Digital Input/Output Extension Modules xDxT 20x-Tx

Safety Information and Instructions

> **ⓘ IMPORTANT**
>
> To avoid personal injury and device damage, the following instructions must be followed.

- Please read the Module Manual carefully before using the product. The Manual and all corresponding documents can be downloaded from the Selectron Information Platform Symphony Suite. For registration and download, visit http://cockpit.selectron.ch/download.
- Allow only appropriately trained personnel to handle the devices and pay attention to the ESD protection measures.
- Usage restriction: The designated product may only be used in an industrial environment (Class A product) in accordance with specifications in the manuals.
- To ensure a ground connection, a metallic top hat rail must be used. Due to the grounding function of the top hat rail, it must neither be plastic-coated nor anodized. In addition, the top hat rail must be grounded with a large surface area and low-impedance connection.
- To avoid the risk of destroying a module, it must never be mounted or removed under live voltage.
- Before supplying any voltage, make sure that the power supply connector is connected in order to follow the EMC standards.

General Information

This document is applicable for the following Selectron products:

| DIT 201-TW (44430009) Digital Input exTension | DOT 201-TW 44430003 Digital Output exTension | DOT 202-TF 44430011 Digital Output exTension | DOT 203-TF 44430005 Digital Output exTension | DOT 204-TR 44430006 Digital Output exTension | SDIT 201-TW 44430002 SIL Digital Input exTension | SDOT 201-TW 44430007 SIL Digital Output exTension | SDOT 202-TF 44430008 SIL Digital Output exTension |

Manufacturer

Selectron Systems AG | Bernstrasse 70 | 3250 Lyss | Switzerland | www.selectron.ch

Package Content

The package contains:

Article	Number
Device DIT 201-TW or DOT 201-TW or DOT 202-TF or DOT 203-TF or DOT 204-TR or SDIT 201-TW or SDOT 201-TW or SDOT 202-TF	1

Available Acessories see .

State of Delivery

In the state of delivery, the Firmware is already installed. Depending on the device application, further software installation or updates are required. Please refer to the Module Manual for further information.

PRELIMINARY – Data subject to change

Digital Input/Output Extension Modules xDxT 20x-Tx

Technical Data

General

Environmental conditions	
Degree of Protection (IP Code according to IEC 60529)	IP20
Operating temperature according EN50155	-40…+70 °C
Storage temperature	-50…+85 °C
Dry Heat test, extended Temperature Range (10 Minutes); EN50155:2021	+95 °C
Operation altitude (max. with derating)	5000 m. a. s. l.
Operation altitude (no derating)	2000 m. a. s. l.

DIT 201-TW

Digital Inputs	
Number of Inputs	16
Galvanic groups	1
Inputs per galvanic group	16
Nominal signal voltage (VIN)	24…110 V DC
Limit Values	± 138 V DC
Input Threshold Low	
When signal = 0	≤ 5 V DC
When signal = 1	≥ 14 V DC
Input Threshold High	
When signal = 0	≤ 15 V DC
When signal = 1	≥ 30 V DC
Input current when signal = 1	
Continuous input current	(typically) 1 mA
Fritting duration at input state change 0 → 1	1 ms
Fritting duration at periodical fritting	20 ms
Time between two periodical fritting pulses	10 s
Minimum update Time (each signal change will trigger update)	10 ms
Input Delay Time	
Minimum pulse/pause length	5 ms
Maximum input frequency	50 Hz

SDIT 201-TW

Digital Inputs	
Number of Inputs	12
Galvanic groups	1
Inputs per galvanic group	12
Nominal signal voltage (VIN)	24…110 V DC
Limit Values	± 138 V DC
When signal = 0	≤ 25 % of US
When signal = 1	≥ 55 % of US
Input current when signal = 1	
Continuous input current	(typically) 1 mA
Fritting duration at input state change 0 → 1	1 ms
Fritting duration at periodical fritting	20 ms

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Digital Input/Output Extension Modules xDxT 20x-Tx

Digital Inputs	
Time between two periodical fritting pulses	10 s
Minimum update Time (each signal change will trigger update)	10 ms
Input Delay Time	
Minimum pulse/pause length	5 ms
Maximum input frequency	50 Hz

DOT 201-TW

Digital Outputs	
Number of Outputs	16
Galvanic groups	1
Outputs per galvanic group	16
Max. output current per channel	0.5 A
Total current per output group	8 A
Blocking diode (output reverse current protection)	no
Parallel outputs allowed	no
Short-circuit monitoring	
Outputs per short-circuit group	2
Short-circuit monitoring groups per module	8
Overload Protection	yes
Max. Switching frequency - Resistive load	50 Hz
Max. Switching frequency - Inductive load	2 Hz

DOT 202-TF

Digital Outputs	
Number of Outputs	16
Galvanic groups	2
Outputs per galvanic group	8
Max. output current per channel	2 A
Total current per output group	8 A
Blocking diode (output reverse current protection)	no
Parallel outputs allowed	no
Short-circuit monitoring	
Outputs per short-circuit group	4
Short-circuit monitoring groups per module	4
Overload Protection	yes
Max. Switching frequency - Resistive load	50 Hz
Max. Switching frequency - Inductive load	2 Hz

DOT 203-TF

Digital Outputs	
Number of Outputs	16
Galvanic groups	2
Outputs per galvanic group	8
Max. output current per channel	0.25 A
Total current per output group	2 A
Blocking diode (output reverse current protection)	yes

PRELIMINARY – Data subject to change

Digital Input/Output Extension Modules xDxT 20x-Tx

Digital Outputs	
Parallel outputs allowed	yes
Short-circuit monitoring	
Outputs per short-circuit group	4
Short-circuit monitoring groups per module	4
Overload Protection	yes
Max. Switching frequency - Resistive load	50 Hz
Max. Switching frequency - Inductive load	2 Hz

DOT 204-TR

Relais Outputs	
Number of Outputs	8
Galvanic groups	8
Outputs per galvanic group	1
Output type	2 switchover contacts; 6 Normaly Open contacts
Output switching element	Relais
Switching voltage AC max.	250 V AC
Switching voltage DC max.	154 V DC
Insulation between Relais Outputs	Basic
Insulation between Relais Outputs and Logic	Reinforced
Min. switching current	8 mA
Max. output current per channel	4 (see load limits) A
Overload Protection	yes
Max. Switching rate at max. load	0.1 Hz
Max. Switching rate without load	20 Hz
Mechanical service life	> 20 × 10^6 switching cycles cycles

SDOT 201-TW

Digital Outputs	
Number of Outputs	12
Galvanic groups	1
Outputs per galvanic group	12
Max. output current per channel	0.5 A
Total current per output group	4 A
Blocking diode (output reverse current protection)	no
Parallel outputs allowed	no
Short-circuit monitoring	
Outputs per short-circuit group	1
Short-circuit monitoring groups per module	12
Overload Protection	yes
Max. Switching frequency - Resistive load	50 Hz
Max. Switching frequency - Inductive load	2 Hz
Safe State	outputs switched off

SDOT 202-TF

Digital Outputs	
Number of Outputs	16

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Digital Outputs	
Galvanic groups	1
Outputs per galvanic group	16
Max. output current per channel	2 A
Total current per output group	8 A
Blocking diode (output reverse current protection)	no
Parallel outputs allowed	no
Short-circuit monitoring	
Outputs per short-circuit group	1
Short-circuit monitoring groups per module	16
Overload Protection	yes
Max. Switching frequency - Resistive load	50 Hz
Max. Switching frequency - Inductive load	2 Hz
Safe State	outputs switched off

Power Supply

The module is powered from the connected xDDE or xCPU module via the Ethernet Extension Bus (EBus), it has no separate external power supply.

Grounding

Functional grounding is provided through the device housing. The earth connection at the power supply connector serves exclusively as protective grounding.

Power Consumption

The typical power consumption on the EBus of the module is < 1 W.

PRELIMINARY – Data subject to change

Digital Input/Output Extension Modules xDxT 20x-Tx

Terminal Assignment

DIT 201-TW

Signal type	Description	Contact on TBA
DI00…DI07	Inputs on Terminal connector X1	X1: 00…07
DI08…DI15	Inputs on Terminal connector X2	X2: 00…07
0V	Ground reference for all inputs	X2: 09
	Unused contacts	X1: 08…09 X2: 08

SDIT 201-TW

Signal type	Description	Contact on TBA
DI00…DO07	Inputs on Terminal connector X1	X1: 00…07
DI08…DO11	Inputs on Terminal connector X2	X2: 00…03
0V	Ground reference for all inputs	X2: 09
	Unused contacts	X1: 08…09 X2: 04…07

DOT 201-TW

Signal type	Description	Contact on TBA
DO00…DO07	Outputs on Terminal connector X1	X1: 00…07
DO08…DO15	Outputs on Terminal connector X2	X2: 00…07
US	External Power Supply for all outputs	X2: 08
0V	Ground reference for all outputs	X2: 09
	Unused contacts	X1: 08…09

DOT 202-TF

Signal type	Description	Contact on TBA
DO00…DO07	Outputs on Terminal connector X1	X1: 00…07
DO08…DO15	Outputs on Terminal connector X2	X2: 00…07
US1	External Power Supply for all outputs on X1	X1: 08
0V1	Ground reference for outputs on X1	X1: 09
US2	External Power Supply for all outputs on X2	X2: 08
0V2	Ground reference for outputs on X2	X2: 09

DOT 203-TF

Signal type	Description	Contact on TBA
DO00…DO07	Outputs on Terminal connector X1	X1: 00…07
DO08…DO15	Outputs on Terminal connector X2	X2: 00…07
US1	External Power Supply for all outputs on X1	X1: 08
0V1	Ground reference for outputs on X1	X1: 09
US2	External Power Supply for all outputs on X2	X2: 08
0V2	Ground reference for outputs on X2	X2: 09

PRELIMINARY – Data subject to change

Digital Input/Output Extension Modules xDxT 20x-Tx

DOT 204-TR

Signal type	Description	Contact on TBA
NO00…CM03	Relay contacts on Terminal connector X1	X1: 00…09
NO04…CM07	Relay contacts on Terminal connector X2	X2: 00…07
US	External Power Supply for all relays	X2: 08
0V	Ground reference for relays	X2: 09

SDOT 201-TW

Signal type	Description	Contact on TBA
DO00…DO07	Outputs on Terminal connector X1	X1: 00…07
DO08…DO11	Outputs on Terminal connector X2	X2: 00…03
US	External Power Supply for all outputs	X2: 08
0V	Ground reference for outputs	X2: 09
	Unused contacts	X1: 08…09 X2: 04…07

SDOT 202-TF

Signal type	Description	Contact on TBA
DO00…DO07	Outputs on Terminal connector X1	X1: 00…07
DO08…DO15	Outputs on Terminal connector X2	X2: 00…07
US	External Power Supply for all outputs	X2: 08
0V	Ground reference for outputs	X2: 09
	Unused contacts	X1: 08…09

PRELIMINARY – Data subject to change

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Digital Input/Output Extension Modules xDxT 20x-Tx

Dimensions

PRELIMINARY – Data subject to change
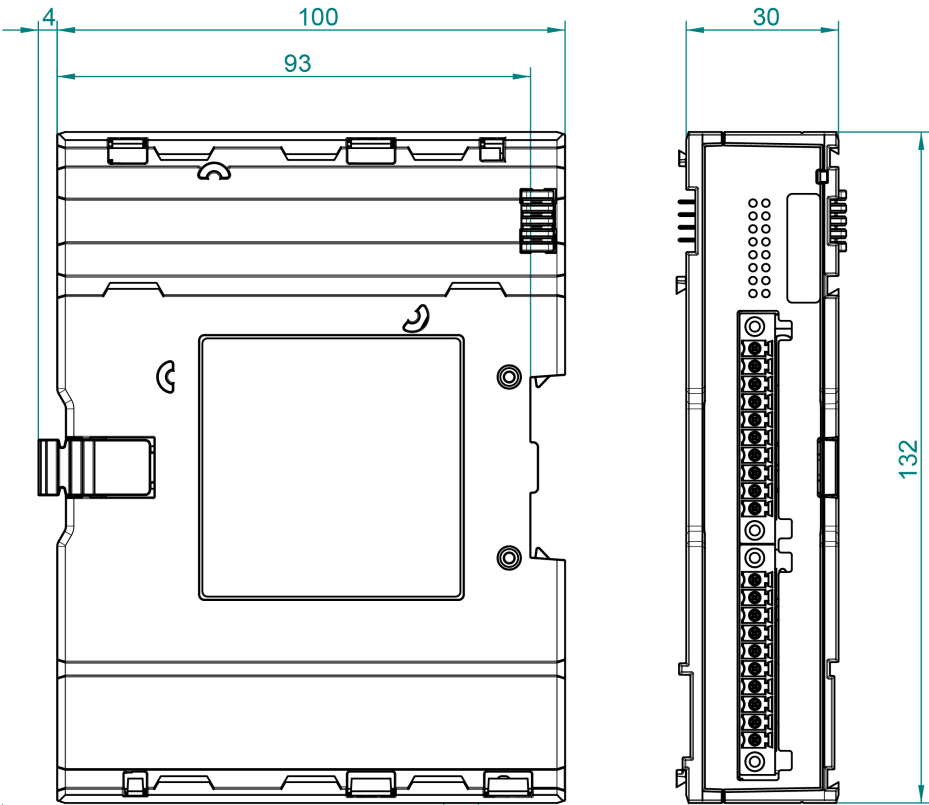
# Digital Input/Output Extension Modules xDxT 20x-Tx

Installation / Mounting

Required tools and accessories:

- Slotted screwdriver (3.0 × 100) for the fixation of the end bracket.
- If required: Contact Protection Plate CPP 201 and end bracket EBS 270/TS for the fixation on the right side of the module island.

> **ℹ NOTE**
>
> For the wiring it is recommended to temporarily place a flat plate on the upper ventilation slots as protection against the ingress of foreign materials (e. g. insulation residues). After wiring, the plate must be removed again for proper operation (air passage must be free during operation).
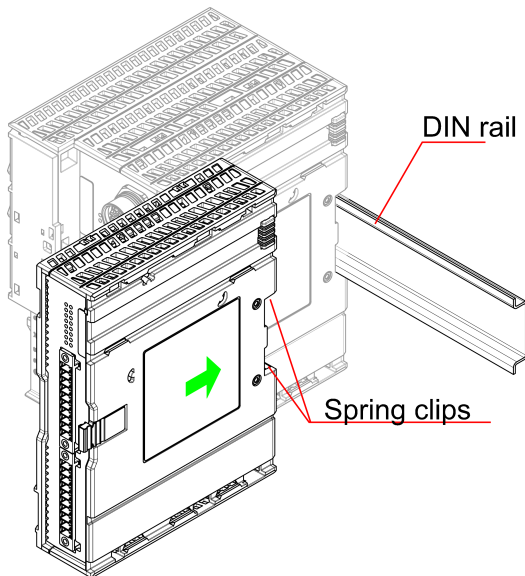
Align and insert the upper and lower guides on the left-hand side of the housing into the grooves of the adjacent module on the DIN rail. Push the module until the spring clips snap onto the DIN rail.

DIN rail

Spring clips
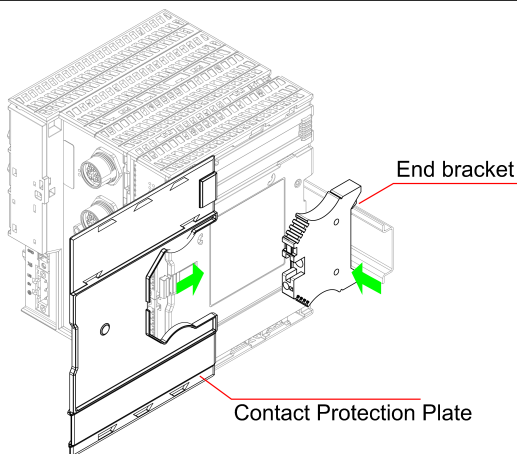

If required: Mount the next module as described above.
In case that no additional module is required, mount and fix the Contact Protection Plate and another end bracket from the right side of the extension module.

End bracket

Contact Protection Plate

> **ℹ NOTE**
>
> Please refer to Module Manual for complete and detailed installation instructions.
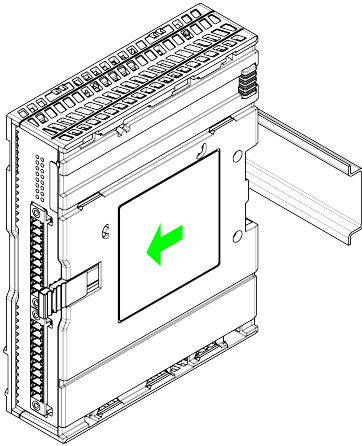
Digital Input/Output Extension Modules xDxT 20x-Tx

Deinstallation
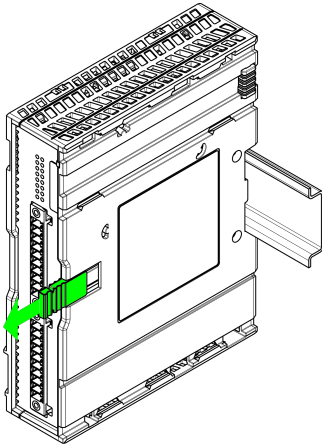
Turn off the Power Supply of the connected xCPU or xDDE to ensure the absence of voltage.
If used: Remove Cable Bundling Aid, Contact Protection Plate and/or end bracket from the module.
Pull the Lock/Unlock Lever.

Remove the module from the DIN rail.

ℹ NOTE

Please refer to Module Manual for complete and detailed installation instructions.

PRELIMINARY – Data subject to change

Digital Input/Output Extension Modules xDxT 20x-Tx

Storage and Disposal

Storage of the Equipment

The rooms in which the **packaged** equipment is stored must have the following properties:

- well ventilated and vibration free
- Protection against moisture, frost, heat, dust, and sand (for temperature values, see the Technical Data chapter)
- Protection from vermin, rodents, termites, etc.
- the relative humidity must not fall below 20% and must not exceed 75%
- the relative humidity must not change by more than 15% within 24 hours

Decommissioning and Disposal

At the end of their service life, the corresponding modules must be replaced with new ones in a professional manner and the old ones disposed of according to local, regional and national regulations.

The modules and components comply with EU Directive 2011/65/EU RoHS.

Electronic waste must be disposed of according to the current legal regulations of the respective countries. In addition, it is possible to send old equipment to Selectron Systems AG for disposal.

Available Accessories

Product Name	Art. No.	Description
TBA 201	44470003	Connection terminal block with 10 positions to be used as I/O signal, US, 0V and/or GND connections (depending on module), single connections, Screw locking mechanism
TBA 211	44470005	Connection terminal block with 10 positions to be used as I/O signal, US, 0V and/or GND connections (depending on module), Push-in spring connection, Double Connections, Screw locking mechanism
EBS 270/TS	44470011	End bracket for Horizontal Fixation
CBA 201	44470015	Cable Bundling Aid
CPP 201	44470012	Contact Protection Plate

PRELIMINARY – Data subject to change