

POWER SUPPLY 3-PHASE, 48 V DC DIMENSION Q SERIES

QT20.481

PSU 3PH 380-480V ac I/P 48V dc 10A 480W O/P

- Output current of 10 A
- Up to 94.8% efficiency
- High short-circuit currents
- Several protective filter
- Maximum performance



PRODUCT DESCRIPTION

Puls Dimension Q is a series of power supplies with very small construction dimensions and many technical advantages.

The unit has low inrush current (even during warm start), active PFC, which provides a power factor close to one, extended temperature range, as well as active protection against mains transients. Furthermore, there is a relay output (DC OK) that falls when the output voltage deviates more than 10% from the set value.

The bonus power provides 50% extra reserve with retained voltage which is an advantage when connected loads have high starting currents. The unit also provides a high short-circuit current that simplifies tripping of secondary fuses. Both the bonus power and short-circuit current is limited to 4 seconds to avoid constant overloading of the power supply and wiring.

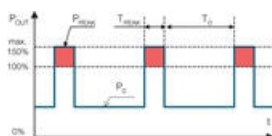
High efficiency for long life and low temperature. The power supply can be connected for two-phase operation Within up to +40°C. At higher temperatures, the load current is reduced.

We recommend clearance of 40 mm and 20 mm below the unit and 5 mm on the sides. (15 mm on the sides if adjacent products are a heat source).

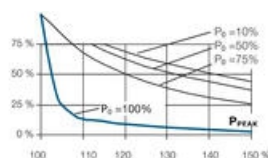
Bonus power

The power supply has a bonus power that enables high power output with maintained 48 V dc for 4 seconds, which is a big advantage when connected loads have high starting current, e.g. motors. How often you can use the bonus power depends on the application. With the diagram and formula below you can calculate the available repeat time for each application. Bonus power is available as soon as the power supply starts and immediately after a short circuit

Bonus power



Operating cycle



P_O

Nominal load current

P_{peak}

Peak current

T_O

Time between bonus power

T_{peak}

Peak current I time

Operating cycle

T_{peak} / (T_{peak} + T_O)

| | |
|----|---|
| To | $T_{peak} - (\text{operating cycle} \cdot T_{peak}) / \text{operating cycle}$ |
|----|---|

E.g. 48 V DC power supply Nominal load current (Po) is 7.5 A. Peak current (Ppeak) is 12A=120 %. Peak time is 3 seconds. 7.5 A=75 % of I_{nom} . According to the diagram the operating cycle is 50%. $T_o = 3 - (0.5 \cdot 3) / 0.5 = 3$. Maximum repeat time of the bonus power is 3 seconds.

TECHNICAL DATA

INPUT DATA

| | |
|--|------------|
| Input voltage ac | 380-480 V |
| Input voltage ac min | 323 V AC |
| Input voltage ac max | 552 V AC |
| Inrush current at 400 V ac typical | 3 A |
| Input voltage range | Wide-range |
| Power factor at 400 V ac, full load. Typical | 0.94 |
| Number of phases | 3 |

OUTPUT DATA

| | |
|--------------------|---------|
| Output voltage | 48 V DC |
| Output voltage min | 48 V DC |
| Output voltage max | 55 V DC |
| Output current | 10 A |
| Power | 480 W |

EFFICIENCY / LIFETIME / MTBF

| | |
|---|----------|
| Efficiency at 400 V ac, typical | 94.4 % |
| Efficiency at 400 V ac, full load, typical | 95.4 % |
| Lifetime at 400 V ac, full load and +40 ° C | 51000 h |
| MTBF (IEC 61709) 400 V ac, max loan, +40 °C | 690000 h |

DIMENSIONS

| | |
|--------|---------|
| Width | 65 mm |
| Height | 124 mm |
| Depth | 127 mm |
| Weight | 0.87 kg |

OTHER

| | |
|--|----------------------------------|
| Approvals | CB, CE, CSA US, cRUus, cULus, GL |
| Hold time at 400 V ac, typical full load | 22 ms |

| | |
|----------------------------------|-----------------|
| IP class | IP20 |
| Clamp type | Spring-clamp |
| Material protection | Aluminium |
| Supply frequency | 50-60 ± 6 % |
| Ripple max | 100 mV pp |
| Series | Dimension Q |
| Power consumption at 400 V ac | 0.79 A |
| Power drop from +60 °C to +70 °C | 12 W/°C |
| Temperature min without derating | -25 °C |
| Temperature max without derating | 60 °C |
| Type Power Supply | AC-DC |
| Active Transient | Yes |
| DC relay output | Yes |

Fig. 6-1 Output voltage vs. output current, typ.

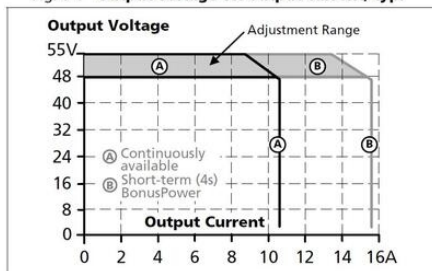


Fig. 15-1 Output current vs. ambient temp.

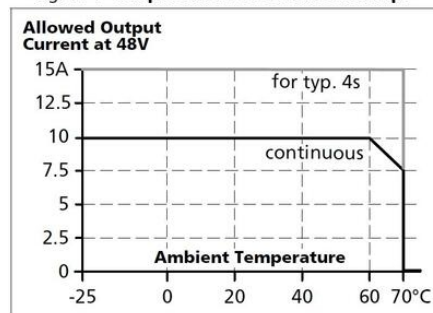


Fig. 9-1 Efficiency vs. output current at 48V, typ.

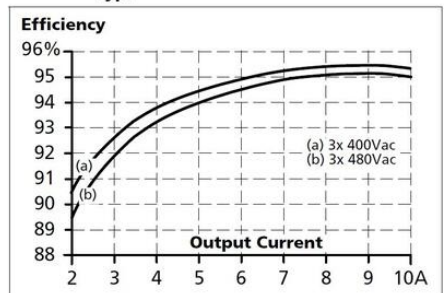
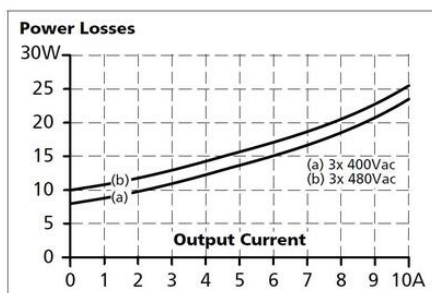


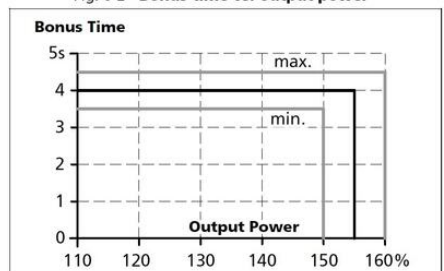
Fig. 9-2 Losses vs. output current at 48V, typ.



Maximal wire length¹⁾ for a fast (magnetic) tripping:

| | 0.75mm ² | 1.0mm ² | 1.5mm ² | 2.5mm ² |
|-------|---------------------|--------------------|--------------------|--------------------|
| C-2A | 56m | 69m | 104m | 163m |
| C-3A | 34m | 44m | 64m | 48m |
| C-4A | 13m | 15m | 24m | 35m |
| C-6A | 2m | 4m | 4m | 9m |
| B-6A | 16m | 19m | 28m | 42m |
| B-10A | 4m | 7m | 9m | 15m |
| B-13A | 3m | 4m | 7m | 10m |

Fig. 6-2 Bonus time vs. output power



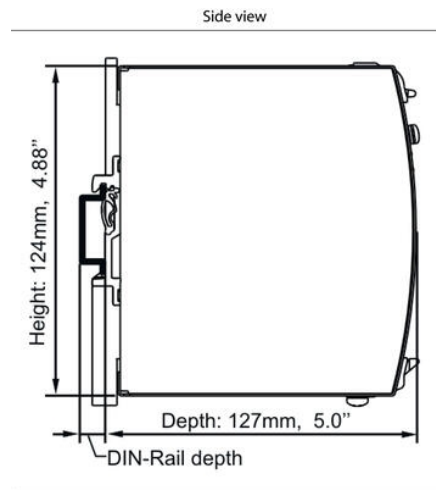
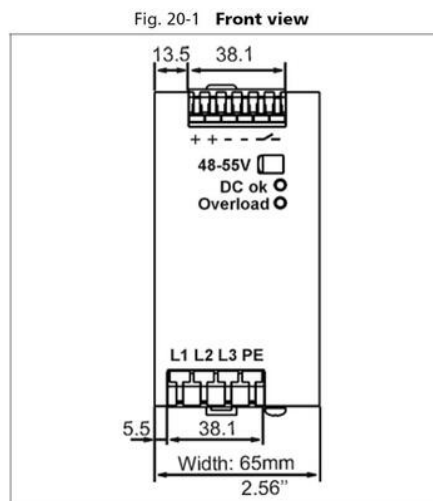
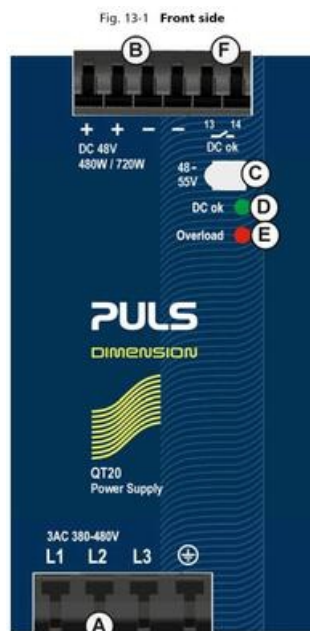


Fig. 6-1 Output voltage vs. output current, typ.

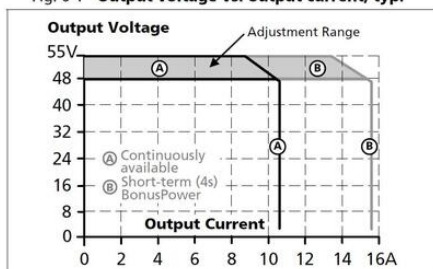


Fig. 15-1 Output current vs. ambient temp.

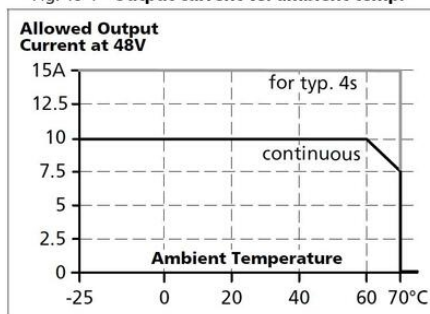


Fig. 9-1 Efficiency vs. output current at 48V, typ.

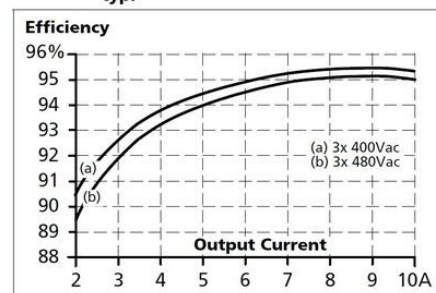
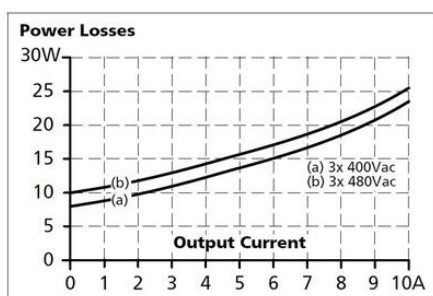


Fig. 9-2 Losses vs. output current at 48V, typ.



Maximal wire length¹⁾ for a fast (magnetic) tripping:

| | 0.75mm ² | 1.0mm ² | 1.5mm ² | 2.5mm ² |
|-------|---------------------|--------------------|--------------------|--------------------|
| C-2A | 56m | 69m | 104m | 163m |
| C-3A | 34m | 44m | 64m | 48m |
| C-4A | 13m | 15m | 24m | 35m |
| C-6A | 2m | 4m | 4m | 9m |
| B-6A | 16m | 19m | 28m | 42m |
| B-10A | 4m | 7m | 9m | 15m |
| B-13A | 3m | 4m | 7m | 10m |

Fig. 6-2 Bonus time vs. output power

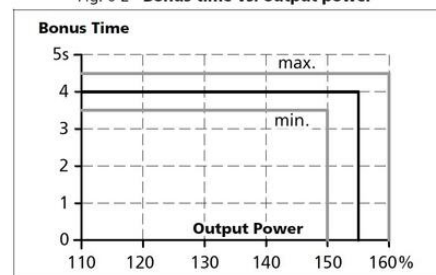


Fig. 13-1 Front side

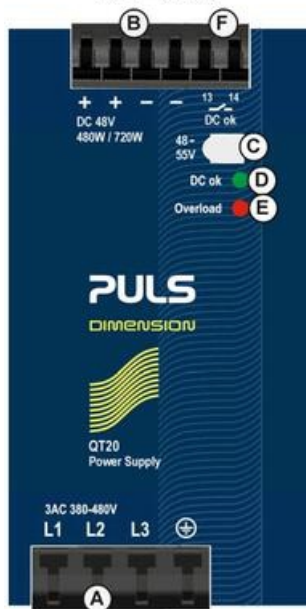
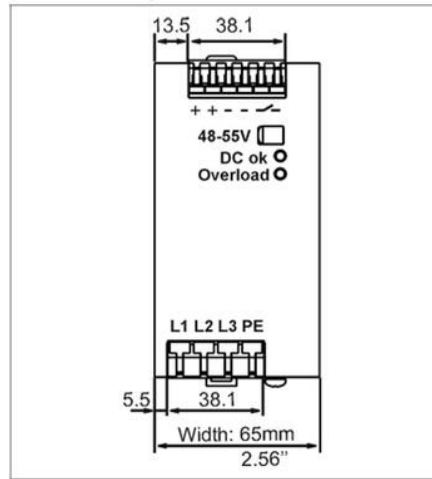


Fig. 20-1 Front view



Side view

