

Sensor selection data			
Input voltage		Input characteristic	To IEC 61131, Type 1
• Rated value	24 VDC	Connection of two-wire BEROs	Possible
• With signal "1"	13 to 30 V	• Permissible closed-circuit current	Max. 1.5 mA
• With signal "0"	– 3 to 5 V		
Input current		* Please note the total current per ET 200X.	
• With signal "1"	Typ. 7 mA		
Input delay			
• From "0" to "1"	1.2 to 4.8 ms		
• From "1" to "0"	1.2 to 4.8 ms		

7.3 BM 141 DI 8 × DC 24V ECOFAST DIAG basic module (6ES7 141-1BF40-0AB0)

Features

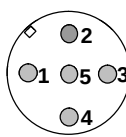
The BM 141 DI 8 × DC 24V ECOFAST DIAG with the order number 6ES7 141-1BF40-0AB0 has the following features:

- PROFIBUS-DP connection via copper conductors (RS 485)
- 8 digital inputs
- Rated input voltage of 24 VDC
- Suitable for switches and proximity switches (BEROs)
- Diagnostic interrupt for short circuit and wire break for each channel (I/O component of the basic module)
- Hardware interrupt at rising and falling edges for each channel (I/O component of the basic module)
- Direct communication
- Parameterizable input delays

Pinout of the sockets for DI

The following table shows the pinout of the eight sockets used to connect the digital inputs. You can find the wiring of the connector in the ET 200X manual, Section 4.4.4. You can find the layout of the sockets in the ET 200X manual, Appendix C.

Table 7-5 Pinout of sockets X1 to X8 for digital inputs

Pin	Assignment of socket X1	Assignment of socket X2	Assignment of socket X3	Assignment of socket X4	Front view of socket
1	Sensor supply output 1L+				
2	not assigned				
3	Chassis ground, power supply				
4	Input signal, channel 0	Input signal, channel 1	Input signal, channel 2	Input signal, channel 3	
5	PE				
Pin	Assignment of socket X5	Assignment of socket X6	Assignment of socket X7	Assignment of socket X8	
1	Sensor supply output 1L+				
2	not assigned				
3	Chassis ground, power supply				
4	Input signal, channel 4	Input signal, channel 5	Input signal, channel 6	Input signal, channel 7	
5	PE				

Covering up unused connections

You must seal off any connections which are not required with M12 screw caps, in order to ensure that the degree of protection (IP 65, IP 66 or IP 67) is achieved.

Basic circuit diagram

The basic circuit diagram of the basic module is show below.

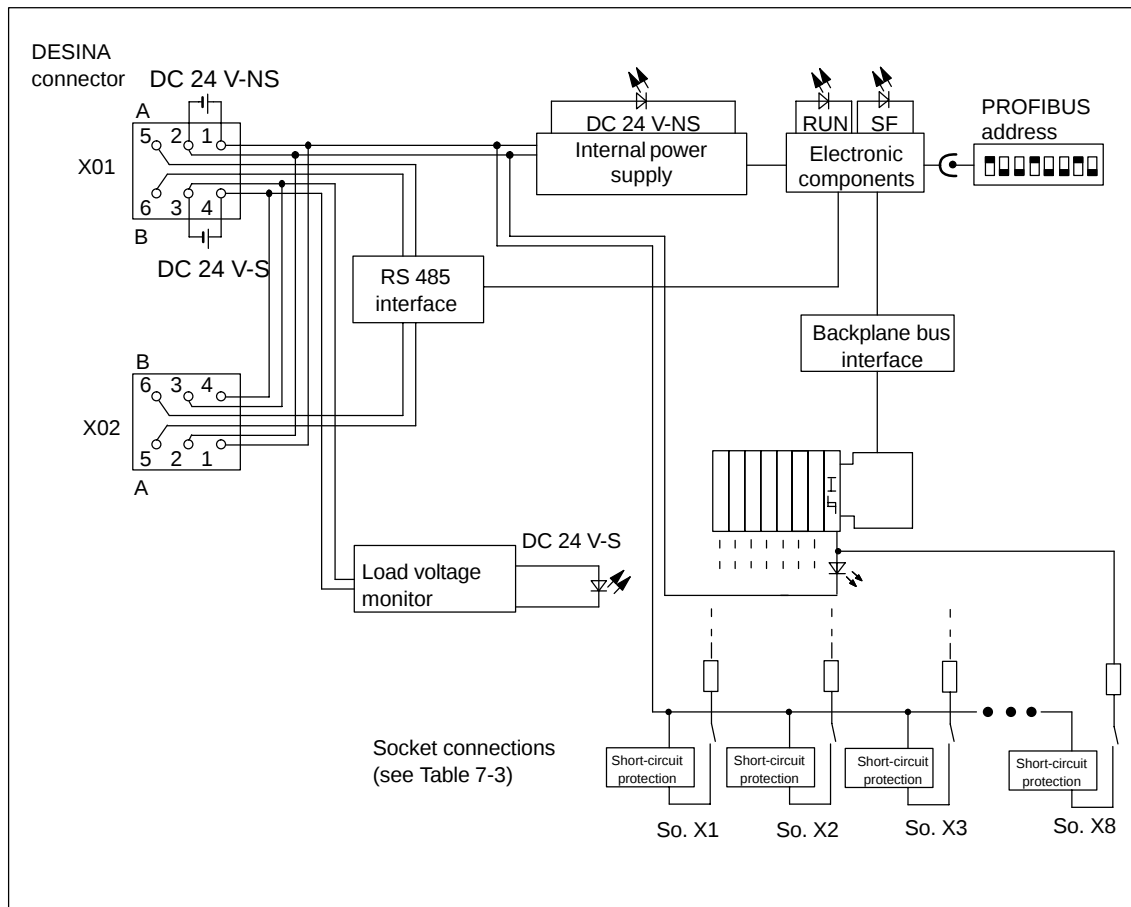


Figure 7-3 Basic circuit diagram for the BM 141 DI 8 x DC 24V ECOFAST DIAG basic module (6ES7 141-1BF40-0AB0)

Parameters

The following tables provide an overview of the parameters on the basic module that can be set.

Table 7-6 Parameters of the BM 141 DI 8 × DC 24V ECOFAST DIAG

Parameters			Range	Default	Area affected
S7 slave with HWCONFIG	Standard slave with DDB file SIEM80D3.GSG ¹	Standard slave with DDB file SI0380D3.GSG ¹			
—	—	DP interrupt mode	DPV0/DPV1	DPV1	ET 200X
Diagnostic interrupt			Yes/no	Yes	ET 200X
Hardware interrupt			Yes/no	Yes	ET 200X
—	Enhanced diagnostics ²	—	Yes/no	Yes	ET 200X
—	—	Startup when expected/actual config. differ	Yes/no	No	ET 200X
Diagnosis: no load voltage (S)			Yes/no	Yes	ET 200X
—	—	Module diagnosis	Yes/no	Yes	ET 200X
—	—	Module status	Yes/no	Yes	ET 200X
—	—	Channel-specific diagnosis	Yes/no	Yes	ET 200X

¹ As of basic module 6ES7 141-1BF40-0AB0, version 2

² The length of the diagnostic frame is ≥ 32 bytes

Table 7-7 Parameters of the BM 141 DI 8 × DC 24V ECOFAST DIAG for digital inputs

Parameters	Range	Default	Area affected
Input delay ¹	0.5 ms/ 3 ms/ 15 ms/ 20 ms	3 ms	Module
Diagnosis: short circuit to M	Yes/no	No	Channel
Diagnosis: wire break	Yes/no	No	Channel
Diagnostic interrupt	Yes/no	No	Module
Hardware interrupt	Yes/no	No	Module
Hardware interrupt on rising edge ²	Yes/no	No	Channel
Hardware interrupt on falling edge ²	Yes/no	No	Channel

¹ The input delay applies at "0" to "1" and at "1" to "0".

² These parameters can only be set if you enable the hardware interrupt parameter.

Technical data

Dimensions and weight		Permissible potential difference - Between different circuits 75 VDC, 60 VAC Insulation tested with 500 VDC Power input - From backplane bus (1L+) Max. 180 mA Power loss of the module Typ. 3.5 W	
Dimensions W × H × D (mm)	175 × 180 × 110		
Weight	Approx. 650 g		
Module-specific data		Status, alarms, diagnostics	
Baud rate	9.6/19.2/45.45/93.75/187.5/500 kbps 1.5/3/6/12 Mbps	Status display	Green LED per channel
Bus protocol	PROFIBUS-DP	Alarms	Hardware interrupt Diagnostic interrupt
FREEZE compatibility	Yes	- Hardware interrupt Configurable - Diagnostic interrupt Configurable	
SYNC compatibility	Yes	Diagnostic functions	Configurable
Number of channels	8 digital inputs	- Group error Red LED (SF) - Status indicator Green LED (RUN) - Indicator for non-switched load voltage Green LED (DC 24V-NS) - Indicator for switched load voltage Green LED (DC 24V-S) - Channel error display red LED per channel - Reading diagnostic information Possible	
Cable length			
Unshielded	Max. 30 m		
Manufacturer identification	80D3 _H		
Voltages, currents, potentials			
Non-switched rated load voltage (NS)	24 VDC		
- Max. perm. power input from load - Reverse polarity protection - Short-circuit protection	Up to 40 °C 10 A; Up to 55 °C 8 A No No		
Switched rated load voltage (NS)	24 VDC		
- Max. perm. power input from load - Reverse polarity protection	Up to 40 °C 10 A; Up to 55 °C 8 A No		
Maximum number of inputs driven simultaneously	8		
all installed positions	max. 55 °C		
Electrical isolation			
- Between channels and backplane bus - Between channels - Between load voltages - Between load voltage and all other circuitry - Between PROFIBUS-DP and all other circuitry	No No No No Yes		

Sensor supply outputs	
Outputs	8
Output current*	Up to 40 °C max. 1A; to 55 °C max. 0.8A
Short-circuit protection	Yes, electronic
Sensor selection data	
Input voltage	
• Rated value	24 VDC
• With signal "1"	13 to 30 V
• With signal "0"	– 3 to 5 V
Input current	
• With signal "1"	Typ. 10 mA
Input delay (parameteriza- ble)	

At "0" to "1" and at "1" to "0"	Typ. 0.5 ms Typ. 3 ms Typ. 15 ms Typ. 20 ms
Input characteristic	To IEC 61131, Type 2
Connection of two-wire BEROs	Possible
• Permissible closed-circuit current	Max. 1.5 mA **

* Please note the total current per ET 200X.

** The required closed-circuit current for wire break detection is 0.6 mA < I < 1.5 mA