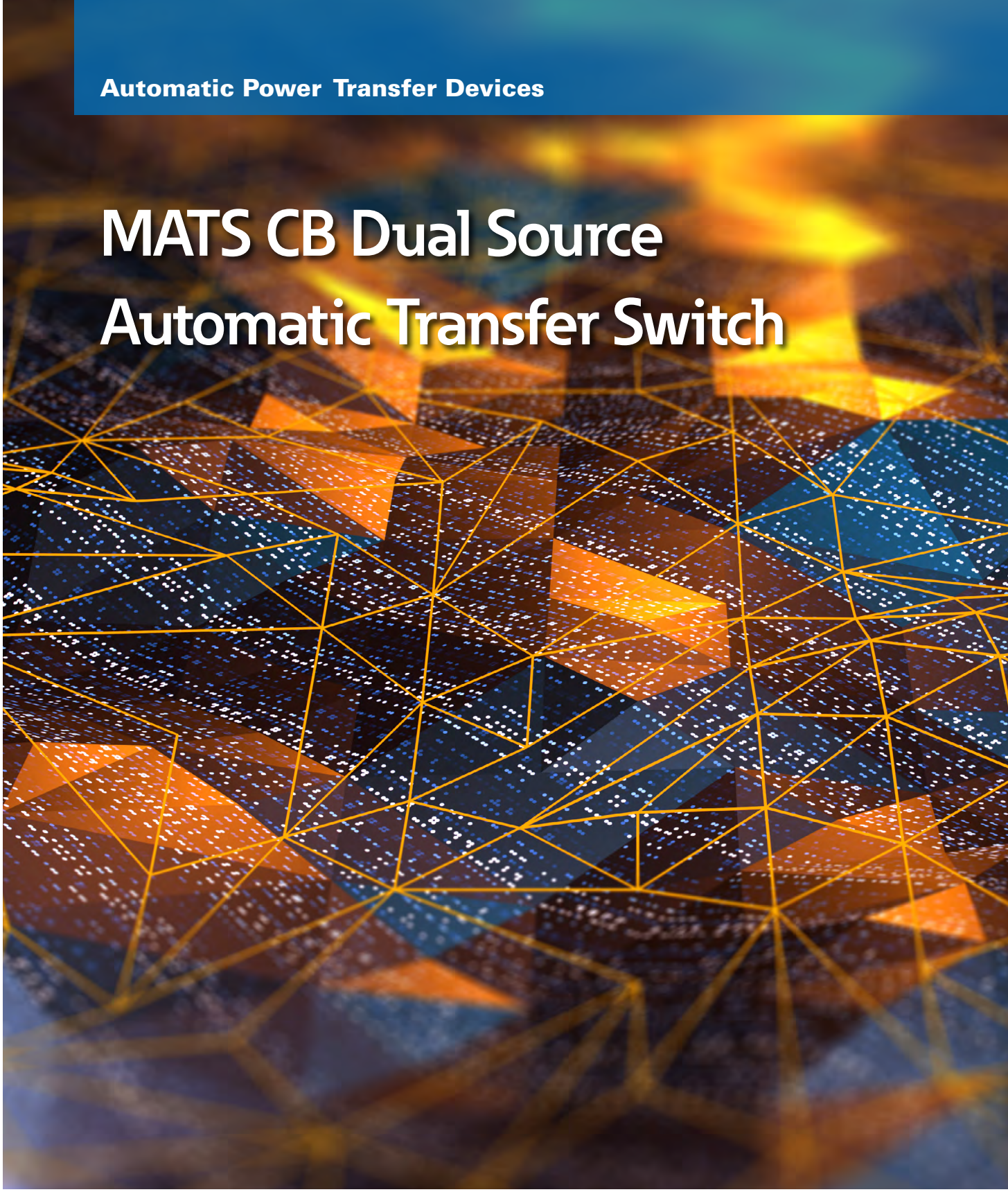
Automatic Power Transfer Devices

# MATS CB Dual Source Automatic Transfer Switch



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**MATS series**


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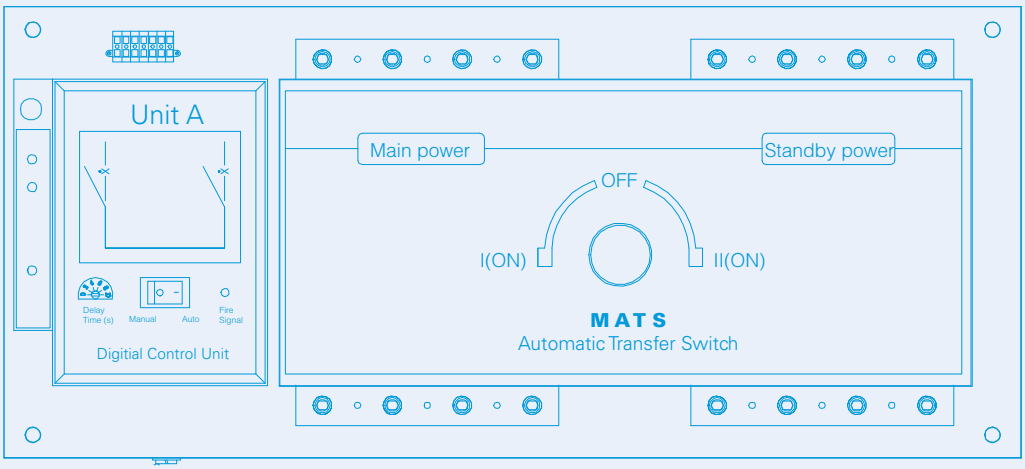
## General features




### Standards

- GB14048.1 General
- GB14048.2 Circuit Breaker
- GB/T 14048.11 Transfer Switching Equipment

### Pollution level

- III, in accordance with GB 14048.1/IEC60947-1

### Ambient temperature

- -5~40°C for operation
- -25~55°C for storage and transportation

### EMC electromagnetic compatibility

- Electrostatic discharge: Level 2
- Radio frequency electromagnetic field: Radiated immunity level 3
- Electrical fast transient burst: Level: 3
- Surge impact: Level 3
- Conducted immunity to RF electromagnetic field: Level 3
- Radiation class: B

### Equipment class

- In accordance to GB/T 14048.11 / IEC60947-6-1
- CB class

### Utilization category

- AC-33iB

## Product selection

**MATS series**


### MATS series type selection description

**MATS A G 1 / A20 4 CB**

**Product name**
**MATS** = Eaton MATS series

**Controller type**
**A** = Automatically transfer and restore operation, utility to utility transfer operation
**B** = Automatically transfer and restore operation / Automatically transfer and nonautomatically restore operation / Mutual backup operation /Utility – generator mode selection
**C** = Automatically transfer and restore operation / Automatically transfer and nonautomatically restore operation / Mutual backup operation/Utility – generator mode selection, RS485 communication interface (in support of Modbus communication

**Breaking capacity**
**Ultimate short-circuit breaking capacity Icu (380V to 415VAC):**
**G** = 36kA
**K** = 50kA
**M(N)** = 70kA
**Rated short-circuit making capacity Icm (380V to 415V AC):**
**G** = 75.6kA
**K** = 105kA
**M(N)** = 154kA

**Frame size**
Frame 1 = 20A to 160A
Frame 2 = 200A to 250A
Frame 3 = 320A to630A
Frame 4 = 800A*

**Rated current (A)**
20 to 800A

**No. of poles**
**3** = 3-pole
**4** = 4-pole

**CB**
**CB** = Equipment class

**Notes:**

① The device is equipped with Source I/II status feedback NC contacts as standard, to provide passive digital signal output indication when the switch is in different positions.

② The device is equipped with the fire work interlocking function as standard, with the signal being a passive fire work module.

③ For devices marked with an asterisk (*), please consult Eaton Product Department.

## Product selection description

Different protection capabilities can be achieved when the CB-class MATS series devices are equipped with different release units.

| Frame current | Controller for use with | Actuator | Breaking capacity | Release unit options① |
|---|---|---|---|---|
| 160 | A,B,C | PDC1 | G/K/M | Thermo-magnetic (TM) |
| 250 | A,B,C | PDC2 | G/K/N* | Thermo-magnetic (TM), Electronic type PXR10, PXR20, PXR20D, PXR25 |
| 630 | A,B,C | PDC3 | G/K/N | Thermo-magnetic (TM), Electronic type PXR10, PXR20, PXR20D, PXR25 |
| 800* | A,B,C | PDC4 | G/K/N | Thermo-magnetic (TM), Electronic type PXR10, PXR20, PXR20D, PXR25 |

**Notes:**

① The PDC devices are equipped with the thermos-magnetic release as standard, with breaking capacity options. For other electronic type releases, please consult Eaton Product Department;

② For devices marked with an asterisk (*), please consult Eaton Product Department.

## Product performance and specifications

| Specifications | | | MATS-1 | MATS-2 | MATS-3 | MATS-4* |
|---|---|---|---|---|---|---|
| No. of poles | | | 3,4 | 3,4 | 3,4 | 3,4 |
| **Controller** | | | | | | |
| Type A | | | ■ | ■ | ■ | ■ |
| Type B | | | ■ | ■ | ■ | ■ |
| Type C | | | ■ | ■ | ■ | ■ |
| **Actuator** | | | **PDC1** | **PDC2** | **PDC3** | **PDC4** |
| Rated current (A) | In | | 20/32/40/50/63/80/100/125/160 | 200/250 | 320/400/500/630 | 800 |
| Rated insulation voltage (V) | Ui | | 800 | 800 | 800 | 800 |
| Rated impulse withstand voltage (kV) | Uimp | | 8 | 8 | 8 | 8 |
| Rated operating voltage (V) | Ue | AC50Hz ① | 400 | 400 | 400 | 400 |
| Rated short-circuit breaking capacity (kA) | Icn | AC50Hz<br>380-415Vac | 36/50/70 | 36/50/70* | 36/50/70 | 36/50/70 |
| Rated short-time making capacity (kA) | Icm | AC50Hz | 75.6/105/154 | 75.6/105/154 | 75.6/105/154 | 75.6/105/154 |
| Utilization category | | | AC-33iB | AC-33iB | AC-33iB | AC-33iB |
| Isolation function | | | ■ | ■ | ■ | ■ |
| Service position | | | III | III | III | III |
| Mechanical life② | | | 25000 | 20000 | 15000 | 10000 |
| Electrical life② | | | 10000 | 10000 | 5000 | 3000 |
| Pollution degree | | | III | III | III | III |
| Min contract transfer time | Sec | | 1.2±10% | 1.2±10% | 1.2±10% | 1.2±10% |
| Operating transfer time | Sec | | 2±10% | 2±10% | 2±10% | 2±10% |
| **Protection and measurement** | | | | | | |
| Inter-changeable control unit | Common release (standard) | | Thermo-magnetic TM | Thermo-magnetic TM | Thermo-magnetic TM | Thermo-magnetic TM |
| | Common release (optional)* | | Electronic PR10/PR20/PR20D/PR25 | Electronic PR10/PR20/PR20D/PR25 | Electronic PR10/PR20/PR20D/PR25 | Electronic PR10/PR20/PR20D/PR25 |
| **Mounting and wiring** | | | | | | |
| Fixed type / front panel wiring | | | ■ | ■ | ■ | ■ |
| **Monitoring and indicating auxiliary devices** | | | | | | |
| Position feedback signal | | | ■ | ■ | ■ | ■ |
| Fire work interlocking function | | | ■ | ■ | ■ | ■ |
| Alarm feedback signal③ | | | ■ | ■ | ■ | ■ |

**Notes:**

① Consult Eaton Product Department for devices with other voltages/frequency.

② Maintainable life.

③ Customized terminals are reserved on Type B/C controllers. If needed, please specify it upon ordering.

④ For products marked with *, please consult Eaton's Product Department.

## Thermo-magnetic release

| **Rated current (A)** | $I_u$ 40°C① | 16 | 20 | 25 | 32 | 40 | 50 | 63 | 80 | 100 | 125 | 160 | 200 | 250 | 320 | 400 | 500 | 630 | 800 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Circuit breaker | PDC1 | • | • | • | • | • | • | • | • | • | • | • | | | | | | | |
| | PDC2 | | | | | | | | | | • | • | • | • | | | | | |
| | PDC3 | | | | | | | | | | | | | • | • | • | • | • | |
| | PDC4 | | | | | | | | | | | | | | | | | | • |
| **Overload protection (thermal protection)** | | | | | | | | | | | | | | | | | | | |
| Trip current setting (A) | $I_r = I_u$ x… | | | | | | | | | | | | | | | | | | |
| Factory setting $I_r$ | PDC1 | $I_r$ = 0.8-1.0$I_n$ | | | | | | | | | | | | | | | | | |
| | PDC2 | | | | | | | | | | $I_r$ = 0.8-1.0$I_n$ | | | | | | | | |
| | PDC3 | | | | | | | | | | | | | $I_r$ = 0.8-1.0$I_n$ | | | | | |
| | PDC4 | | | | | | | | | | | | | | | | | | $I_r$ = 0.8-1.0$I_n$ |
| **Short-circuit protection (magnetic protection)** | | | | | | | | | | | | | | | | | | | |
| Short-circuit protection current setting (A) | $I_i$ | | | | | | | | | | | | | | | | | | |
| | PDC1 | 350A | | | | | 10$I_n$ | | | | 8$I_n$ | | | | | | | | |
| | PDC2 | | | | | | | | | | $I_i$ = 5-8$I_n$ | | | | | | | | |
| | PDC3 | | | | | | | | | | | | | $I_i$=5-10$I_n$ | | | | | |
| | PDC4 | | | | | | | | | | | | | | | | | | $I_i$ = 5-8$I_n$ |
| **Single magnetic break-circuit protection (motor protection)** | | | | | | | | | | | | | | | | | | | |
| Short-circuit protection current setting (A) | $I_i$ | | | | | | | | | | | | | | | | | | |
| | PDC1 | 1.2A ~ 33A, $I_i$ = 8-14$I_n$ | | | | | | | | | | | | | | | | | |
| | PDC1 | | | | | | $I_i$ = 8-14$I_n$ | | | 8-12.5$I_n$ | | | | | | | | | |
| | PDC2 | | | | | | | | | $I_i$ = 6-14$I_n$ | | 6-12.5$I_n$ | | | | | | | |
| | PDC3 | | | | | | | | | | | | | $I_i$ = 5-10$I_n$ | | | | | |
| | PDC4 | | | | | | | | | | | | | | | | | | |
| **Neutral protection** | | | | | | | | | | | | | | | | | | | |
| 4-pole | PDC1 | 100% | | | | | | | | | | | | | | | | | |
| | PDC2 | | | | | | | | | | 100% | | | | | | | | |
| | PDC3 | | | | | | | | | | | | | 100% | | | | | |
| | PDC4 | | | | | | | | | | | | | | | | | | 100% |

① If the temperature is higher than 40°C, the protection characteristics should be corrected.

## Power Xpert Release (PXR) electronic type release: PDC2

The following tables describe in detail the available settings for each PXR and circuit breaker frame type.

### PDC2 PXR10 settings (LI)

| Frame | 160A | 200A | 250A | All | 160A | 200A | 250A |
|---|---|---|---|---|---|---|---|
| Setting | $I_r$ | $I_r$ | $I_r$ | $t_r$ @ 6x$I_r$ | $I_i$ nx$I_n$ | $I_i$ nx$I_n$ | $I_i$ nx$I_n$ |
| Switch | 1 | | | - | | | |
| 1 | 40 | 50 | 63 | 10 | 2 | 2 | 2 |
| 2 | 50 | 63 | 80 | 10 | 3 | 3 | 3 |
| 3 | 63 | 80 | 100 | 10 | 4 | 4 | 4 |
| 4 | 70 | 90 | 125 | 10 | 5 | 5 | 5 |
| 5 | 80 | 100 | 150 | 10 | 6 | 6 | 6 |
| 6 | 90 | 125 | 160 | 10 | 8 | 7 | 6.5 |
| 7 | 100 | 150 | 175 | 10 | 10 | 8 | 7 |
| 8 | 125 | 160 | 200 | 10 | 12 | 9 | 7.5 |
| 9 | 150 | 175 | 225 | 10 | 14 | 10 | 8 |
| 10 | 160 | 200 | 250 | 10 | 13.1 | 10.5 | 8.4 |

### PDC2 PXR10 settings (LSI)

| Frame | 160A | 200A | 250A | All | SD configuration profile | | 160A | 200A | 250A |
|---|---|---|---|---|---|---|---|---|---|
| Setting | $I_r$ | $I_r$ | $I_r$ | $t_r$ @ 6x$I_r$ | $I_{sd}$ nx$I_r$ | $t_{sd}$ s | $I_i$ nx$I_n$ | $I_i$ nx$I_n$ | $I_i$ nx$I_n$ |
| Switch | 1 | | | - | 2 | | | | |
| 1 | 40 | 50 | 63 | 10 | 2.0 | 0.150 | 2 | 2 | 2 |
| 2 | 50 | 63 | 80 | 10 | 2.0 | 0.300 | 3 | 3 | 3 |
| 3 | 63 | 80 | 100 | 10 | 2.0 | $I^2t$ | 4 | 4 | 4 |
| 4 | 70 | 90 | 125 | 10 | 4.0 | 0.150 | 5 | 5 | 5 |
| 5 | 80 | 100 | 150 | 10 | 4.0 | $I^2t$ | 6 | 6 | 6 |
| 6 | 90 | 125 | 160 | 10 | 6.0 | 0.150 | 8 | 7 | 6.5 |
| 7 | 100 | 150 | 175 | 10 | 6.0 | 0.300 | 10 | 8 | 7 |
| 8 | 125 | 160 | 200 | 10 | 10.0 | 0.150 | 12 | 9 | 7.5 |
| 9 | 150 | 175 | 225 | 0.5 to 24 | 2.0 to 10.0 | 0.05 to 0.30 | 14 | 10 | 8 |
| 10 | 160 | 200 | 250 | 10 | OFF | - | 13.1 | 10.5 | 8.4 |
| | | | | Can use PXPM software for configuration | | | | | |

### PDC2 PXR10 MCP settings (LSI)

| Frame | 160A | 200A | 220A | Trip level | Phase im-balance | All | 160A | 200A | 220A |
|---|---|---|---|---|---|---|---|---|---|
| Setting | $I_r$ | $I_r$ | $I_r$ | | | $t_{sd}$ s | $I_i$ (nx$I_r$) | $I_i$ (nx$I_r$) | $I_i$ (nx$I_r$) |
| 1 | 40 | 50 | 63 | 5 | No | 50ms (fixed) | 3 | 3 | 3 |
| 2 | 50 | 63 | 80 | 10 | No | 50ms (fixed) | 4 | 4 | 4 |
| 3 | 63 | 80 | 90 | 15 | No | 50ms (fixed) | 5 | 5 | 5 |
| 4 | 70 | 90 | 100 | 20 | No | 50ms (fixed) | 6 | 6 | 6 |
| 5 | 80 | 100 | 125 | 30 | No | 50ms (fixed) | 7 | 7 | 7 |
| 6 | 90 | 125 | 150 | 5 | Yes | 50ms (fixed) | 8 | 8 | 8 |
| 7 | 100 | 150 | 160 | 10 | Yes | 50ms (fixed) | 10 | 10 | 10 |
| 8 | 125 | 160 | 175 | 15 | Yes | 50ms (fixed) | 11 | 11** | 11** |
| 9 | 150 | 175A - 12x max | 200 | 20 | Yes | 50ms (fixed) | 12 | 12** | 12** |
| 10 | 160 | 200A - 10.5x max | 220 | 30 | Yes | 50ms (fixed) | 13 | 13** | 13** |
| | | | | | | Override= | 2100 | 2100 | 2100 |
| | | | | | | Max = | 13.13 | 10.50 | 9.55 |

## PDC2 PXR20 settings

| Frame | 160A | 200A | 250A | All | All | | 160A | 200A | 250A | Type G | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Setting | $I_r$ | $I_r$ | $I_r$ | $t_r$ @ 6x$I_r$ | $I_{sd}$ nx$I_r$ | $t_{sd}$ s | $I_i$ nx$I_n$ | $I_i$ nx$I_n$ | $I_i$ nx$I_n$ | $I_g$ nx$I_n$ | $t_g$ s |
| Switch | 1 | | | 2 | 3 | 4 | 5 | | | 6 | 7) |
| 1 | 40 | 50 | 63 | 0.5 | 1.5 | 0.050 | 2 | 2 | 2 | 0.20 | 0.100 |
| 2 | 50 | 63 | 80 | 1.0 | 2.0 | 0.100 | 3 | 3 | 3 | 0.30 | 0.150 |
| 3 | 63 | 80 | 100 | 2.0 | 3.0 | 0.150 | 4 | 4 | 4 | 0.40 | 0.200 |
| 4 | 70 | 90 | 125 | 4.0 | 4.0 | 0.200 | 5 | 5 | 5 | 0.60 | 0.300 |
| 5 | 80 | 100 | 150 | 7.0 | 5.0 | 0.300 | 6 | 6 | 6 | 0.80 | 0.500 |
| 6 | 90 | 125 | 160 | 10.0 | 6.0 | 0.400 | 8 | 7 | 6.5 | 1.00 | 0.750 |
| 7 | 100 | 150 | 175 | 12.0 | 8.0 | 0.500 | 10 | 8 | 7 | 0.20 | 1.000 |
| 8 | 125 | 160 | 200 | 15.0 | 10.0 | 0.067 | 12 | 9 | 7.5 | 0.50 | 0.067 |
| 9 | 150 | 175 | 225 | 20.0 | 12.0 | 0.150 | 14 | 10 | 8 | 1.00 | 0.150 |
| 10 | 160 | 200 | 250 | 24.0 | | 0.300 | 13.1 | 10.5 | 8.4 | OFF | 0.300 |
| | | | | | | Fixed time | | | | Trip | Fixed time |
| | | | | | | $I^2t$ | | | | Alarm | $I^2t$ |

## PDC2 PXR25 and 20D settings

| Frame | 160A | 200A | 250A | All | All | | 160A | 200A | 250A | Type G | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Setting | $I_r$ | $I_r$ | $I_r$ | $t_r$ @ 6x$I_r$ | Isd nx$I_r$ | $t_{sd}$ s | $I_i$ nx$I_n$ | $I_i$ nx$I_n$ | $I_i$ nx$I_n$ | $I_g$ nx$I_n$ | $t_g$ s |
| Min. | 40 | 50 | 63 | 0.5 | 1.5 | 0.050 | 2 | 2 | 2 | 0.20 | 0.100 |
| Max. | 160 | 200 | 250 | 24.0 | 12.0 | 0.500 | 13.1 | 10.5 | 8.4 | 1.00 | 1.000 |
| Min. | | | | | | 0.067 | | | | 0.20 | 0.067 |
| Max. | | | | | | 0.300 | | | | 1.00 | 0.300 |
| Step | 1 | 1 | 1 | 0.10 | 0.10 | 0.010 | 0.10 | 0.10 | 0.10 | 0.010 | 0.010 |
| Additional options | | | | | | | | | | OFF | |
| | | | | | | Fixed time | | | | Trip | Fixed time |
| | | | | | | $I^2t$ | | | | Alarm | $I^2t$ |

## Power Xpert Release (PXR) electronic type release: PDC3

The following tables describe in detail the available settings for each PXR and circuit breaker frame type.

### PDC3 PXR10 settings (LI)

| Frame | 250A | 400A | 630A | All | 250A | 400A | 630A |
|---|---|---|---|---|---|---|---|
| Setting | Ir | $I_r$ | $I_r$ | $t_r$ @ 6x$I_r$ | $I_i$ nx$I_n$ | $I_i$ nx$I_n$ | $I_i$ nx$I_n$ |
| Switch | 1 | | | - | 2 | | |
| 1 | 63 | 100 | 200 | 10 | 2 | 2 | 2 |
| 2 | 80 | 125 | 225 | 10 | 3 | 3 | 3 |
| 3 | 100 | 140 | 250 | 10 | 4 | 4 | 4 |
| 4 | 125 | 160 | 320 | 10 | 5 | 5 | 5 |
| 5 | 150 | 200 | 360 | 10 | 6 | 6 | 6 |
| 6 | 160 | 225 | 400 | 10 | 10 | 8 | 7 |
| 7 | 175 | 250 | 450 | 10 | 15 | 10 | 8 |
| 8 | 200 | 320 | 500 | 10 | 20 | 12 | 9 |
| 9 | 225 | 360 | 550 | 10 | 25 | 15 | 10 |
| 10 | 250 | 400 | 630 | 10 | 28.8 | 18.0 | 11.4 |

### PDC3 PXR10 settings (LSI)

| Frame | 250A | 400A | 630A | All | SD configuration profile | | 250A | 400A | 630A |
|---|---|---|---|---|---|---|---|---|---|
| Setting | Ir | $I_r$ | $I_r$ | $t_r$ @ 6x$I_r$ | $I_{sd}$ nx$I_r$ | $t_{sd}$ s | $I_i$ nx$I_n$ | $I_i$ nx$I_n$ | $I_i$ nx$I_n$ |
| Switch | 1 | | | - | 2 | | 3 | | |
| 1 | 63 | 100 | 200 | 10 | 2.0 | 0.150 | 2 | 2 | 2 |
| 2 | 80 | 125 | 225 | 10 | 2.0 | 0.300 | 3 | 3 | 3 |
| 3 | 100 | 140 | 250 | 10 | 2.0 | $I^2t$ | 4 | 4 | 4 |
| 4 | 125 | 160 | 320 | 10 | 4.0 | 0.150 | 5 | 5 | 5 |
| 5 | 150 | 200 | 360 | 10 | 4.0 | $I^2t$ | 6 | 6 | 6 |
| 6 | 160 | 225 | 400 | 10 | 6.0 | 0.150 | 10 | 8 | 7 |
| 7 | 175 | 250 | 450 | 10 | 6.0 | 0.300 | 15 | 10 | 8 |
| 8 | 200 | 320 | 500 | 10 | 10.0 | 0.150 | 20 | 12 | 9 |
| 9 | 225 | 360 | 550 | 0.5 to 24 | 10.0 | 0.300 | 25 | 15 | 10 |
| 10 | 250 | 400 | 630 | 10 | OFF | | 28.8 | 18.0 | 11.4 |
| | | | | Can use PXPM software for configuration | | | | | |

### PDC3 PXR10 MCP settings (LSI)

| Frame | 250A | 400A | 630A | Trip level | Phase im-balance | All | 250A | 400A |
|---|---|---|---|---|---|---|---|---|
| Setting | $I_r$ | $I_r$ | $I_r$ | | | $t_{sd}$ s | $I_i$ ($nxI_r$) | $I_i$ ($nxI_r$) |
| 1 | 63 | 100 | 200 | 5 | No | 50ms (fixed) | 3 | 3 |
| 2 | 80 | 125 | 225 | 10 | No | 50ms (fixed) | 4 | 4 |
| 3 | 100 | 140 | 250 | 15 | No | 50ms (fixed) | 5 | 5 |
| 4 | 125 | 160 | 320 | 20 | No | 50ms (fixed) | 6 | 6 |
| 5 | 150 | 200 | 360 | 30 | No | 50ms (fixed) | 7 | 7 |
| 6 | 160 | 225 | 400 | 5 | Yes | 50ms (fixed) | 8 | 8 |
| 7 | 175 | 250 | 450 | 10 | Yes | 50ms (fixed) | 10 | 10 |
| 8 | 200 | 320 | 500 | 15 | Yes | 50ms (fixed) | 11 | 11** |
| 9 | 225 | 360A - 12x max | 550 | 20 | Yes | 50ms (fixed) | 12 | 12** |
| 10 | 250 | 400A - 11x max | 630 | 30 | Yes | 50ms (fixed) | 13 | 13** |
| | | | | | | Override= | 4400 | 4400 |
| | | | | | | Max = | 17.60 | 11.00 |

## PDC3 PXR20 settings

| Rated current | 250A | 400A | 630A | All | All | All | 250A | 400A | 630A | All | All |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dial | $I_r$ | $I_r$ | $I_r$ | $t_r$ @ 6x$I_r$ | $I_{sd}$ (nx$I_r$) | $t_{sd}$ (s) | $I_i$ (nx$I_n$) | $I_i$ (nx$I_n$) | $I_i$ (nx$I_n$) | $I_g$ (nx$I_n$) | $t_g$ (s) |
| 1 | 63 | 100 | 200 | 0.5 | 1.5 | 0.050 | 2 | 2 | 2 | 0.20 | 0.100 |
| 2 | 80 | 125 | 225 | 1.0 | 2.0 | 0.100 | 3 | 3 | 3 | 0.30 | 0.150 |
| 3 | 100 | 140 | 250 | 2.0 | 3.0 | 0.150 | 4 | 4 | 4 | 0.40 | 0.200 |
| 4 | 125 | 160 | 320 | 4.0 | 4.0 | 0.200 | 5 | 5 | 5 | 0.60 | 0.300 |
| 5 | 150 | 200 | 360 | 7.0 | 5.0 | 0.300 | 6 | 6 | 6 | 0.80 | 0.500 |
| 6 | 160 | 225 | 400 | 10.0 | 6.0 | 0.400 | 10 | 8 | 7 | 1.00 | 0.750 |
| 7 | 175 | 250 | 450 | 12.0 | 8.0 | 0.500 | 15 | 10 | 8 | 0.20 | 1.000 |
| 8 | 200 | 320 | 500 | 15.0 | 10.0 | 0.067 | 20 | 12 | 9 | 0.50 | 0.067 |
| 9 | 225 | 360 | 550 | 20.0 | 12.0 | 0.150 | 25 | 15 | 10 | 1.00 | 0.150 |
| 10 | 250 | 400 | 630 | 24.0 | OFF | 0.300 | Max | Max | Max | OFF | 0.300 |
| | | | | | | | 7200 | 7200 | 7200 | | |
| | | | | | | Max = | 28.80 | 18.00 | 11.43 | $I_g = I_n$ | |
| | | | | | | Fixed time | | | | Action | Fixed time |
| | | | | | | $I^2t$ | | | | Alarm | $I^2t$ |

## PDC3 PXR25 and 20D settings

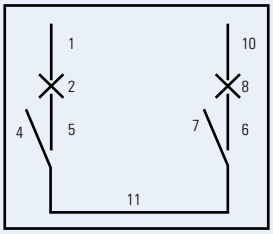
| | 3A | | 3B | | | | | | 3A | | 3B | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Frame | 250A | 400A | 250A | 400A | 630A | All | | | 250A | 400A | 250A | 400A | 630A | Type G | |
| Settings | $I_r$ | $I_r$ | $I_r$ | $I_r$ | $I_r$ | $I_r$ nx$I_r$ | $I_{sd}$ | $t_{sd}$ s | $I_i$ nx$I_n$ | $I_i$ nx$I_n$ | $I_i$ nx$I_n$ | $I_i$ nx$I_n$ | $I_i$ nx$I_n$ | $I_g$ nx$I_n$ | $t_g$ s |
| Min. | 63 | 100 | 63 | 100 | 200 | 0.5 | 1.5 | 0.050 | 2 | 2 | 2 | 2 | 2 | 0.20 | 0.100 |
| Max. | 250 | 400 | 250 | 400 | 630 | 24.0 | 12.0 | 0.500 | 17.6 | 11.0 | 28.8 | 18.0 | 11.4 | 1.00 | 1.000 |
| Min. | | | | | | | | 0.067 | | | | | | 0.20 | 0.067 |
| Max. | | | | | | | | 0.300 | | | | | | 1.00 | 0.300 |
| Step | 1 | 1 | 1 | 1 | 1 | 1 | 0.10 | 0.010 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.010 | 0.010 |
| Additional options | | | | | | | | | | | | | | OFF | |
| | | | | | | | | Fixed time | | | | | | Trip | Fixed time |
| | | | | | | | | $I^2t$ | | | | | | Alarm | $I^2t$ |

## Controller function

| Controller | Type A | Type B | Type C |
|---|---|---|---|
| Mounting method | Integrated | Integrated | Integrated |
| Rated operating frequency | 50Hz | 50Hz | 50Hz |
| **III service positions** | | | |
| Normal source closed | ■ | ■ | ■ |
| Backup source closed | ■ | ■ | ■ |
| Dual source open | ■ | ■ | ■ |
| **Operating method** | | | |
| Automatic operation | ■ | ■ | ■ |
| Manual operation | ■ | ■ | ■ |
| Communication remote control | - | - | ■ |
| **Automatic operation** | | | |
| Monitoring normal source under-voltage | ■ | ■ | ■ |
| Monitoring normal source over-voltage | ■ | ■ | ■ |
| Monitoring normal source no-voltage | ■ | ■ | ■ |
| Monitoring normal source phase failure | ■ | ■ | ■ |
| Monitoring backup source under-voltage | ■ | ■ | ■ |
| Monitoring backup source over-voltage | ■ | ■ | ■ |
| Monitoring backup source no-voltage | ■ | ■ | ■ |
| Monitoring backup source phase failure | ■ | ■ | ■ |
| Generator control | - | ■ | ■ |
| Fire signal to cut off non-fire source | ■ | ■ | ■ |
| Automatically transfer and restore operation | ■ | ■ | ■ |
| Automatically transfer and nonautomatically restore operation | - | ■ | ■ |
| Mutual-backup operation | - | ■ | ■ |

| Controller | Type A | Type B | Type C |
|---|---|---|---|
| **Display** | | | |
| Normal backup source | ■ | ■ | ■ |
| Normal source opening and closing | ■ | ■ | ■ |
| Backup source opening and closing | ■ | ■ | ■ |
| Fault tripping indication | ■ | ■ | ■ |
| Operating mode setting | - | ■ | ■ |
| Delay time selection | ■ | ■ | ■ |
| Display method | ■ (LED+LCD) | ■ (LED+LCD) | ■ (LED+LCD) |
| **Key parameters** | | | |
| Delay settings (0-2-4-6-8-10s) | ■ | ■ | ■ |
| Operating mode setting | - | ■ | ■ |
| Under-voltage action range (V) | 160~175 | 160~175 | 160~175 |
| Under-voltage recovery range (V) | 185~195 | 185~195 | 185~195 |
| Over-voltage action range (V) | 265~275 | 265~275 | 265~275 |
| Over-voltage recovery range (V) | 240~260 | 240~260 | 240~260 |
| **Other functions** | | | |
| Fire work interlocking input | ■ | ■ | ■ |
| Fault alarm output | ■ | ■ | ■ |
| Position feedback output | ■ | ■ | ■ |
| Communication function | - | - | ■ |
| Automatic / manual transfer | ■ | ■ | ■ |

## Mimic screen display




- Section 2 / 8: Circuit breaker legend – Remains lit on
- Section 11: Dual source outgoing: Remains lit on
- Section 5: Light ON – Normal source is closed
- Section 6: Light ON - Backup source is closed
- Section 4: Light ON - Normal source is opened
- Section 7: Light ON - Backup source is closed
- Section 1: Light ON - Normal source is OK;
  Light OFF: Normal source is under-voltage;
  Light flashing – Normal source is over-voltage
- Section 10: Light ON - Backup power is OK;
  Light OFF: Normal source is under-voltage;
  Light flashing – Normal source is over-voltage

## Standard functions

### Fire work interlocking function

- The fire work interlocking input is wired to Terminal 5/6. In the event that the contact is closed, both power sources will enter into the Open states, and the fire work interlocking indicator remains lit on.
  If the fire work interlocking signal is removed, both sources can be switched back from the Open state by resetting through remote communication, re-powering on, or performing an Automatic-Manual-Automatic transfer operation.

### Status feedback function

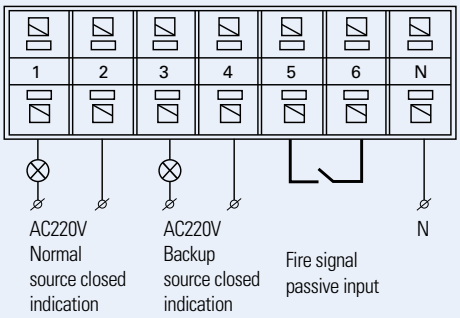
- I-2: Source I status feedback output;
- 3-4: Source II status feedback output.
  **Note:** Dry NO contacts, with the contact capacity of 1A.

### Time delay function

- A transfer delay setting knob is available on the panel, offering 6 positions, easy to set up delay time. The setting range is 0-2-4-6-8-10s.
  **Note:** The factory setting of the transfer delay time is 0(s).

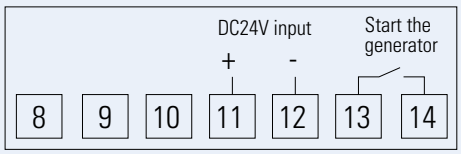

## Type A, B and C input/output terminal descriptions

### Basic device A: Input/output terminals



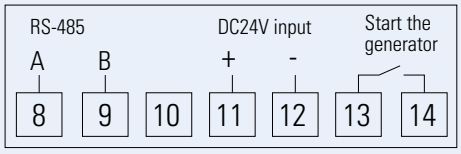

| Terminal | Terminal description | Notes |
|---|---|---|
| 1-2 | Source I status feedback output | Dry NO contact, with the contact capacity of 1A |
| 3-4 | Source II status feedback output | |
| 5-6 | Fire work interlocking input signal | Dry NO contact input, with the pulse signal (>100ms) or status signal as its signal type |
| N | Neutral line terminal | The neutral line of the normal and backup sources must be wired to the N terminal in 3-pole dual-source systems |

### External module B: Input/output terminals




| Terminal | Terminal description | Notes |
|---|---|---|
| 11-12 | DV24V source input | 11: Source anode;<br>13: Source cathode, wired from the generator |
| 13-14 | Start generator sign | Dry NO contact, with the contact capacity of 1A |

### External module C: Input/output terminals




| Terminal | Terminal description | Notes |
|---|---|---|
| 8-9 | RS485 communication interface | 8: RS485(A+); 9: RS485(B-), with the communication cable of ZR-RVSP 2×1.5mm2 two-core shielded twisted pair; the shield layer is a must, which must be tightly twisted. |
| 11-12 | DV24V source input | 11: Source anode;<br>13: Source cathode, wired from the generator |
| 13-14 | Start generator signal | Dry NO contact, with the contact capacity of 1A |

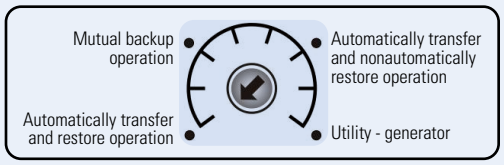
## External modules' operating mode selection function (equipped as standard for Type B/C controllers)

### Automatically transfer and restore operation mode:

It is the most commonly used dual-source device application mode. In this mode, by default, Input I is the normal power source, and Input II the backup source. In case of normal source faults, the dual-source device will automatically throw over to the backup source if it's normal. The normal source will be transferred back once it recovers.

### Automatically transfer and nonautomatically restore operation mode:

The difference between this mode and automatically transfer and restore mode is that the dual-source device will not automatically transfer back to the normal source when it recovers (the manual operation can be implemented).




### Mutual-backup operation mode:

The only difference between this mode and automatically transfer and restore mode is that different rules are applied to identify the normal source. In this mode, when the dual source device is powered on, Source I will be identified as the normal source if it works properly, and Source II the backup source; if Source I is faulty, Source II will be identified as the normal source and Source I the backup source; if Source I and II are both faulty, the source that recovers first will be identified as the normal source, and the other the backup source.

### Utility-generator mode:

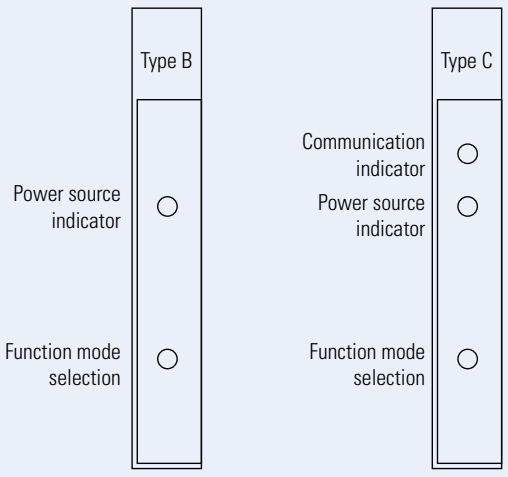
It is used to start the self-supplied generator and switch to self-generated power. In this mode, by default, Source I is the normal source; the self-generated power is connected to Source II, which is identified as the backup source. Connect the generator starting power (DC24V) to the corresponding terminal of the terminal block on the side, and connect the generator starting terminal on the dual source device to the generator starting device. In case of normal source faults, the dual source device sends a signal to start the generator, and automatically transfers back to the self-generated power when it's normal. The device will automatically transfer back to the normal source when it recovers.

**Note:** Select the operation mode change with a manual operation.

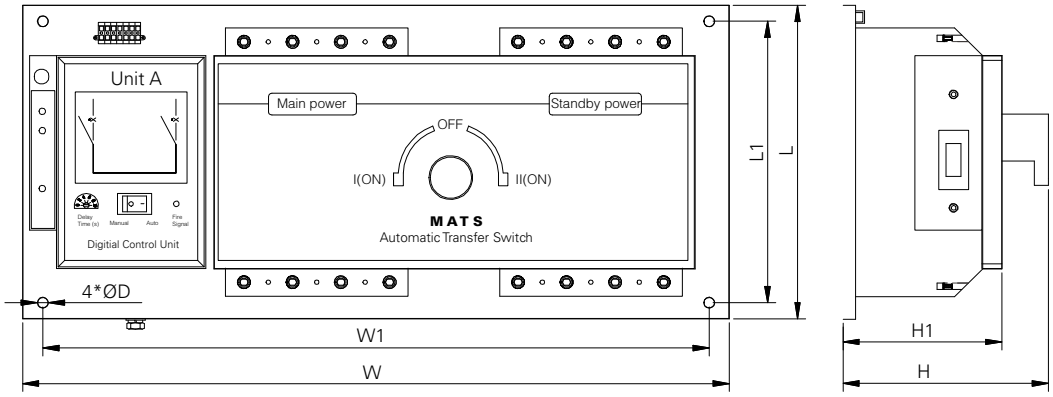
## Communication function: (equipped as standard for Type C controllers)

RS485 data communication interface, with the communication protocol in line with MODBUS RTU protocol, and the baud rate of 9600bps. This function enables parameters to be uploaded and control the dual-source device to transfer to or back from the dual-source Opened state. An 8-bit DIP switch is available on the top of the control enclosure, to set up the communication address. In total there are 255 addresses. The communication address and DIP switch setting reference table is shown below:

| Address | Dial switch setting | Address | Dial switch setting |
|---|---|---|---|
| 001 |  | 004 |  |
| 002 |  | ⋮ | ⋮ |
| 003 |  | 247 |  |



## Mounting dimensions




| Type and specifications | | Outline and mounting dimensions | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | W | W1 | L | L1 | H | H1 | D |
| MATS-1 | 3P | 460 | 440 | 180 | 160 | 160 | 120 | 7 |
| | 4P | 490 | 470 | 180 | 160 | 160 | 120 | 7 |
| MATS-2 | 3P | 490 | 470 | 230 | 206 | 177 | 137 | 7 |
| | 4P | 525 | 505 | 230 | 206 | 177 | 137 | 7 |
| MATS-3 | 3P | 665 | 640 | 285 | 260 | 255 | 178 | 10.5 |
| | 4P | 710 | 685 | 285 | 260 | 255 | 178 | 10.5 |

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