SIEMENS

Data sheet

6ES7137-6BD00-0BA0



SIMATIC ET 200SP, CM 4xIO-Link ST Communication module IO-Link Master V1.1

General information	
Product type designation	CM 4 x IO-Link ST
HW functional status	FS20
Firmware version	V2.2.2
 FW update possible 	Yes
usable BaseUnits	BU type A0
Color code for module-specific color identification plate	CC04
Product function	
• I&M data	Yes; I&M0 to I&M3
 Isochronous mode 	No; Only for PROFINET and configuration as version with FW V2.0 or V2.1
Engineering with	
 STEP 7 TIA Portal configurable/integrated from version 	STEP 7 V15 or higher
 STEP 7 configurable/integrated from version 	STEP 7 V5.5 or higher
 PROFIBUS from GSD version/GSD revision 	One GSD file each, Revision 3 and 5 and higher
 PROFINET from GSD version/GSD revision 	GSDML V2.3
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 V; 20.5 V if IO-Link is used, as the supply voltage for IO-Link devices has to be at least 20 V at the master.
permissible range, upper limit (DC)	28.8 V
power supply according to NEC Class 2 required	No
Input current	
Current consumption, max.	45 mA; without load
Encoder supply	
Number of outputs	4
Output current	
Rated value	700 mA; Per channel
24 V encoder supply	
Short-circuit protection	Yes
 Output current, max. 	2.1 A
Power loss	
Power loss, typ.	1 W
Hardware configuration	
Automatic encoding	Yes
Electronic coding element type H	Yes
Digital outputs	
Cable length	
• unshielded, max.	20 m; Also applies for shielded cables
IO-Link	
Number of ports	4

of which simultaneously controllable IO-Link protocol 1.0
O-Link protocol 1.1
Transmission rate 4.8 kBaud (COM1); 38.4 kBaud (COM2), 230.4 kBaud (COM3) Cycle time, min. 2 ms; dynamic, depending on user data length 32 byte; max. Size of process data, input per module 144 byte; max. Size of process data, output per module 128 byte; max. Memory size for device parameter 2 kbyte; for each port Master backup Yes Configuration without S7-PCT Yes Cable length unshielded, max. 20 m Operating modes IOL-Link DI DI DI No; Only for PROFINET and configuration as version with FW V2.0 or V2. Connection of IO-Link IN/OUT No; Only for PROFINET and configuration as version with FW V2.0 or V2. Connection of IO-Link devices Port type A Yes Olaymostic slarm Yes; The port diagnosis is available in the IO-Link mode only. Piagnoses
Cycle time, min. 2 ms; dynamic, depending on user data length Size of process data, input per port 32 byte; max. Size of process data, input per module 144 byte; max. Size of process data, output per port 32 byte; max. Size of process data, output per port 32 byte; max. Memory size for device parameter 2 kbyte; for each port Master backup Yes Configuration without S7-PCT Cable length unshielded, max. Operating modes • IO-Link • DI • DQ Time Based IO — TIO IO-Link IN — TIO IO-Link OUT — TIO IO-Link NOUT — TIO IO-Link INOUT No; Only for PROFINET and configuration as version with FW V2.0 or V2. Connection of IO-Link devices • Port type A • Port type A • Port type B • via three-wire connection Plagnosses
Size of process data, input per port Size of process data, input per module 144 byte; max. Size of process data, output per port 32 byte; max. Size of process data, output per port 32 byte; max. Size of process data, output per module 128 byte; max. Memory size for device parameter 2 kbyte; for each port Master backup Yes Configuration without S7-PCT Cable length unshielded, max. 20 m Operating modes IO-Link Diagnostics latarm Yes Yes Yes Yes Yes Yes Yes Ye
Size of process data, input per module Size of process data, output per port 32 byte; max. Size of process data, output per module 128 byte; max. Memory size for device parameter 2 kbyte; for each port Master backup Configuration without S7-PCT Yes Cable length unshielded, max. 20 m Operating modes IO-Link DI Time Based IO Time Based IO Time Based IO Time IO-Link IN Tito IO-Link IN Tito IO-Link IN/OUT No; Only for PROFINET and configuration as version with FW V2.0 or V2. TIO IO-Link IN/OUT No; Only for PROFINET and configuration as version with FW V2.0 or V2. TO note that IN/OUT No; Only for PROFINET and configuration as version with FW V2.0 or V2. Port type A Port type A Port type B Ves; 24 V DC via external terminal via three-wire connection Alarms Diagnoses
Size of process data, output per port Size of process data, output per module 128 byte; max. Memory size for device parameter 2 kbyte; for each port Master backup Configuration without S7-PCT Yes Cable length unshielded, max. 20 m Operating modes IO-Link DI DI Time Based IO Time Based IO Time Based IO Time IO-Link IN Tilo IO-Link IN Tilo IO-Link IN/OUT No; Only for PROFINET and configuration as version with FW V2.0 or V2. TIO IO-Link IN/OUT No; Only for PROFINET and configuration as version with FW V2.0 or V2. TO IO-Link IN/OUT No; Only for PROFINET and configuration as version with FW V2.0 or V2. TO HO-Link IN/OUT No; Only for PROFINET and configuration as version with FW V2.0 or V2. Yes Port type A Port type A Port type B via three-wire connection Yes Interrupts/diagnostics/status information Alarms Diagnoses
Size of process data, output per module Memory size for device parameter 2 kbyte; for each port Master backup Configuration without S7-PCT Cable length unshielded, max. Operating modes IO-Link DQ Time Based IO TIO IO-Link IN TIO IO-Link OUT TIO IO-Link NO; Only for PROFINET and configuration as version with FW V2.0 or V2. No; Only for PROFINET and configuration as version with FW V2.0 or V2. No; Only for PROFINET and configuration as version with FW V2.0 or V2. TO IO IO-Link IN/OUT No; Only for PROFINET and configuration as version with FW V2.0 or V2. No; Only for PROFINET and configuration as version with FW V2.0 or V2. No; Only for PROFINET and configuration as version with FW V2.0 or V2. V2.0 or V2. Connection of IO-Link devices Port type A Port type B Ves; 24 V DC via external terminal via three-wire connection Yes Interrupts/diagnostics/status information Alarms Diagnoses Yes; The port diagnosis is available in the IO-Link mode only.
Memory size for device parameter Master backup Configuration without S7-PCT Yes Cable length unshielded, max. Operating modes IO-Link DI DQ Time Based IO Time Based IO Tino Io-Link NUT TIO Io-Link NINOUT No; Only for PROFINET and configuration as version with FW V2.0 or V2. No; Only for PROFINET and configuration as version with FW V2.0 or V2. No; Only for PROFINET and configuration as version with FW V2.0 or V2. TO Io-Link IN/OUT No; Only for PROFINET and configuration as version with FW V2.0 or V2. Yes Port type A Port type A Port type B Ves; 24 V DC via external terminal via three-wire connection Yes Interrupts/diagnostics/status information Alarms Diagnoses
Master backup Configuration without S7-PCT Yes Cable length unshielded, max. Operating modes IO-Link DI DQ Yes DO Yes; max. 100 mA per channel Time Based IO Time Based IO TIO IO-Link IN TIO IO-Link OUT TIO IO-Link OUT TIO IO-Link IN/OUT No; Only for PROFINET and configuration as version with FW V2.0 or V2. No; Only for PROFINET and configuration as version with FW V2.0 or V2. No; Only for PROFINET and configuration as version with FW V2.0 or V2. V2.0 or V2. V3.0 or V2. V4.0 or V2. V5.0 or V2. V6.0 or V2. V7.0 or V2. V8.0 or V3. V8.0 or V3. V8.0 or V3. V8.0 or V3. V8.0 or V4. V8.0 or V4. V8.0 or V4. V8.0 or V5. V8.0 or V6. V8.
Configuration without S7-PCT Cable length unshielded, max. 20 m Operating modes IO-Link DI DQ Yes DQ Yes; max. 100 mA per channel Time Based IO Time Based IO TIO IO-Link IN TIO IO-Link OUT TIO IO-Link OUT TIO IO-Link IN/OUT Connection of IO-Link devices Port type A Port type B Ves Yes Yes Yes Yes Yes Yes Yes
Cable length unshielded, max. Operating modes IO-Link DI DQ Time Based IO Time Based IO TIO IO-Link IN TIO IO-Link NO; Only for PROFINET and configuration as version with FW V2.0 or V2. TIO IO-Link IN/OUT No; Only for PROFINET and configuration as version with FW V2.0 or V2. No; Only for PROFINET and configuration as version with FW V2.0 or V2. TO IO-Link IN/OUT Connection of IO-Link devices Port type A Port type B Ves; 24 V DC via external terminal via three-wire connection Interrupts/diagnostics/status information Alarms Diagnoses Ves; The port diagnosis is available in the IO-Link mode only.
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IO-Link DI Yes DQ Yes; max. 100 mA per channel Time Based IO TIO IO-Link IN No; Only for PROFINET and configuration as version with FW V2.0 or V2. TIO IO-Link OUT No; Only for PROFINET and configuration as version with FW V2.0 or V2. TIO IO-Link IN/OUT No; Only for PROFINET and configuration as version with FW V2.0 or V2. Connection of IO-Link devices Port type A Port type A Port type B via three-wire connection Interrupts/diagnostics/status information Alarms Diagnostic alarm Yes; The port diagnosis is available in the IO-Link mode only. Diagnoses
DI DQ Yes; max. 100 mA per channel Time Based IO — TIO IO-Link IN — TIO IO-Link OUT — TIO IO-Link IN/OUT — TIO IO-Link IN/OUT — TO IO-Link IN/OUT — To IO-Link IN/OUT — No; Only for PROFINET and configuration as version with FW V2.0 or V2. Connection of IO-Link devices Port type A Port type B Yes; 24 V DC via external terminal via three-wire connection Interrupts/diagnostics/status information Alarms Diagnostic alarm Yes; The port diagnosis is available in the IO-Link mode only. Diagnoses
Port type B Port
Time Based IO TIO IO-Link IN No; Only for PROFINET and configuration as version with FW V2.0 or V2. TIO IO-Link OUT No; Only for PROFINET and configuration as version with FW V2.0 or V2. TIO IO-Link IN/OUT No; Only for PROFINET and configuration as version with FW V2.0 or V2. Connection of IO-Link devices Port type A Port type B Yes; 24 V DC via external terminal via three-wire connection Yes Interrupts/diagnostics/status information Alarms Diagnoses Yes; The port diagnosis is available in the IO-Link mode only.
— TIO IO-Link IN — TIO IO-Link OUT — TIO IO-Link OUT — TIO IO-Link IN/OUT No; Only for PROFINET and configuration as version with FW V2.0 or V2. — TIO IO-Link IN/OUT No; Only for PROFINET and configuration as version with FW V2.0 or V2. Connection of IO-Link devices • Port type A • Port type B • Ves; 24 V DC via external terminal • via three-wire connection Alarms • Diagnostic alarm Yes; The port diagnosis is available in the IO-Link mode only. Diagnoses
- TIO IO-Link OUT - TIO IO-Link IN/OUT No; Only for PROFINET and configuration as version with FW V2.0 or V2. Connection of IO-Link devices Port type A Port type B Ves; 24 V DC via external terminal via three-wire connection Interrupts/diagnostics/status information Alarms Diagnoses No; Only for PROFINET and configuration as version with FW V2.0 or V2. Yes Yes Yes Yes Yes; 24 V DC via external terminal Yes The port diagnosis is available in the IO-Link mode only.
— TIO IO-Link IN/OUT No; Only for PROFINET and configuration as version with FW V2.0 or V2.0
Connection of IO-Link devices Port type A Port type B Ves; 24 V DC via external terminal Ves Interrupts/diagnostics/status information Alarms Diagnostic alarm Ves; The port diagnosis is available in the IO-Link mode only. Diagnoses
Port type A Port type B Yes; 24 V DC via external terminal via three-wire connection Yes Interrupts/diagnostics/status information Alarms Diagnostic alarm Yes; The port diagnosis is available in the IO-Link mode only. Diagnoses
Port type B via three-wire connection Yes Interrupts/diagnostics/status information Alarms Diagnostic alarm Pos; 24 V DC via external terminal Yes Yes Yes Yes Yes Yes Yes; The port diagnosis is available in the IO-Link mode only.
via three-wire connection Interrupts/diagnostics/status information Alarms Diagnostic alarm Yes; The port diagnosis is available in the IO-Link mode only. Diagnoses
Interrupts/diagnostics/status information Alarms • Diagnostic alarm Yes; The port diagnosis is available in the IO-Link mode only. Diagnoses
Alarms ■ Diagnostic alarm Yes; The port diagnosis is available in the IO-Link mode only. Diagnoses
Diagnostic alarm Yes; The port diagnosis is available in the IO-Link mode only. Diagnoses
Diagnoses
Monitoring the supply voltage Yes
• Wire-break Yes
Short-circuit Yes
Group error Yes
Diagnostics indication LED
Monitoring of the supply voltage (PWR-LED) Yes; green PWR LED
 Channel status display Yes; one green LED for channel status Qn (SIO mode) and port status Cr Link mode) per channel
• for channel diagnostics Yes; red Fn LED
• for module diagnostics Yes; green/red DIAG LED
Potential separation
Potential separation channels
• between the channels No
between the channels and backplane bus Yes
between the channels and the power supply of the electronics
Isolation
Isolation tested with 707 V DC (type test)
Ambient conditions
Ambient temperature during operation
Ambient temperature during operation ● horizontal installation, min. -30 °C
• horizontal installation, min30 °C
 horizontal installation, min. horizontal installation, max. 60 °C
 horizontal installation, min. horizontal installation, max. vertical installation, min. -30 °C vertical installation, min.
 horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. o °C vertical installation, max. 50 °C
 horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. tertical installation, max. o °C Altitude during operation relating to sea level
 horizontal installation, min. horizontal installation, max. 60 °C vertical installation, min. -30 °C vertical installation, max. 50 °C Altitude during operation relating to sea level Installation altitude above sea level, max. 2 000 m; On request: Installation altitudes greater than 2 000 m
 horizontal installation, min. horizontal installation, max. 60 °C vertical installation, min. 30 °C vertical installation, max. 50 °C Altitude during operation relating to sea level Installation altitude above sea level, max. 2000 m; On request: Installation altitudes greater than 2 000 m Dimensions
 horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. vertical installation, max. o °C tertical installation, max. o °C Altitude during operation relating to sea level Installation altitude above sea level, max. on request: Installation altitudes greater than 2 000 m Dimensions Width 13 mm
 horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. vertical installation, max. o °C Altitude during operation relating to sea level Installation altitude above sea level, max. vertical installation relating to sea level Installation altitude above sea level, max. vertical installation relating to sea level Installation altitudes greater than 2 000 m vertical installation relating to sea level Installation altitudes greater than 2 000 m vertical installation altitudes greater than 2 000 m vertical installation, min. vertical ins
 horizontal installation, min. horizontal installation, max. 60 °C vertical installation, min. vertical installation, max. 50 °C Altitude during operation relating to sea level Installation altitude above sea level, max. 2000 m; On request: Installation altitudes greater than 2 000 m Dimensions Width 13 mm Height 73 mm Depth 58 mm
 horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. vertical installation, max. o °C Altitude during operation relating to sea level Installation altitude above sea level, max. vertical installation relating to sea level Installation altitude above sea level, max. vertical installation relating to sea level Installation altitudes greater than 2 000 m vertical installation relating to sea level Installation altitudes greater than 2 000 m vertical installation altitudes greater than 2 000 m vertical installation, min. vertical ins

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