

**Siemens**  
**EcoTech**



SIMATIC S7-1500 digital input/output module, DI 32x24VDC BA SNK / SRC, 32 channels in groups of 16, input delay typ. 3.2 ms input type 3 (IEC 61131), sinking/sourcing input, DQ 32XDC 24V/0.3A SNK BA; 32 channels in groups of 16; 2 A per group at 60 °C; sourcing output; 35 mm wide; cables and terminal blocks to be ordered separately as accessories



| General information                                         |                                                                                                                                                                                    |
|-------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product type designation                                    | DI 32 x 24 V DC / DQ 32 x 24 V DC/0.3A SNK BA                                                                                                                                      |
| HW functional status                                        | From FS01                                                                                                                                                                          |
| Firmware version                                            | V1.0.0                                                                                                                                                                             |
| • FW update possible                                        | Yes                                                                                                                                                                                |
| Product function                                            |                                                                                                                                                                                    |
| • I&M data                                                  | Yes; I&M0 to I&M3                                                                                                                                                                  |
| • Isochronous mode                                          | No                                                                                                                                                                                 |
| • Prioritized startup                                       | No                                                                                                                                                                                 |
| Engineering with                                            |                                                                                                                                                                                    |
| • STEP 7 TIA Portal configurable/integrated from version    | V16 with HSP 0319 / V17                                                                                                                                                            |
| • STEP 7 configurable/integrated from version               | V5.5 SP3 / -                                                                                                                                                                       |
| • PROFIBUS from GSD version/GSD revision                    | V1.0 / V5.1                                                                                                                                                                        |
| • PROFINET from GSD version/GSD revision                    | V2.35 / -                                                                                                                                                                          |
| Operating mode                                              |                                                                                                                                                                                    |
| • DI                                                        | Yes                                                                                                                                                                                |
| • Counter                                                   | No                                                                                                                                                                                 |
| • DQ                                                        | Yes                                                                                                                                                                                |
| • DQ with energy-saving function                            | No                                                                                                                                                                                 |
| • PWM                                                       | No                                                                                                                                                                                 |
| • Cam control (switching at comparison values)              | No                                                                                                                                                                                 |
| • Oversampling                                              | No                                                                                                                                                                                 |
| • MSI                                                       | Yes                                                                                                                                                                                |
| • MSO                                                       | Yes                                                                                                                                                                                |
| • Integrated operating cycle counter                        | No                                                                                                                                                                                 |
| 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 4 A per group                                                                                                                                |
| external protection for power supply lines (recommendation) | input side: 24 V DC/4 A miniature circuit breaker with type B or C tripping characteristic; output side: 24 V DC/6 A miniature circuit breaker with type B tripping characteristic |
| Input current                                               |                                                                                                                                                                                    |
| Current consumption, max.                                   | 45 mA; without load                                                                                                                                                                |
| output voltage / header                                     |                                                                                                                                                                                    |
| Rated value (DC)                                            | 24 V                                                                                                                                                                               |

|                                                                 |                                                                                        |
|-----------------------------------------------------------------|----------------------------------------------------------------------------------------|
| <b>Power</b>                                                    |                                                                                        |
| Power consumption from the backplane bus                        | 0.6 W                                                                                  |
| <b>Power loss</b>                                               |                                                                                        |
| Power loss, typ.                                                | 4.7 W                                                                                  |
| <b>Digital inputs</b>                                           |                                                                                        |
| Number of digital inputs                                        | 32                                                                                     |
| Digital inputs, parameterizable                                 | No                                                                                     |
| Source/sink input                                               | Yes                                                                                    |
| Input characteristic curve in accordance with IEC 61131, type 3 | Yes                                                                                    |
| Number of simultaneously controllable inputs                    |                                                                                        |
| • Number of simultaneously controllable inputs                  | 32                                                                                     |
| horizontal installation                                         |                                                                                        |
| — up to 60 °C, max.                                             | 32                                                                                     |
| vertical installation                                           |                                                                                        |
| — up to 40 °C, max.                                             | 16                                                                                     |
| Input voltage                                                   |                                                                                        |
| • Rated value (DC)                                              | 24 V                                                                                   |
| • for signal "0"                                                | -5 ... +5 V (reference potential is COM)                                               |
| • for signal "1"                                                | -11 ... -30 V; +11 ... +30 V (reference potential is COM)                              |
| Input current                                                   |                                                                                        |
| • for signal "1", typ.                                          | 2.7 mA                                                                                 |
| Input delay (for rated value of input voltage)                  |                                                                                        |
| for standard inputs                                             |                                                                                        |
| — parameterizable                                               | No                                                                                     |
| — at "0" to "1", min.                                           | 3 ms                                                                                   |
| — at "0" to "1", max.                                           | 4 ms                                                                                   |
| — at "1" to "0", min.                                           | 3 ms                                                                                   |
| — at "1" to "0", max.                                           | 4 ms                                                                                   |
| for interrupt inputs                                            |                                                                                        |
| — parameterizable                                               | No                                                                                     |
| for technological functions                                     |                                                                                        |
| — parameterizable                                               | No                                                                                     |
| Cable length                                                    |                                                                                        |
| • shielded, max.                                                | 1 000 m                                                                                |
| • unshielded, max.                                              | 600 m                                                                                  |
| <b>Digital outputs</b>                                          |                                                                                        |
| Type of digital output                                          | Transistor                                                                             |
| Number of digital outputs                                       | 32                                                                                     |
| Current-sinking                                                 | Yes                                                                                    |
| Current-sourcing                                                | No                                                                                     |
| Digital outputs, parameterizable                                | No                                                                                     |
| Short-circuit protection                                        | No; external fusing necessary, max. 4 A per group, tripping characteristic type B or C |
| Limitation of inductive shutdown voltage to                     | L+ (-53 V)                                                                             |
| Controlling a digital input                                     | Yes                                                                                    |
| Switching capacity of the outputs                               |                                                                                        |
| • with resistive load, max.                                     | 0.3 A                                                                                  |
| • on lamp load, max.                                            | 5 W                                                                                    |
| Load resistance range                                           |                                                                                        |
| • lower limit                                                   | 80 Ω                                                                                   |
| • upper limit                                                   | 10 kΩ                                                                                  |
| Output voltage                                                  |                                                                                        |
| • for signal "1", min.                                          | M+ (0.5 V)                                                                             |
| Output current                                                  |                                                                                        |
| • for signal "1" rated value                                    | 0.3 A                                                                                  |
| • for signal "1" permissible range, max.                        | 0.3 A                                                                                  |
| • for signal "0" residual current, max.                         | 0.5 mA                                                                                 |
| Output delay with resistive load                                |                                                                                        |
| • "0" to "1", max.                                              | 100 μs                                                                                 |
| • "1" to "0", max.                                              | 500 μs                                                                                 |
| Parallel switching of two outputs                               |                                                                                        |

|                                                                |                                                         |
|----------------------------------------------------------------|---------------------------------------------------------|
| • for logic links                                              | Yes                                                     |
| • for uprating                                                 | No                                                      |
| • for redundant control of a load                              | Yes                                                     |
| <b>Switching frequency</b>                                     |                                                         |
| • with resistive load, max.                                    | 100 Hz                                                  |
| • with inductive load, max.                                    | 0.5 Hz; According to IEC 60947-5-1, DC-13               |
| • on lamp load, max.                                           | 10 Hz                                                   |
| <b>Total current of the outputs</b>                            |                                                         |
| • Current per channel, max.                                    | 0.3 A                                                   |
| • Current per group, max.                                      | 2 A                                                     |
| • Current per module, max.                                     | 4 A                                                     |
| <b>Total current of the outputs (per module)</b>               |                                                         |
| <b>horizontal installation</b>                                 |                                                         |
| — up to 60 °C, max.                                            | 4 A                                                     |
| <b>vertical installation</b>                                   |                                                         |
| — up to 40 °C, max.                                            | 4 A                                                     |
| <b>Cable length</b>                                            |                                                         |
| • shielded, max.                                               | 1 000 m                                                 |
| • unshielded, max.                                             | 600 m                                                   |
| <b>Encoder</b>                                                 |                                                         |
| <b>Connectable encoders</b>                                    |                                                         |
| • 2-wire sensor                                                | Yes                                                     |
| — permissible quiescent current (2-wire sensor), max.          | 1.5 mA                                                  |
| <b>Interrupts/diagnostics/status information</b>               |                                                         |
| Diagnostics function                                           | No                                                      |
| Substitute values connectable                                  | No                                                      |
| <b>Alarms</b>                                                  |                                                         |
| • Diagnostic alarm                                             | No                                                      |
| • Maintenance interrupt                                        | No                                                      |
| • Hardware interrupt                                           | No                                                      |
| <b>Diagnoses</b>                                               |                                                         |
| • Monitoring the supply voltage                                | No                                                      |
| • Wire-break                                                   | No                                                      |
| • Short-circuit                                                | No                                                      |
| • Group error                                                  | No                                                      |
| <b>Diagnostics indication LED</b>                              |                                                         |
| • RUN LED                                                      | Yes; green LED                                          |
| • ERROR LED                                                    | Yes; red LED                                            |
| • MAINT LED                                                    | No                                                      |
| • Monitoring of the supply voltage (PWR-LED)                   | Yes; via SIMATIC TOP connect connection module          |
| • Channel status display                                       | Yes; via SIMATIC TOP connect connection module          |
| • for channel diagnostics                                      | No                                                      |
| • for module diagnostics                                       | No                                                      |
| <b>Potential separation</b>                                    |                                                         |
| <b>Potential separation channels</b>                           |                                                         |
| • between the channels                                         | No                                                      |
| • between the channels, in groups of                           | 16; 32 when using SIMATIC TOP connect connection module |
| • between the channels and backplane bus                       | Yes                                                     |
| <b>Isolation</b>                                               |                                                         |
| Isolation tested with                                          | 707 V DC (type test)                                    |
| <b>Standards, approvals, certificates</b>                      |                                                         |
| <b>Ecological footprint</b>                                    |                                                         |
| • environmental product declaration                            | Yes                                                     |
| <b>Global warming potential</b>                                |                                                         |
| — global warming potential, (total) [CO2 eq]                   | 18.9 kg                                                 |
| — global warming potential, (during production) [CO2 eq]       | 12.1 kg                                                 |
| — global warming potential, (during operation) [CO2 eq]        | 7.66 kg                                                 |
| — global warming potential, (after end of life cycle) [CO2 eq] | -1.02 kg                                                |

| product functions / security / header           |                                                      |
|-------------------------------------------------|------------------------------------------------------|
| signed firmware update                          | No                                                   |
| data integrity                                  | 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                                              |
| Dimensions                                      |                                                      |
| Width                                           | 35 mm                                                |
| Height                                          | 147 mm                                               |
| Depth                                           | 129 mm                                               |
| Weights                                         |                                                      |
| Weight, approx.                                 | 250 g                                                |
| Other                                           |                                                      |
| Note:                                           | Please order cable and connection modules separately |
| Classifications                                 |                                                      |

|        | Version | Classification |
|--------|---------|----------------|
| eClass | 14      | 27-24-22-04    |
| eClass | 12      | 27-24-22-04    |
| eClass | 9.1     | 27-24-22-04    |
| eClass | 9       | 27-24-22-04    |
| eClass | 8       | 27-24-22-04    |
| eClass | 7.1     | 27-24-22-04    |
| eClass | 6       | 27-24-22-04    |
| ETIM   | 9       | EC001419       |
| ETIM   | 8       | EC001419       |
| ETIM   | 7       | EC001419       |
| IDEA   | 4       | 3566           |
| UNSPSC | 15      | 32-15-17-05    |

| Approvals / Certificates |                   |
|--------------------------|-------------------|
| General Product Approval | Test Certificates |



[Special Test Certificate](#)

| Marine / Shipping | other | Environment |  |  |  |
|-------------------|-------|-------------|--|--|--|
|-------------------|-------|-------------|--|--|--|



[Confirmation](#)

[Miscellaneous](#)

[Miscellaneous](#)



[Environmental Confirmations](#)

last modified: 10/9/2024