

**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                       | VA                   | 90        | 89        |
| (@ 100 V AC, 50 Hz)                         | 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

### Technical data

|                                          |      |                         |                         |
|------------------------------------------|------|-------------------------|-------------------------|
| Efficiency (@ 230 V AC)                  | %    | 91                      | 90                      |
| MTTF                                     | h    | > 500 · 10 <sup>3</sup> | > 400 · 10 <sup>3</sup> |
| 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 Vout 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

For outline drawing see page 17

**Output specification**

|                                                            |      |         |         |
|------------------------------------------------------------|------|---------|---------|
| Output current (-20...+40 °C, 230 V AC input)              | A    | 5.4     | 5.4     |
| Rated current $I_N$<br>(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 $I_{\text{output}} = 2.5$ A) | 80                       |
| Max power consumption                       | VA              | 195 (@ 60 Hz)                          | 145 (@ 50 Hz)            |
| (@ minimum V AC operating range)            | 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 <sup>3</sup> | > 400 · 10 <sup>3</sup> |
| 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)**

**78.1C**


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

Replaceable fuse  
+ spare



Thermal protection  
with LED indication


**78.1D**


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

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)