

60 W and 50 W High efficiency, low profile Modular DC Power Supplies for electrical cabinets

Fold-Back overload characteristics for Battery charging applications and parallel working for increased load current

Type 78.61

- Output 24 V DC, 60 W

Type 78.51

- Output 12 V DC, 50 W

- High efficiency (up to 91%)
- Low (< 0.4 W) stand-by power consumption
- Thermal protection: internal, with V_{out} shutdown - power OFF to reset
- Short circuit protection: Hiccup (auto-recovery) mode
- Overload protection: Fold-back mode
- Input fuse: Easily replaceable plus spare
- Overvoltage protection: Varistor
- Flyback topology
- ZVS (Zero-voltage-switching), quasi-resonant mode switching
- Compliant with EN 60950-1 and EN 61204-3
- Parallel working for increased load current (with OR diodes)
- Dual Polarity and Series connection permissible
- Small dimensions: 70 mm (4-modules) wide, 60 mm deep
- 35 mm rail (EN 60715) mount

Screw terminal



For outline drawing see page 17

Output specification

| | | | |
|---|------------------------|---------|---------|
| Output current (-20...+40 °C, 230 V AC input) | A | 2.6 | 4.6 |
| Rated current I_N (50 °C, full input operating range) | A | 2.5 | 4.2 |
| Rated voltage | V | 24 | 12 |
| Rated power | W | 60 | 50 |
| Output power (-20...+40 °C, 230 V AC input) | W | 68 | 55 |
| Peak current capability for 3 ms* | A | 8 | 12 |
| Output voltage adjust | V | 24...28 | 12...15 |
| Voltage variation (from no-load to full-load) | | < 1% | < 1% |
| Voltage ripple @ full load** | mV | < 200 | < 200 |
| Hold-up time @ full load: | with 100 V AC input ms | > 20 | > 30 |
| | with 260 V AC input ms | > 130 | > 150 |

Input specification

| | | | |
|---|----------------------|-----------|-----------|
| Nominal voltage (U_N) | V AC (50/60 Hz) | 110...240 | 110...240 |
| | V DC (not polarized) | 220 | 220 |
| Operating range | V AC (50/60 Hz) | 88...265 | 88...265 |
| | V DC | 140...370 | 140...370 |
| Max power consumption (@ 100 V AC, 50 Hz) | VA | 90 | 89 |
| | W | 67.5 | 58.3 |
| Stand-by power consumption | W | < 0.4 | < 0.4 |
| Power factor | | 0.75 | 0.65 |
| Max current consumption (@ 88 V AC) | A | 0.9 | 0.85 |
| Max. inrush current (peak @ 265 V) for 3 ms | A | 30 | 30 |
| Replaceable input fuse | | 1.6 A - T | 1.6 A - T |

Technical data

| | | | |
|--|------|-------------------------|-------------------------|
| Efficiency (@ 230 V AC) | % | 91 | 90 |
| MTTF | h | > 500 · 10 ³ | > 400 · 10 ³ |
| Start-up delay | s | < 1 | < 1 |
| Dielectric strength between input/output | V AC | 3000 (class II) | 3000 (class II) |
| Dielectric strength between input/PE | V AC | 1500 (class I) | 1500 (class I) |
| Ambient temperature range*** | °C | -20...+70 | -20...+70 |
| Protection category | | IP 20 | IP 20 |

Approvals (according to type)



- 24 V DC, 60 W output
- Output adjustable between 24-28 V
- ZVS technology
- Suitable for battery charging



- 12 V DC, 50 W output
- Output adjustable between 12-15 V
- ZVS technology
- Suitable for battery charging

Replaceable fuse + spare



* (see diagrams P78)

** peak to peak, 100 Hz component, with 100 V AC input

*** (see derating diagrams L78)

suitable for battery charging (see details page 11)



**Industrial Switch Mode DC Power Supplies:
120 W and 130 W**
**Fold-Back overload characteristics for Battery
charging applications and parallel working
for increased load current**
Type 78.1C

- Output 24 V DC, 120 W

Type 78.1D

- Output 24 V DC, 130 W
- Double stage active Power Factor Correction
- High efficiency (up to 90%)
- Low stand-by power consumption
- Forward topology
- Thermal protection: internal with pre-alert alarm via LED and auxiliary contact, and with V_{out} safety shutdown - power OFF to reset
- Overload indication: Pre-alert alarm via LED and auxiliary contact indication
- Boost current: Without time limit, with LED and auxiliary contact indication
- Overload protection: Fold-back mode
- Short circuit protection: Hiccup (auto-recovery) mode
- Input fuse: Easily replaceable plus spare
- Overvoltage protection: Varistor
- Compliant with EN 60950-1 and 61204-3
- Parallel working for increased load current (with OR diodes)
- Dual Polarity and Series connection permissible
- 35 mm rail (EN 60715) mount

78.1C


- 24 V DC, 120 W output
- Output adjustable between 24-28 V

78.1D


- 24 V DC, 130 W output
- Output adjustable between 24-28 V
- Double stage with active PFC (Power Factor Correction)

 Replaceable fuse
+ spare


 Thermal protection
with LED indication

 Auxiliary contact
signalling


* (see diagrams P78)

** peak to peak, 100 Hz component, with 110 V AC input

*** (see derating diagrams L78)

 suitable for battery charging (see details page 11)

F

For outline drawing see page 17

Output specification

| | | | |
|--|------|---------|---------|
| Output current (-20...+40 °C, 230 V AC input) | A | 5.4 | 5.4 |
| Rated current I_N (50 °C, full input operating range) | A | 5 | 5.4 |
| Rated voltage | V | 24 | 24 |
| Rated power | W | 120 | 130 |
| Output power (-20...+40 °C, 230 V AC input) | W | 130 | 130 |
| Peak current capability for 5 ms* | A | 15 | 10 |
| Output voltage adjust | V DC | 24...28 | 24...28 |
| Voltage variation (from no-load to full-load) | | < 1% | < 1% |
| Voltage ripple @ full load** | mV | < 100 | < 100 |
| Hold-up time @ full load: with 110 V AC input ms | | > 10 | > 20 |
| with 260 V AC input ms | | > 80 | > 20 |

Input specification

| | | | |
|---|-----------------|---------------------------------|--------------------------|
| Nominal voltage (U_N) | V AC (50/60 Hz) | 120...240 | 110...240 |
| | V DC | 220 | 110...240 |
| Operating range | V AC (50/60 Hz) | 110...265 | 88...265 |
| | V DC | 155...275 (polarized) | 95...275 (non-polarized) |
| Drop out DC Voltage | V | 140 (with $I_{output} = 2.5$ A) | 80 |
| Max power consumption (@ minimum V AC operating range) | VA | 195 (@ 60 Hz) | 145 (@ 50 Hz) |
| | W | 137 (@ 60 Hz) | 145 (@ 50 Hz) |
| Stand-by power consumption | W | < 2.1 | < 3.3 |
| Power factor | | 0.7 | 0.998 |
| Max current consumption | A | 1.7 (@ 110 V AC) | 1.6 (@ 88 V AC) |
| Max. inrush current (peak @ 265 V) for 3 ms | A | 10 | 12 |
| Replaceable input fuse | | 2.5 A - T | 2.5 A - T |

Technical data

| | | | |
|--|------|-------------------------|-------------------------|
| Efficiency (@ 230 V AC) | % | 90 | 89 |
| MTTF | h | > 500 · 10 ³ | > 400 · 10 ³ |
| Start-up delay | s | < 1 | < 1 |
| Dielectric strength between input/output | V AC | 2500 (class II) | 2500 (class II) |
| Dielectric strength between input/PE | V AC | 1500 (class I) | 1500 (class I) |
| Ambient temperature range*** | °C | -20...+70 | -20...+70 |
| Protection category | | IP 20 | IP 20 |

Approvals (according to type)
