SIEMENS

Data sheet

6ES7136-6BA00-0CA0

SIMATIC DP, Electronics module for ET 200SP, F-DI 8x 24 V DC HF, 15 mm width, up to PL E (ISO 13849-1)/ SIL3 (IEC 61508)



| General information | |
|---|-------------------------------|
| Product type designation | F-DI 8x24VDC HF |
| usable BaseUnits | BU type A0 |
| Product function | |
| • I&M data | Yes; I&M0 to I&M3 |
| Engineering with | |
| STEP 7 TIA Portal configurable/integrated as of version | V12 |
| STEP 7 configurable/integrated as of version | V5.5 SP3 / - |
| PROFINET as of GSD version/GSD revision | V2.31 |
| Supply voltage | |
| 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 | |
| Current consumption (rated value) | 75 mA; without load |
| Current consumption, max. | 21 mA; From the backplane bus |

| Encoder supply | |
|---|---|
| Number of outputs | 8 |
| Short-circuit protection | Yes; Electronic (response threshold 0.7 A to 1.8 A) |
| Output current | |
| ● up to 60 °C, max. | 0.3 A |
| 24 V encoder supply | |
| • 24 V | Yes; min. L+ (-1.5 V) |
| Short-circuit protection | Yes |
| • Output current, max. | 800 mA; Total current of all encoders |
| Power | |
| Power available from the backplane bus | 70 mW |
| Power loss | |
| Power loss, typ. | 4 W |
| Address area | |
| Address space per module | |
| Inputs | 6 byte |
| Outputs | 4 byte |
| Hardware configuration | |
| Automatic encoding | Yes |
| Electronic coding element type F | Yes |
| Digital inputs | |
| Number of digital inputs | 8 |
| Source/sink input | Yes; P-reading |
| Input characteristic curve in accordance with IEC 61131, type 1 | Yes |
| Input voltage | |
| Rated value (DC) | 24 V |
| ● for signal "0" | -30 to +5 V |
| ● for signal "1" | +15 to +30 V |
| Input current | |
| ● for signal "1", typ. | 3.7 mA |
| Input delay (for rated value of input voltage) | |
| for standard inputs | |
| — parameterizable | Yes |
| — at "0" to "1", min. | 0.4 ms |
| — at "0" to "1", max. | 20 ms |
| — at "1" to "0", min. | 0.4 ms |
| — at "1" to "0", max. | 20 ms |
| for technological functions | |
| — parameterizable | No |
| | |

| shielded, max. unshielded, max. 500 m Interrupts/diagnostics/status information Diagnostics function Ves Aiarma Diagnostic starm Yes Hardware interrupt No Diagnostics indication LED RUN LED Yes; green LED Yes; green/red DIAG LED Potential separation Potential separation channels No between the channels and backplane bus between the channels and backplane bus | Cable length | |
|---|--|---------------------------|
| • unshielded, max.500 mInterrupts/diagnostics/status informationVesAiams• Diagnostic alarmYes• Badgnostic alarmYes• Hadware interruptNoDiagnostic indication LEDVes: green LED• ERNCR LEDYes: green LED• Channel status displayYes: green LED• Channel diagnosticsYes: green LED• Channel diagnosticsYes: green LED• Channel diagnosticsYes: green LED• for module diagnosticsYes: green/red DIAG LEDPotential separationNo• between the channelsNo• between the channelsNo• between the channels and backplane busYes• between the channels and backplane busYes <tr< td=""><td></td><td>1 000 m</td></tr<> | | 1 000 m |
| Interrupts/diagnostics/status information Yes Diagnostics function Yes Aiarms Ves • Diagnostic alarm Yes • Hardware interrupt No Diagnostics indication LED Yes; green LED • RUN LED Yes; green LED • Ronnel status display Yes; green PRR LED • Channel status display Yes; green PRR LED • for channel status display Yes; green PRR LED • for module diagnostics Yes; green/red DIAG LED Potential separation Yes; green/red DIAG LED Potential separation channels No • between the channels and backplane bus Yes Statabe for safety functions Yes Statabe for safety functions Yes Highest safety class achievable in safety mode Image: Same same same same same same same same s | | 500 m |
| Diagnostics function Yes Alarms • Diagnostic clarm Yes • Hardware interrupt No • Diagnostics indication LED • RUN LED Yes; green LED • Renore LED • ERROR LED Yes; green LED • Kes; green LED • Monitoring of the supply voltage (PWR-LED) Yes; green PWR LED • Channel status display • Or channel status display Yes; green LED • Channel status display Yes; green LED • for module diagnostics Yes; green Ved DIAG LED • Potential separation channels • Detween the channels and backplane bus Yes • between the channels and backplane bus Yes No • Detween the channels and backplane bus Yes • between the channels and backplane bus Yes No • Detween the channels and backplane bus Yes • between the channels and backplane bus Yes No • Detween the channels and backplane bus No • between the channels No Yes No • Detween the channels No • between the channels No Yes No • Detwetween the channels No | | |
| Alarms Yes • Diagnostic alarm • ArdWare interrupt • No No Diagnostics indication LED • ReVN LED Yes; green LED • RUN LED • Suphy voltage (PWR-LED) Yes; green PWR LED No • Monitoring of the supply voltage (PWR-LED) Yes; green PWR LED No • Channel status display Yes; green LED Yes; green LED • for module diagnostics Yes; green LED Yes; green LED • for module diagnostics Yes; green LED Yes; green LED • for module diagnostics Yes; green/Yed DIAG LED Yes • for module diagnostics Yes; green/Yed DIAG LED Yes • between the channels • between the channels • between the channels • No Yes • between the channels and backplane bus Yes Yes • Stacc. • IcC 61508 Stacc. • IcC 61508 | | No |
| • Diagnostic alarmYes• Hardware interruptNoDiagnostics indication LEDYes; green LED• RUN LEDYes; green LED• ERROR LEDYes; green PVR LED• Monitoring of the supply voltage (PWR-LED)Yes; green PVR LED• Channel status displayYes; green PVR LED• for channel diagnosticsYes; green IAD• for module diagnosticsYes; green/red DIAG LEDPotential separation channelsYesPotential separation channelsNo• between the channels and backplane busYes• between the channels and the power supply of the electronicsNoIsolationYesIsolation tested with707 V DC (type test)Standards, approvals, certificatesYesSuitable for safety functionsYesHighest safety class achievable in safety modePerformance level according to ISO 13849-1• Detability of failure (for service life of 20 years and repair time of 100 hours) Low demand mode: PFDay in accordance with SL3<1.00E-09 1/h | • | Yes |
| Hardware interrupt No Diagnostics indication LED Yes; green LED • RUN LED Yes; red LED • ROR LED Yes; green FWR LED • Monitoring of the supply voltage (PWR-LED) Yes; green FWR LED • Channel status diplay Yes; green LED • for channel diagnostics Yes; green VED • for channel diagnostics Yes; green VED • for module diagnostics Yes; green/red DIAG LED Potential separation channels No Potential separation channels No • between the channels and backplane bus Yes • between the channels and the power supply of the electronics No solation tested with 707 V DC (type test) Standards, approvals, certificates Yes Standards approvals, certificates Sil acc. to IEC 61508 Sil acc. to IEC 61508 Sil a Probability of failure (for service life of 20 years and "Explain time of 100 hours) - Low demand mode: PFDay in according to ISO 13849-1 PLe • Sil acc. to IEC 61508 Sil a Probability of failure (for service life of 20 years and "Explain time of 100 hours) | | Vaa |
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| • Monitoring of the supply voltage (PWR-LED)Yes; green PWR LED• Channel status displayYes; green LED• for channel diagnosticsYes; red LED• for module diagnosticsYes; green/red DIAG LEDPotential separation channels• between the channelsNo• between the channels and backplane busYes• between the channels and backplane busYes• between the channels and the power supply of the electronicsNoSolationYesSolation tested with707 V DC (type test)Suitable for safety functionsYes• Performance level according to ISO 13849-1PLe• Suitable for safety functionsYes• Preformance level according to ISO 13849-1PLe• Suitable for safety functions mode: PFDavg in accordance with SIL3< 2.00E-05 | | |
| • Channel status display Yes; green LED • for channel diagnostics Yes; red 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 backplane bus Yes • between the channels and the power supply of the electronics No Isolation Isolation tested with Isolation tested with 707 V DC (type test) Status tested with 707 V DC (type test) Suitable for safety functions Yes • 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 <1.00E-09 1/h accordance with SIL3 | | |
| • for channel diagnostics Yes; red 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 No Isolation 707 V DC (type test) Standards, approvals, certificates Ves Suitable for safety functions Yes 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: PFDay in accordance with SIL3 < 2.00E-05 | | |
| • for module diagnostics Yes: green/red DIAG LED Potential separation Vertical separation channels • between the channels No • between the channels and backplane bus Yes • between the channels and the power supply of the electronics No Isolation Yes Isolation tested with 707 V DC (type test) Standards, approvals, certificates Yes Suitable for safety functions Yes Performance level according to ISO 13849-1 PLe Suitable for safety functions Yes Performance level according to ISO 13849-1 PLe Suitable for safety functions Yes Probability of failure (for service life of 20 years and repart time of 100 hours) - Low demand mode: PFDayg in accordance with SIL3 Ambient temperature during operation Ambient temperature during operation • horizontal installation, min. 0 °C • horizontal installation, min. 0 °C • vertical installation, max. 60 °C • vertical installation, max. 0 °C | | - |
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| Potential separation channels No • between the channels and backplane bus Yes • between the channels and the power supply of the electronics No Isolation No Isolation tested with 707 V DC (type test) Standards, approvals, certificates Suitable for safety functions Yes Yes Highest safety class achievable in safety mode Performance level according to ISO 13849-1 • 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 < 1.00E-09 1/h | for module diagnostics | Yes; green/red DIAG LED |
| • between the channels No • between the channels and backplane bus Yes • between the channels and the power supply of the electronics No Isolation No Isolation tested with 707 V DC (type test) Standards, approvals, certificates Yes Suitable for safety functions Yes Highest safety class achievable in safety mode Yes • 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 < 2.00E-05 | Potential separation | |
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| Isolation 707 V DC (type test) Standards, approvals, certificates Suitable for safety functions Yes Highest safety class achievable in safety mode PLe • Performance level according to ISO 13849-11 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 <1.00E-09 1/h | between the channels and the power supply of | No |
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| • Performance level according to ISO 13849-1PLe• SIL acc. to IEC 61508SIL 3Probability of failure (for service life of 20 years and repair time of 100 hours)- Low demand mode: PFDavg in accordance with SIL3< 2.00E-05 | | Yes |
| • 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 < 1.00E-09 1/h | Highest safety class achievable in safety mode | |
| Probability of failure (for service life of 20 years and - Low demand mode: PFDavg in accordance with SIL3 - High demand/continuous mode: PFH in accordance with SIL3< 2.00E-05 | Performance level according to ISO 13849-1 | PLe |
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| accordance with SIL3 — High demand/continuous mode: PFH in accordance with SIL3< 1.00E-09 1/hAmbient conditionsAmbient temperature during operation• horizontal installation, min.0 °C• horizontal installation, max.60 °C• vertical installation, min.0 °C• vertical installation, max.50 °C | Probability of failure (for service life of 20 years and | repair time of 100 hours) |
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| accordance with SIL3 Ambient conditions Ambient temperature during operation • horizontal installation, min. 0 °C • horizontal installation, max. 60 °C • vertical installation, min. 0 °C • vertical installation, max. 50 °C | accordance with SIL3 | |
| Ambient conditions Ambient temperature during operation • horizontal installation, min. 0 °C • horizontal installation, max. 60 °C • vertical installation, min. 0 °C • vertical installation, max. 50 °C | — High demand/continuous mode: PFH in | < 1.00E-09 1/h |
| Ambient temperature during operation • horizontal installation, min. 0 °C • horizontal installation, max. 60 °C • vertical installation, min. 0 °C • vertical installation, max. 50 °C | accordance with SIL3 | |
| • horizontal installation, min.0 °C• horizontal installation, max.60 °C• vertical installation, min.0 °C• vertical installation, max.50 °C | Ambient conditions | |
| horizontal installation, max. vertical installation, min. vertical installation, max. 50 °C | Ambient temperature during operation | |
| vertical installation, min. vertical installation, max. 50 °C | horizontal installation, min. | 0°C |
| • vertical installation, max. 50 °C | horizontal installation, max. | 60 °C |
| | vertical installation, min. | 0 °C |
| | vertical installation, max. | 50 °C |
| Altitude during operation relating to sea level | Altitude during operation relating to sea level | |

• Installation altitude above sea level, max.

4 000 m; Restrictions for installation altitudes > 2 000 m, see manual

| Dimensions | | |
|-----------------|------------|--|
| Width | 15 mm | |
| Height | 73 mm | |
| Depth | 58 mm | |
| Weights | | |
| Weight, approx. | 49 g | |
| Weight, approx. | 45 g | |
| last modified: | 05/09/2020 | |