



SIMATIC S7-1500, digital input module DI 16x24 V DC AUX; 16 channels in groups of 8; for 24 V encoder; sensor supply 24 V DC; input type 2 (IEC 61131); input delay parameterizable 0.05..20 ms; isochronous mode up to 250 µs; integrated counting function up to 20 kHz; pulse stretching; chatter monitoring; signal inversion diagnostics; hardware interrupts: front connector (screw terminals or push-in) and, if applicable, order shield set separately

| General information | |
|--|----------------------------|
| Product type designation | DI 16x24 V DC HS |
| 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 | Yes |
| <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 | STEP 7 V17 or higher |
| <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 | Yes |
| <ul style="list-style-type: none"> Oversampling | Yes |
| <ul style="list-style-type: none"> MSI | 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 |
| Input current | |
| Current consumption, max. | 550 mA |
| Encoder supply | |
| Number of outputs | 16; 2x 24 V DC |
| Short-circuit protection | Yes |
| 24 V encoder supply | |
| <ul style="list-style-type: none"> 24 V | Yes |
| <ul style="list-style-type: none"> Short-circuit protection | Yes; Per group, electronic |
| <ul style="list-style-type: none"> Output current, max. | 150 mA; per group |
| <ul style="list-style-type: none"> Output current per module, max. | 300 mA |
| Power | |
| Power available from the backplane bus | 0.6 W |
| Power loss | |
| Power loss, typ. | 7 W |
| Digital inputs | |

| | |
|--|---|
| Number of digital inputs | 16 |
| Digital inputs, parameterizable | Yes |
| Source/sink input | P-reading |
| Input characteristic curve in accordance with IEC 61131, type 2 | Yes |
| Pulse extension | Yes; 0.05 s, 0.1 s, 0.2 s, 0.5 s, 1 s, 2 s |
| Edge evaluation | Yes; Positive edge, negative edge |
| Signal change flutter | Yes; 2 to 32 signal changes |
| Flutter observation window | Yes; 0.5 s, 1 s to 100 s in 1-s steps |
| Digital input functions, parameterizable | |
| <ul style="list-style-type: none"> • Gate start/stop • Freely usable digital input • Counter <ul style="list-style-type: none"> — Number, max. — Counting frequency, max. — Counting width — Counting direction up/down • Digital input with oversampling <ul style="list-style-type: none"> — Number, max. — Values per cycle, max. — Resolution, min. | <ul style="list-style-type: none"> Yes; software/hardware gate Yes 4; 4 totalizers max. 10 kHz or 2 totalizers max. 20 kHz + 2 totalizers max. 10 kHz 20 kHz 32 bit Yes Yes 16 16 15.625 µs |
| Input voltage | |
| <ul style="list-style-type: none"> • Rated value (DC) • for signal "0" • for signal "1" | <ul style="list-style-type: none"> 24 V -30 to +5 V +11 to +30V |
| Input current | |
| <ul style="list-style-type: none"> • for signal "1", typ. | 9 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. | <ul style="list-style-type: none"> Yes; 0.05 / 0.1 / 0.4 / 0.8 / 1.6 / 3.2 / 12.8 / 20 ms 0.05 ms 20 ms 0.05 ms 20 ms |
| for interrupt inputs | |
| <ul style="list-style-type: none"> — parameterizable | Yes |
| for technological functions | |
| <ul style="list-style-type: none"> — parameterizable | Yes |
| Cable length | |
| <ul style="list-style-type: none"> • shielded, max. • unshielded, max. | <ul style="list-style-type: none"> 1 000 m; 600 m for technological functions; depending on input frequency, encoder and cable quality; max. 50 m at 20 kHz 600 m; for technological functions: No |
| Encoder | |
| Connectable encoders | |
| <ul style="list-style-type: none"> • 2-wire sensor <ul style="list-style-type: none"> — permissible quiescent current (2-wire sensor), max. | <ul style="list-style-type: none"> Yes 2 mA |
| Isochronous mode | |
| Filtering and processing time (TCI), min. | 60 µs; At 50 µs filter time |
| Bus cycle time (TDP), min. | 250 µs |
| Interrupts/diagnostics/status information | |
| Diagnostics function | Yes |
| Alarms | |
| <ul style="list-style-type: none"> • Diagnostic alarm • Hardware interrupt | <ul style="list-style-type: none"> Yes Yes |
| Diagnoses | |
| <ul style="list-style-type: none"> • Monitoring the supply voltage • Monitoring of encoder power supply • Wire-break • Short-circuit | <ul style="list-style-type: none"> Yes Yes; short-circuit Yes; to I < 350 µA No |
| Diagnostics indication LED | |
| <ul style="list-style-type: none"> • RUN LED • ERROR LED | <ul style="list-style-type: none"> Yes; green LED Yes; red LED |

| | |
|--|----------------|
| • Monitoring of the supply voltage (PWR-LED) | Yes; green LED |
| • Channel status display | Yes; green LED |
| • for channel diagnostics | Yes; red LED |
| • for module diagnostics | Yes; red LED |

Potential separation

Potential separation channels

| | |
|--|-----|
| • between the channels | No |
| • between the channels, in groups of | 8 |
| • between the channels and backplane bus | Yes |
| • Between the channels and load voltage L+ | Yes |
| • between the channels and the power supply of the electronics | No |

Isolation

| | |
|-----------------------|----------------------|
| Isolation tested with | 707 V DC (type test) |
|-----------------------|----------------------|

Standards, approvals, certificates

| | |
|-------------------------------|----|
| Suitable for safety functions | No |
|-------------------------------|----|

Ambient conditions

Ambient temperature during operation

| | |
|---------------------------------|--------|
| • horizontal installation, min. | -30 °C |
| • horizontal installation, max. | 60 °C |
| • vertical installation, min. | -30 °C |
| • 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 | 35 mm |
| Height | 147 mm |
| Depth | 129 mm |

Weights

| | |
|-----------------|-------|
| Weight, approx. | 240 g |
|-----------------|-------|

last modified: 5/28/2022 