




SIMATIC S7-1500 digital input/output module, DI16x 24VDC BA, 16 channels in groups of 16, input delay typ. 3.2 ms input type 3 (IEC 61131), DQ16XDC 24V/0.5A BA; 16 channels in groups of 8; 4 A per group; the module supports the safety-oriented shutdown of load groups up to SIL2 according to EN IEC 62061:2021 and Category 2 / PL c according to EN ISO 13849-1:2015. delivery including front connector push-in,

| General information | |
|--|---|
| Product type designation | DI 16x24VDC / DQ16x24VDC/0.5A BA |
| HW functional status | From FS01 |
| Firmware version | V1.0.0 |
| <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 |
| <ul style="list-style-type: none"> Isochronous mode | No |
| <ul style="list-style-type: none"> Prioritized startup | Yes |
| Engineering with | |
| <ul style="list-style-type: none"> STEP 7 TIA Portal configurable/integrated from version | V13 / V13 |
| <ul style="list-style-type: none"> STEP 7 configurable/integrated from version | V5.5 SP3 / - |
| <ul style="list-style-type: none"> PROFIBUS from GSD version/GSD revision | V1.0 / V5.1 |
| <ul style="list-style-type: none"> PROFINET from GSD version/GSD revision | V2.3 / - |
| Operating mode | |
| <ul style="list-style-type: none"> DI | Yes |
| <ul style="list-style-type: none"> Counter | No |
| <ul style="list-style-type: none"> DQ | Yes |
| <ul style="list-style-type: none"> DQ with energy-saving function | No |
| <ul style="list-style-type: none"> PWM | No |
| <ul style="list-style-type: none"> Oversampling | No |
| <ul style="list-style-type: none"> MSI | Yes |
| <ul style="list-style-type: none"> MSO | 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; through internal protection with 7 A per group |
| Input current | |
| Current consumption, max. | 30 mA |
| output voltage / header | |
| Rated value (DC) | 24 V |
| Power | |
| Power available from the backplane bus | 1.1 W |
| Power loss | |
| Power loss, typ. | 3.45 W |
| Digital inputs | |
| Number of digital inputs | 16 |

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| Digital inputs, parameterizable | No |
| Source/sink input | P-reading |
| Input characteristic curve in accordance with IEC 61131, type 3 | Yes |
| Input voltage | |
| <ul style="list-style-type: none"> Rated value (DC) for signal "0" for signal "1" | 24 V -30 to +5 V +11 to +30V |
| Input current | |
| <ul style="list-style-type: none"> for signal "1", typ. | 2.7 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. | No 3 ms 4 ms 3 ms 4 ms |
| for interrupt inputs | |
| <ul style="list-style-type: none"> parameterizable | No |
| Cable length | |
| <ul style="list-style-type: none"> shielded, max. unshielded, max. | 1 000 m 600 m |
| Digital outputs | |
| Type of digital output | Transistor |
| Number of digital outputs | 16 |
| Current-sourcing | Yes |
| Digital outputs, parameterizable | No |
| Short-circuit protection | Yes |
| <ul style="list-style-type: none"> Response threshold, typ. | 1 A |
| Limitation of inductive shutdown voltage to | L+ (-53 V) |
| Controlling a digital input | Yes |
| Switching capacity of the outputs | |
| <ul style="list-style-type: none"> with resistive load, max. on lamp load, max. | 0.5 A 5 W |
| Load resistance range | |
| <ul style="list-style-type: none"> lower limit upper limit | 48 Ω 12 kΩ |
| Output voltage | |
| <ul style="list-style-type: none"> for signal "1", min. | L+ (-0.8 V) |
| Output current | |
| <ul style="list-style-type: none"> for signal "1" rated value for signal "1" permissible range, max. for signal "0" residual current, max. | 0.5 A 0.5 A 0.5 mA |
| Output delay with resistive load | |
| <ul style="list-style-type: none"> "0" to "1", max. "1" to "0", max. | 100 μs 500 μs |
| Parallel switching of two outputs | |
| <ul style="list-style-type: none"> for logic links for uprating for redundant control of a load | Yes No Yes |
| Switching frequency | |
| <ul style="list-style-type: none"> with resistive load, max. with inductive load, max. on lamp load, max. | 100 Hz 0.5 Hz 10 Hz |
| Total current of the outputs | |
| <ul style="list-style-type: none"> Current per channel, max. Current per group, max. Current per module, max. | 0.5 A; see additional description in the manual 4 A; see additional description in the manual 8 A; see additional description in the manual |
| Cable length | |
| <ul style="list-style-type: none"> shielded, max. | 1 000 m |

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| • unshielded, max. | 600 m |
| Encoder | |
| Connectable encoders | |
| • 2-wire sensor | Yes |
| — permissible quiescent current (2-wire sensor), max. | 1.5 mA |
| Interrupts/diagnostics/status information | |
| Diagnostics function | No |
| Substitute values connectable | No |
| Alarms | |
| • Diagnostic alarm | No |
| • Maintenance interrupt | No |
| • Hardware interrupt | No |
| Diagnoses | |
| • Monitoring the supply voltage | No |
| • Wire-break | No |
| • Short-circuit | No |
| • Group error | No |
| Diagnostics indication LED | |
| • RUN LED | Yes; green LED |
| • ERROR LED | Yes; red LED |
| • Monitoring of the supply voltage (PWR-LED) | Yes; green LED |
| • Channel status display | Yes; green LED |
| • for channel diagnostics | No |
| • for module diagnostics | No |
| Potential separation | |
| Potential separation channels | |
| • between the channels | No |
| • between the channels, in groups of | 8 |
| • between the channels and backplane bus | Yes |
| Isolation | |
| Isolation tested with | 707 V DC (type test) |
| Standards, approvals, certificates | |
| Suitable for safety-related tripping of standard modules | Yes; From FS03 |
| Highest safety class achievable for safety-related tripping of standard modules | |
| • Performance level according to ISO 13849-1 | PL d |
| • Category according to ISO 13849-1 | Cat. 3 |
| • SIL acc. to IEC 62061 | SIL 2 |
| Ambient conditions | |
| Ambient temperature during operation | |
| • horizontal installation, min. | -30 °C; from FS04 |
| • horizontal installation, max. | 60 °C |
| • vertical installation, min. | -30 °C; from FS04 |
| • vertical installation, max. | 40 °C |
| Altitude during operation relating to sea level | |
| • Installation altitude above sea level, max. | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual |
| Dimensions | |
| Width | 25 mm |
| Height | 147 mm |
| Depth | 129 mm |
| Weights | |
| Weight, approx. | 280 g |
| Other | |
| Note: | Supplied incl. 40-pole push-in front connectors |
| last modified: | 3/3/2022  |