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Find the *Schneider Electric / Telemecanique Advantys STB-PDT-3100* at our website: *Click HERE*

# Advantys STB distributed I/O solution

## Internal bus extension modules

### Characteristics, auxiliary and bus extension power supplies

| Type of module | | | 24 V ⎓/5 V ⎓ auxiliary power supply STB CPS 2111 | EOS internal bus extension STB XBE 1100 | BOS internal bus extension STB XBE 1300 | Bus extension to external CANopen devices STB XBE 2100 |
|---|---|---|---|---|---|---|
| **Power supply** | | **V** | 24 ⎓ not isolated | – | 24 ⎓ not isolated | – |
| **Operating temperature, horizontal mounting** | | **°C** | -25 to 70 *(1)* | -25 to 70 | -25 to 70 *(1)* | 0 to 60 |
| **Current consumption on 5 V ⎓ logic bus** | | **mA** | – | 25 | – | 100 |
| **Connectors** | **Power supply** | | 2 removable pins | – | 2 removable pins | – |
| | Interface | | – | Firewire | Firewire | 5 removable pins |
| **Input current** | | **mA** | 400 | – | 400 | – |
| **Voltage range** | | **V** | 19.2 to 30 ⎓ *(1)* | – | 19.2 to 30 ⎓ *(1)* | – |
| **Output voltage** | | **V** | 5.25 ⎓ ± 0.21% | – | 5.25 ⎓ ± 0.21% | – |
| **Output current** | | **A** | 1.2 at 5 V ⎓ *(2)* | – | 1.2 at 5 V ⎓ *(2)* | – |
| **Isolation** | | | No | | | |
| **Immunity to electromagnetic disturbance (EMC)** | | | Yes according to IEC 61131-2 | | | |




*STB XBE 1100*




*STB XBE 1300*

The STB CPS 2111 should be associated with an STB PDT ●10● power supply module.

### References

| Description | Use with standard STB | Reference | Weight kg |
|---|---|---|---|
| **EOS internal bus extension module** | Installed at the end of the segment (except for the last segment on the island) | **STB XBE 1100** *(3)* | – |
| **BOS internal bus extension module** | Installed at the beginning of each extension segment | **STB XBE 1300** *(4)* | – |
| **Bus extension module to external CANopen devices** | Installed at the end of the last segment to connect standard CANopen devices | **STB XBE 2100** | – |

#### Auxiliary power supply

| Description | Content | Reference | Weight kg |
|---|---|---|---|
| **24 V ⎓/5 V ⎓ 1.2 A auxiliary power supply** *(5)* | screw-type and spring-type | **STB CPS 2111 K** | – |
| | Module only | **STB CPS 2111** | – |




*STB XBE 2100*




*STB CPS 2111*

*(1) STB CPS 2111 and STB XBE 1300 modules:*
*- range -25 to 0° C: the power supply voltage range is ⎓ 20.4 to 30 V.*
*- range 0 to 60° C: the power supply voltage range is ⎓ 19.2 to 30 V.*
*- range 60 to 70° C: the power supply voltage range is ⎓ 19.2 to 26.5 V.*
*(2) 900 mA for operating temperatures in the range 60 to 70°C.*
*(3) Replaces EOS extension module STB XBE 1000.*
*(4) Replaces BOS extension module STB XBE 1200.*
*(5) Power supply for the I/O module logic, in addition to the 5 V ⎓ 1.2 A power supplies integrated in the NIM network interface module and the BOS bus extension module. Installed in the the primary segment or the extension segments.*



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# Advantys STB distributed I/O solution
## Internal bus extension modules



*STB XBA 2●00*

**Bus extensions: mandatory separate parts**

| Description | Used for | Reference | Weight kg |
|---|---|---|---|
| **Module bases** (width 18.4 mm) | STB XBE 1100 | **STB XBA 2400** | 0.028 |
| | STB XBE 1300 | **STB XBA 2300** | 0.033 |
| | STB XBE 2100 | **STB XBA 2000** | 0.028 |
| | STB CPS 2111 | **STB XBA 2100** | 0.033 |

| Description | Used for | Type | Sold in lots of | Reference | Weight kg |
|---|---|---|---|---|---|
| **2-way removable terminals for 24 V ⎓ supply** *(1)* | STB XBE 1200 | Screw-type | 10 | **STB XTS 1120** | – |
| | | Spring-type | 10 | **STB XTS 2120** | – |
| **5-way removable terminals** *(1)* | STB XBE 2100 | Screw-type | 20 | **STB XTS 1110** | 0.006 |
| | | Spring-type | 20 | **STB XTS 2110** | 0.006 |

| Description | Length | Reference | Weight kg |
|---|---|---|---|
| **Island bus extension cables** | 0.3 m | **STB XCA 1001** | – |
| | 1.0 m | **STB XCA 1002** | – |
| | 4.5 m | **STB XCA 1003** | – |
| | 10.0 m | **STB XCA 1004** | – |
| | 14.0 m | **STB XCA 1006** | – |

**Bus extensions: optional separate parts**

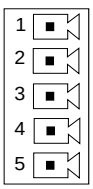
| Description | Used for | Type | | Reference | Weight kg |
|---|---|---|---|---|---|
| **Keying pin** | Modules | – | 60 | **STB XMP 7700** | – |
| | Removable terminals | – | 96 | **STB XMP 7800** | – |
| **User-customizable labels** *(2)* | I/O modules and bases | – | 25 sheets | **STB XMP 6700** | – |
| **2.5 mm insulated screwdriver** | Removable screw terminals | Chrome vanadium steel | – | **STB XTT 0220** | – |

## CANopen extension connection

**STB XBE 2100: schematic connection diagram** *(3)*

The CANopen interface fieldbus is located on the front of the STB XBE 2100 extension module.

The pinout should be as indicated in the table below:




| Pin | Signal |
|---|---|
| 1 | CAN earth (0 V) |
| 2 | CAN low bus signal |
| 3 | Optional CAN shielding |
| 4 | CAN high bus signal |
| 5 | No connection *(4)* |

*(1) All the STB XTS ●●●● connectors can accommodate a flexible wire with a maximum cross-section of 1.5 mm², including the cable end. Max. tightening torque = 0.25 Nm for screw-type connectors.*
*(2) Template for user-customizable labels:*
*- Supplied with the documentation mini-CD-ROM provided with the NIM network interface modules*
*- Available on our website www.schneider-electric.com.*
*(3) Observe all the recommendations in the "Advantys STB System Hardware Components Reference Guide", included on the STB SUS 8800 CD-ROM and available on our website www.schneider-electric.com.*
*(4) This spare pin can be used to distribute the 24 V of external devices.*


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# Advantys STB distributed I/O solution
## Power distribution modules

### Presentation

**Basic** power distribution modules (PDM) (STB PDT ●105) provide power for the I/O module sensors and actuators (1) via the same bus **3**.

Two basic PDMs are available:
- The STB PDT 3105 module is dedicated to providing power to the I/O module sensors and actuators requiring a 24 V c power supply.
- The STB PDT 2105 module is dedicated to providing power to the I/O module sensors and actuators requiring a 115/230 V a power supply.

Each module has 1 removable fuse.

**Standard** power distribution modules (STB PDT ●100) provide power separately for the I/O module sensors and actuators (1) via the sensor bus **1** and the actuator bus **2**.

Two standard PDMs are available:
- The STB PDT 3100 module is dedicated to providing power separately to the I/O module sensors and actuators requiring a 24 V c power supply.
- The STB PDT 2100 module is dedicated to providing power separately to the I/O module sensors and actuators requiring a 115/230 V a power supply.

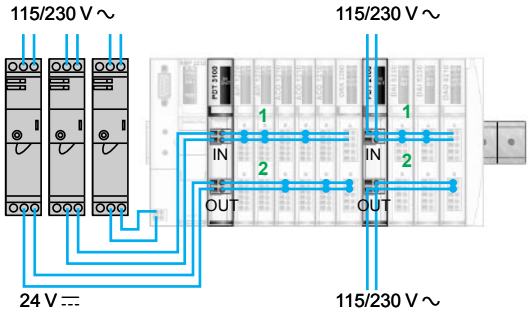
Each module has 2 removable fuses.


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# Advantys STB distributed I/O solution
## Power distribution modules

### Connecting the power supplies

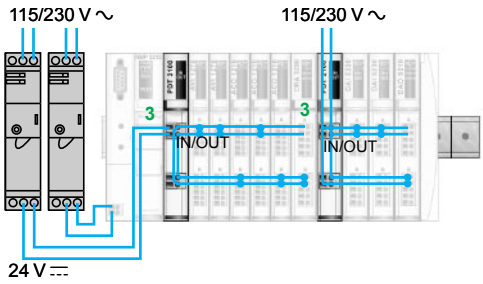
#### Three separate power supplies




*Configuration with standard PDM*

This configuration allows:
- Disconnection of the I/O power supply while maintaining the power supply to the network interface module (NIM) and thus to the machine bus (for example, in a NIM InterBus configuration).
- Isolation of the output power from the inputs to increase immunity to electromagnetic interference.
- Power supply independent of the outputs, enabling connection of a Preventa module. If these outputs are disconnected, the inputs continue to be managed.

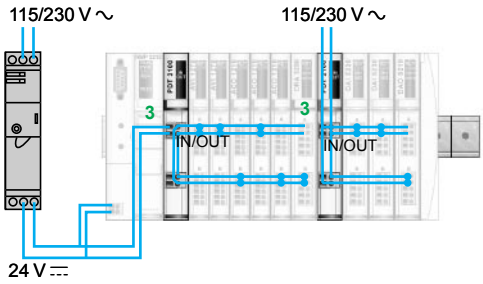
#### Separate NIM module and I/O power supplies




*Configuration with basic PDM*

This configuration allows disconnection of the I/O power supply while maintaining the power supply to the NIM module and thus to the machinebus (for example, in a NIM InterBus configuration).

#### One single power supply




*Configuration with basic PDM*

Low-cost configuration with a single power supply for the NIM module, sensor bus, and actuator bus.

*(1) One power distribution module can supply power to both digital and analog I/O modules simultaneously.*

# Advantys STB distributed I/O solution

## Power distribution modules

**Choice of PDM based on I/O modules**

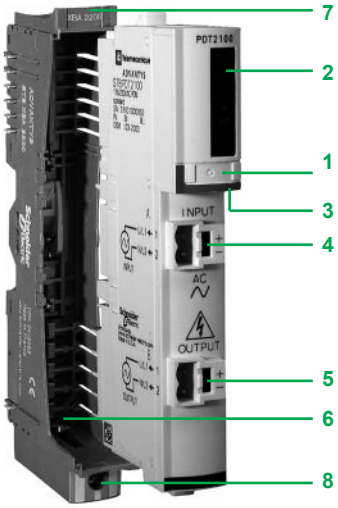
| Power distribution module | Voltage | STB I/O modules | | | | | | STB bus extension modules *(1)* |
|---|---|---|---|---|---|---|---|---|
| | | Digital (*discrete*) | | | Analog | | App. specific | |
| | | Inputs | Outputs | | Inputs | Outputs | | |
| | | | Solid state | Relay | | | | |
| **STB PDT 3100** | 24 V ⎓ | DDI 3230<br>DDI 3420<br>DDI 3610<br>DDI 3425<br>DDI 3615<br>DDI 3725 | DDO 3200<br>DDO 3230<br>DDO 3410<br>DDO 3600<br>DDO 3415<br>DDO 3605<br>DDO 3705 | DRC 3210<br>DRA 3290 | AVI 1255<br>AVI 1275<br>AVI 1270<br>AVI 0300<br>AVI 1400<br>ACI 1225<br>ACI 1230<br>ACI 0320<br>ACI 8320<br>ACI 1400<br>ART 0200 | AVO 1255<br>AVO 1265<br>AVO 1250<br>AVO 0200<br>AVO 0120<br>ACO 1225<br>ACO 1210<br>ACO 0220 | EPI 1145<br>EPI 2145<br>EHC 3020 | XBE 1100<br>XBE 1300<br>XBE 2100<br>XBE 1000<br>XBE 1200 |
| **STB PDT 2100** | 115 V ∿ | DAI 5230<br>DAI 5260 | DAO 8210<br>DAO 5260 | – | – | – | – | |
| | 230 V ∿ | DAI 7220 | DAO 8210 | – | – | – | – | |
| **STB PDT 3105** | 24 V ⎓ | DDI 3230<br>DDI 3420<br>DDI 3610<br>DDI 3425<br>DDI 3615 | DDO 3200<br>DDO 3230<br>DDO 3410<br>DDO 3600<br>DDO 3415<br>DDO 3605 | DRC 3210<br>DRA 3290 | AVI 1255<br>AVI 1275<br>AVI 1270<br>AVI 0300<br>AVI 1400<br>ACI 1225<br>ACI 1230<br>ACI 0320<br>ACI 8320<br>ACI 1400<br>ART 0200 | AVO 1255<br>AVO 1265<br>AVO 1250<br>AVO 0200<br>AVO 0120<br>ACO 1225<br>ACO 1210<br>ACO 0220 | EPI 1145<br>EPI 2145<br>EHC 3020 | |
| **STB PDT 2105** | 115 V ∿ | DAI 5230<br>DAI 5260 | DAO 8210<br>DAO 5260 | – | – | – | – | |
| | 230 V ∿ | DAI 7220 | DAO 8210 | – | – | – | – | |

*(1) STB bus extension modules can be connected to any PDM.*



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# Advantys STB distributed I/O solution
## Power distribution modules




(STB PDT ●100 standard module only)

(STB PDT ●100 standard module only)

## Description

The front panel of the STB PDT ●10● power distribution modules features:

1 A slot for a user-customizable label

2 A status block with 2 display LEDs (STB PDT 2100/3100 standard modules only):

| Indication | Basic PDM modules | Standard PDM modules |
|---|---|---|
| **Sensor bus power supply** *(1)* | – | Green IN LED |
| **Actuator bus power supply** *(1)* | – | Green OUT LED |

3 A colour-coded module identification stripe (red for 115/230 V ∿, blue for 24 V ⎓)

4 A connector for removable screw-type terminals (STB XTS 1130) or spring-type terminals (STB XTS 2130) used to connect:

□ The sensor power supply for STB PDT 2100/3100 standard modules

□ The sensor/actuator power supply for STB PDT 2105/3105 basic modules

5 A connector for removable screw-type terminals (STB XTS 1130) or spring-type terminals (STB XTS 2130) used to connect the actuator power supply (STB PDT 2100/3100 standard module only)

6 An STB XBA 2200 mounting base, width 18.4 mm.
This base features:

7 A slot for a user-customizable label

8 A captive earthing screw

The STB SUS 8800 CD-ROM contains two documentation sets for the power distribution modules in 5 languages:

■ "System Hardware Components Reference Guide"

■ "System Planning and Installation Guide"

These documents can also be downloaded from www.schneider-electric.com.

*(1) IN/OUT LED on: Power supply present on digital I/O modules.*
*IN/OUT LED off: No external power supply or removable fuse inside the PDM has blown.*
*Refer to the "System Hardware Components Reference Guide" included on the STB SUS 8800 CD-ROM or available from our website: www.schneider-electric.com.*

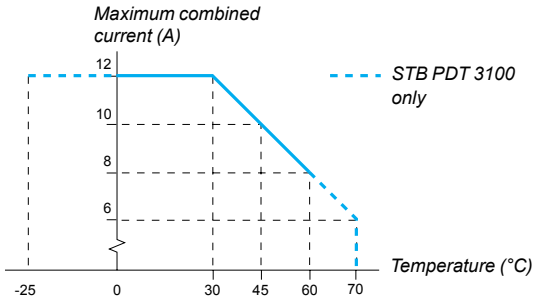

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# Advantys STB distributed I/O solution
## Power distribution modules

### Power distribution modules, characteristics

| Module type | | | STB PDT 3100 | STB PDT 2100 | STB PDT 3105 | STB PDT 2105 |
|---|---|---|---|---|---|---|
| Range | | | Standard | | Basic | |
| **Supply voltage** | | **V** | 24 ⎓ *(1)* | 115/230 ∿ | 24 ⎓ | 115/230 ∿ |
| **Operating temperature, horizontal mounting** | | **°C** | -25 to 70 *(1)* | -25 to 60 | | |
| **Maximum current** | For inputs | **A** | 4 *(3)* | 5 to 30°C<br>2.5 to 60°C | – | – |
| | For outputs | **A** | 8 *(3)* | 10 to 30°C<br>5 to 60°C | – | – |
| | For inputs/outputs | **A** | 6 to 12 according to derating *(3)* | – | 4 to 30°C<br>2.5 to 60°C | 4 |
| **Sensor/actuator bus voltage range** | | **V** | 19.2 to 30 ⎓ *(2) (3)* | 85 to 265 ∿ *(4)* | 19.2 to 30 ⎓ | 85 to 265 ∿ |
| **Hot swapping** | | | No | | | |
| **Nominal consumption** | | **mA** | 0 on 5 V ⎓ logic power supply | | | |
| **Reverse polarity protection** | | | Yes, on the actuator bus | – | Yes, on the actuator bus | – |
| **Built-in overcurrent protection** | For inputs | | By a 5 A time-lag fuse *(6)* | | | |
| | For outputs | | By a 10 A time-lag fuse *(6)* | | By a 5 A time-lag fuse *(6)* | |
| **Maximum current on the earthing terminal** | | **A** | 30 for 2 minutes | | | |
| **Voltage-detection thresholds** | IN/OUT LED on | | ⩾ 15 V ± 1 V ⎓ | > 70 V ± 5 V ∿ | – | |
| | IN/OUT LED off | | < 15 V ± 1 V ⎓ | < 50 V ± 5 V ∿ | – | |
| **Mounting base** (included in kits) | | | STB XBA 2200 width 18.4 mm | | | |

*(1) Use 24 V ⎓ safety extra low voltage (SELV) external power supplies.*
*(2) STB PDT 3100 module only:*
*- range -25 to 0° C: the power supply voltage range is ⎓ 20.4 to 30 V.*
*- range 0 to 60° C: the power supply voltage range is ⎓ 19.2 to 30 V.*
*- range 60 to 70° C: the power supply voltage range is ⎓ 19.2 to 26.5 V.*
*(3) Take into account the total input and output currents: combined current.*




*(4) DC power supplies can be shared or separate, or shared with the 24 V ⎓ power supply of the network interface module.*
*(5) AC power supplies for a given distribution module from a 3-phase transformer must be connected at the same phase.*
*(6) Built-in fuse on the power distribution module. Can be replaced with the STB XMP 5600 fuse kit.*


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# Advantys STB distributed I/O solution
## Power distribution modules



STB XBA 2200



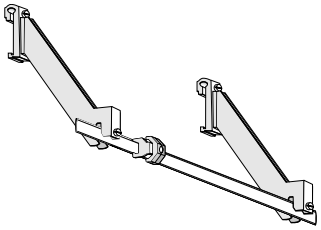

STB PDT 3100



STB XTS 1130



STB XTS 2130



STB XSP 3000



STB XSP 3010/3020

## References

The **STB PDT●10●K** reference kits include all related parts: screw-type connectors, spring-type connectors and mounting base.

### Power distribution modules: connector kits

| Power supply type | Voltage | Type | Reference | Weight kg |
|---|---|---|---|---|
| ⎓ | 24 V | Standard | **STB PDT 3100 K** | 0.130 |
| | | Basic | **STB PDT 3105 K** | 0.130 |
| ~ | 115/230 V | Standard | **STB PDT 2100 K** | 0.129 |
| | | Basic | **STB PDT 2105 K** | 0.129 |

### Power distribution modules: modules only

| Power supply type | Voltage | Type | Reference | Weight kg |
|---|---|---|---|---|
| ⎓ | 24 V | Standard | **STB PDT 3100** | 0.130 |
| | | Basic | **STB PDT 3105** | 0.130 |
| ~ | 115/230 V | Standard | **STB PDT 2100** | 0.129 |
| | | Basic | **STB PDT 2105** | 0.129 |

### Replacement and optional parts

| Description | Used for | Sold in lots of | Reference | Weight kg |
|---|---|---|---|---|
| **Mounting base** (width 18.4 mm) | Mounting of STB PDT ●10● power distribution modules on DIN rails | 1 | **STB XBA 2200** | 0.035 |
| **Removable terminals** (2-pin) *(1)* | Screw-type | 10 | **STB XTS 1130** | 0.006 |
| | Spring-type | 10 | **STB XTS 2130** | 0.006 |
| **Keying pins** | Keying between the power distribution module and its base (sold in lots of 60) | – | **STB XMP 7700** | – |
| | Keying between the power distribution module and removable terminals (sold in lots of 24) *(2)* | – | **STB XMP 7810** | – |
| **User-customizable label sheets** *(3)* | Bases and modules | 25 | **STB XMP 6700** | – |
| **Earthing kit** | Earthing for shielded cables. Kit comprises 1 bar (1 m) and 2 lateral supports | 1 | **STB XSP 3000** | – |
| **Terminals for earthing kit** | Cables with a cross-section of 1.5 to 6 mm² | 10 | **STB XSP 3010** | – |
| | Cables with a cross-section of 5 to 11 mm² | 10 | **STB XSP 3020** | – |
| **Insulated screwdriver, 2.5 mm** | Screw-type removable terminals | – | **STB XTT 0220** | – |

### Phaseo single-phase switching regulator supplies

| Output voltage | Line input voltage 47 to 63 Hz | Nominal power | Nominal current | Reference | Weight kg |
|---|---|---|---|---|---|
| **24 V ⎓** | 100 to 240 V | 48 to 240 W | 2 to 10 A | See page 121 | – |

### Replacement parts

| Designation | Description | Reference | Weight kg |
|---|---|---|---|
| **Fuses** | 5 A (lot of 5) and 10 A (lot of 5) | **STB XMP 5600** | – |

*(1) All STB XTS ●●●● connectors can accommodate a flexible wire with a maximum cross-section of 1.5 mm², including the cable end. For screw-type connectors, the maximum tightening torque is 0.25 Nm.*
*(2) Supplied with STB XTS 1130/2130 removable terminals.*
*(3) The template for the user-customizable labels is supplied on the documentation mini-CD-ROM.*


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