  No  No  Monitoring the supply voltage Wire-break No Short-circuit Group error Yes  Potential separation  Potentia		Yes
Hardware interrupt No Diagnoses  Monitoring the supply voltage Wire-break No Short-circuit Yes Group error Yes  Diagnostics indication LED RUN LED RUN LED ERROR LED Channel status display Yes; green LED For channel diagnostics For module diagnostics For module diagnostics Solation  Potential separation channels between the channels and backplane bus Stolation tested with Standards, approvals, certificates  Suitable for safety functions  Highest safety class achievable in safety mode Performance level according to ISO 13849-1 P. SIL acc. to IEC 61508  Probability of failure (for service life of 20 years and repair time of 100 hours)  — Low demand mode: PFDay in accordance with SIL3 — High demand/continuous mode: PFH in accordance with SIL3 Ambient conditions  Ambient conditions  Ambient temperature during operation Porce Porticula installation, min. Porcontal installation, m		V
Diagnoses   Yes   Yes   Wire-break   No   No   Short-circuit   Yes   Group error   Yes   Yes   Yes   Orongo error   Yes   Yes   Orongo error   Yes   Orong		
Monitoring the supply voltage  Wire-break No Short-circuit Short-circuit Group error Yes  Diagnostics indication LED RUN LED RERROR LED Channel status display For channel diagnostics For channel diagnostics For channel diagnostics For module diagnosti		NO
Short-circuit Short-circuit Group error Yes  Diagnostics indication LED RUN LED RUN LED ERROR LED Channel status display of crhannel diagnostics for module diagnostics For module diagnostics Yes; red LED Potential separation Potential separation Potential separation Potential separation Potential separation   - bear of the demands and backplane bus		
• Short-circuit • Group error  Diagnostics indication LED  • RUN LED • RROR LED • Channel status display • for channel diagnostics • for module sparation  Potential separation channels • between the channels and backplane bus • between the channels and backplane bus  • between the channels and backplane bus  Staladards, approvals, certificates  Suitable for safety functions  Flighest safety class achievable in safety mode  • Performance level according to ISO 13849-1 • SIL ac. to IEC 61508  Probability of failure (for service life of 20 years and repair time of 100 hours)  — Low demand mode: PFDavg in accordance with SIL3  — High demand/continuous mode: PFH in accordance with SIL3  Ambient temperature during operation • horizontal installation, min. • horizontal installation, min. • horizontal installation, min. • vertical installation, max. • vertical installation, min.		
Diagnostics indication LED  RUN LED  RUN LED  Channel status display  For channel status display  For module diagnostics  between the channels and backplane bus  between the channels and backplane bus  Tor V DC (type test)  Standards, approvals, certificates  Suitable for safety functions  Peteromane level according to ISO 13849-1  For SIL acc. to IEC 61508  Probability of failure (for service life of 20 years and repair time of 100 hours)  Low demand mode: PFDavg in accordance with SIL3  Ambient conditions  Ambient conditions  Westical installation, min.  Phorizontal installation, min.  Porcol  Por		
Diagnostics indication LED  RUN LED RUN LED REROR LED REROR LED Responsible Service LED Responsible Se		
• RUN LED • ERROR LED • Channel status display • for channel diagnostics • for module diagnostics • between the channels • between the channels and backplane bus • between the channels and backplane bus  Isolation tested with  707 V DC (type test)  Standards, approvals, certificates  Suitable for safety functions • Performance level according to ISO 13849-1 • SIL acc. to IEC 61508  Probability of failure (for service life of 20 years and repair time of 100 hours)  — Low demand mode: PFDavg in accordance with SIL3 — High demand/continuous mode: PFH in accordance with SIL3 — High demand/continuous mode: PFH in accordance with SIL3  Ambient conditions  Ambient conditions  Ambient sallation, min. • horizontal installation, min. • horizontal installation, min. • vertical installation, min.		Yes
• ERROR LED • Channel status display • for channel diagnostics • for module diagnostics • for module diagnostics • for module diagnostics  Potential separation  Potential separation channels • between the channels and backplane bus  * between the channels and backplane bus  Isolation  Isolation tested with  707 V DC (type test)  Standards, approvals, certificates  Suitable for safety functions  Highest safety class achievable in safety mode • Performance level according to ISO 13849-1 • SIL acc. to IEC 61508  Probability of failure (for service life of 20 years and repair time of 100 hours)  — Low demand mode: PFDavg in accordance with SIL3 — High demand/continuous mode: PFH in accordance with SIL3 — High demand/continuous mode: PFH in accordance with SIL3  Ambient conditions  Ambient conditions  Ambient stallation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, min. • vertical installation, max. • vertical	Diagnostics indication LED	
• Channel status display • for channel diagnostics • for module diagnostics • for module diagnostics • for module diagnostics • for module diagnostics  Potential separation  Potential separation  Potential separation thannels • between the channels and backplane bus  Isolation  Isolation tested with  To7 V DC (type test)  Standards, approvals, certificates  Suitable for safety functions  Yes  Highest safety class achievable in safety mode • Performance level according to ISO 13849-1 • 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 — High demand/continuous mode: PFH in accordance with SIL3  Ambient conditions  Ambient temperature during operation • horizontal installation, min. • horizontal installation, min. • vertical installation, min. • vertical installation, max.		
• for channel diagnostics • for module diagnostics  • for module diagnostics  Potential separation  Potential separation channels • between the channels and backplane bus    Station	• ERROR LED	
for module diagnostics     Potential separation  Potential separation channels	<ul> <li>Channel status display</li> </ul>	Yes; green LED
Potential separation  Potential separation channels  • between the channels and backplane bus    Solation	<u> </u>	
Potential separation channels  • between the channels and backplane bus  Isolation  Isolation tested with  707 V DC (type test)  Standards, approvals, certificates  Suitable for safety functions  Highest safety class achievable in safety mode  • Performance level according to ISO 13849-1  • SIL acc. to IEC 61508  Probability of failure (for service life of 20 years and repair time of 100 hours)  — Low demand mode: PFDavg in accordance with SIL3  — High demand/continuous mode: PFH in accordance with SIL3  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, min.  • vertical installation, min.  • vertical installation, max.	for module diagnostics	Yes; red LED
between the channels and backplane bus  Isolation  Isolation tested with 707 V DC (type test)  Standards, approvals, certificates  Suitable for safety functions Yes  Highest safety class achievable in safety mode      Performance level according to ISO 13849-1 PLe     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      — High demand/continuous mode: PFH in accordance with SIL3  Ambient conditions  Ambient temperature during operation      • horizontal installation, min. 0 °C     • horizontal installation, min. 0 °C     • vertical installation, min. 0 °C     • vertical installation, min. 40 °C  Dimensions  Width 35 mm	Potential separation	
Isolation tested with 707 V DC (type test)  Standards, approvals, certificates  Suitable for safety functions Yes  Highest safety class achievable in safety mode  • Performance level according to ISO 13849-1 PLe • 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  — High demand/continuous mode: PFH in accordance with SIL3  Ambient conditions  Ambient conditions  Ambient temperature during operation  • horizontal installation, min. 0 °C • horizontal installation, min. 0 °C • vertical installation, min. 0 °C • vertical installation, max. 40 °C  Dimensions  Width 35 mm	Potential separation channels	
Isolation tested with 707 V DC (type test)  Standards, approvals, certificates  Suitable for safety functions Yes  Highest safety class achievable in safety mode  • Performance level according to ISO 13849-1 • 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  — High demand/continuous mode: PFH in accordance with SIL3  Ambient conditions  Ambient conditions  Ambient temperature during operation  • horizontal installation, min. 0 °C • horizontal installation, min. 0 °C • vertical installation, min. 0 °C • vertical installation, max. 40 °C  Dimensions  Width	between the channels and backplane bus	Yes
Standards, approvals, certificates  Suitable for safety functions  Highest safety class achievable in safety mode  • Performance level according to ISO 13849-1 • SIL acc. to IEC 61508  Probability of failure (for service life of 20 years and repair time of 100 hours)  — Low demand mode: PFDavg in accordance with SIL3  — High demand/continuous mode: PFH in accordance with SIL3  Ambient conditions  Ambient conditions  Ambient temperature during operation  • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max.  • vertical installation, max.  • vertical installation, max.  • Width  35 mm	Isolation	
Standards, approvals, certificates  Suitable for safety functions  Highest safety class achievable in safety mode  • Performance level according to ISO 13849-1 • SIL acc. to IEC 61508  Probability of failure (for service life of 20 years and repair time of 100 hours)  — Low demand mode: PFDavg in accordance with SIL3  — High demand/continuous mode: PFH in accordance with SIL3  Ambient conditions  Ambient conditions  Ambient temperature during operation  • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max.  • vertical installation, max.  • vertical installation, max.  • Width  35 mm	Isolation tested with	707 V DC (type test)
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SIL acc. to IEC 61508  Probability of failure (for service life of 20 years and repair time of 100 hours)  — Low demand mode: PFDavg in accordance with SIL3  — High demand/continuous mode: PFH in accordance with SIL3  Ambient conditions  Ambient temperature during operation  • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, min. • vertical installation, max.  • vertical installation, max.  • Width  35 mm		PI a
Probability of failure (for service life of 20 years and repair time of 100 hours)  — Low demand mode: PFDavg in accordance with SIL3  — High demand/continuous mode: PFH in accordance with SIL3  Ambient conditions  Ambient temperature during operation  • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max.  • vertical installation, max.  • vertical installation, max.  • Width  35 mm		
— Low demand mode: PFDavg in accordance with SIL3  — High demand/continuous mode: PFH in accordance with SIL3  Ambient conditions  Ambient temperature during operation  • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max.  Width  35 mm		
with SIL3  — High demand/continuous mode: PFH in accordance with SIL3  Ambient conditions  Ambient temperature during operation  • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max. • vertical installation, max. • Width  35 mm		
— High demand/continuous mode: PFH in accordance with SIL3  Ambient conditions  Ambient temperature during operation  • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max. • vertical installation, max. • Width   35 mm		> 0.00E-00
accordance with SIL3  Ambient conditions  Ambient temperature during operation  • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max.  • vertical installation, max.  Width  35 mm		< 1.00F-09.1/h
Ambient temperature during operation  • horizontal installation, min. • horizontal installation, max. • horizontal installation, max. • vertical installation, min. • vertical installation, max.  40 °C  Dimensions  Width  35 mm		
Ambient temperature during operation  • horizontal installation, min. • horizontal installation, max. • horizontal installation, max. • vertical installation, min. • vertical installation, max.  40 °C  Dimensions  Width  35 mm	Ambient conditions	
<ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>vertical installation, max.</li> <li>vertical installation, max.</li> <li>Width</li> <li>35 mm</li> </ul>		
<ul> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>vertical installation, max.</li> <li>40 °C</li> </ul> Dimensions Width 35 mm		0 °C
<ul> <li>vertical installation, min.</li> <li>vertical installation, max.</li> <li>Vertical installation, max.</li> <li>Vidth</li> <li>35 mm</li> </ul>	·	
• vertical installation, max.  40 °C  Dimensions  Width  35 mm	·	
Dimensions Width 35 mm		
Width 35 mm	·	70 0
		25
neignt 147 mm		
	neignt	147 HIM

Depth	129 mm
Weights	
Weight, approx.	280 g
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