

**PRO TOP1 960W 48V 20A****Weidmüller Interface GmbH & Co. KG**

Klingenbergstraße 26

D-32758 Detmold

Germany

[www.weidmueller.com](http://www.weidmueller.com)

Production processes constantly need to be made more efficient. As well as performance, energy efficiency and sustainability are also playing an increasingly important role in cutting-edge industry. PROtop power supplies combine excellent performance data with exemplary sustainability, which has a positive impact on the productivity of the entire production facility.

PROtop offers a number of advantages that give you a real competitive edge. These include the permanent reduction of energy costs thanks to high efficiencies as well as the increase in plant availability due to long service life and high MTBF values. In addition, there is a high functional density due to the extremely spacesaving designs. PROtop can achieve significant savings compared to conventional power supply units. Its increased efficiency saves an average of 50 kWh per day in a medium-sized production facility with approx. 100 PROtop power supplies working in three-shift operation. This adds up to over 15,000 kWh a year and also improves the facility's carbon footprint. The service life, which is twice as long as that of standard power supplies, also sustainably reduces the costs of repurchase and exchange.

**General ordering data**

|            |   |
|------------|---|
| Version    | Power supply, switch-mode power supply unit, 48 V |
| Order No.  | <a href="#">2466920000</a>                        |
| Type       | PRO TOP1 960W 48V 20A                             |
| GTIN (EAN) | 4050118481600                                     |
| Qty.       | 1 pc(s).  |

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## Technical data

## Dimensions and weights

|            |         |                 |            |
|------------|---------|-----------------|------------|
| Depth      | 125 mm  | Depth (inches)  | 4.921 inch |
| Height     | 130 mm  | Height (inches) | 5.118 inch |
| Width      | 124 mm  | Width (inches)  | 4.882 inch |
| Net weight | 3,215 g |                 |            |

## Temperatures

|                                   |                           |                       |                |
|-----------------------------------|---------------------------|-----------------------|----------------|
| Storage temperature               | -40 °C...85 °C            | Operating temperature | -25 °C...70 °C |
| Humidity at operating temperature | 5...95 %, no condensation |                       |                |

## Input

|  |   |       |
|--|---|-------|
| AC input voltage range                               | 85...277 V AC                           |       |
| Connection system                                    | PUSH IN                                 |       |
| Current consumption in relation to the input voltage | Voltage type                            | AC    |
|  | Input voltage                           | 100 V |
|  | Input current                           | 12 A  |
|  | Voltage type                            | DC    |
|  | Input voltage                           | 120 V |
|  | Input current                           | 12 A  |
| DC input voltage range                               | 80 ... 410 V DC                         |       |
| Frequency range AC                                   | 45...65 Hz                              |       |
| Input fuse (internal)                                | Yes                                     |       |
| Inrush current                                       | max. 15 A                               |       |
| Nominal power consumption                            | 1,021 VA                                |       |
| Rated input voltage                                  | 110...240 V AC / 120...340 V DC         |       |
| Recommended back-up fuse                             | 16 A, DI / 16 A, Char. B / 16 A, Char C |       |
| Surge protection                                     | Varistor                                |       |

## Output

|   |   |       |
|---|---|-------|
| Connection system                           | PUSH IN   |       |
| DCL - peak load reserve                     | Multiple of the rated current                         | 150 % |
|   | Boost duration  | 5 s   |
|   | Multiple of the rated current                         | 400 % |
|   | Boost duration  | 15 ms |
| Mains failure bridge-over time              | > 20 ms @ 115V AC/ 230 VAC                            |       |
| Nominal output current for U <sub>nom</sub> | 20 A @ 60 °C  |       |
| Output power                                | 960 W   |       |
| Output voltage, max.                        | 56 V  |       |
| Output voltage, min.                        | 45 V  |       |
| Output voltage, note                        | adjustable with potentiometer or communication module |       |
| Parallel connection option                  | yes, max 10   |       |
| Protection against inverse voltage          | Yes   |       |
| Ramp-up time                                | ≤ 100 ms  |       |
| Rated output voltage                        | 48 V DC ± 1 %   |       |
| Residual ripple, breaking spikes            | <100 mV <sub>pp</sub>                                 |       |

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## General data

|                                      |   |                    |                            |
|--------------------------------------|---|--------------------|----------------------------|
| AC failure bridging time @ $I_{nom}$ | > 20 ms @ 230 V AC / > 20 ms @ 115 V AC | Conformal coating  | No                         |
| Degree of efficiency                 | 94%                                     | Derating           | > 60°C (2.5% / 1°C)        |
| Earth leakage current, max.          | 3.5 mA                                  | Housing version    | Metal, corrosion resistant |
| Power factor (approx.)               | > 0.9                                   | Power loss, idling | 10 W                       |
| Power loss, nominal load             | 61.3 W                                  | Protection degree  | IP20                       |
| Short-circuit protection             | Yes, internal                           | Start-up           | ≥ -40 °C                   |
| Surge voltage category               | III, II                                 |                    |                            |

## EMC / shock / vibration

|                                    |   |   |  |
|------------------------------------|---|---|--|
| Interference immunity test acc. to | EN 55032:2015, EN 55024:2010/A1:2015, EN 55035:2017, EN 61000-3-2:2014, EN 61000-3-3:2013, EN 61000-6-1:2007, EN 61000-6-2:2005, EN 61000-6-3:2007/A1:2011, EN 61000-6-4:2007/A1:2011 | Noise emission in accordance with EN55032 |  |
| Shock resistance IEC 60068-2-27    | 30 g in all directions  | Vibration resistance IEC 60068-2-6        | Class B<br>2.3 g (on DIN rail), 4 g (with direct mounting) |

## Insulation coordination

|                                  |                       |                                   |         |
|----------------------------------|-----------------------|-----------------------------------|---------|
| Insulation voltage input / earth | 3.2 kV                | Insulation voltage output / earth | 0.5 kV  |
| Insulation voltage, input/output | 3.5 kV                | Pollution severity                | 2       |
| Protection class                 | I, with PE connection | Surge voltage category            | III, II |

## Electrical safety (applied standards)

|   |  |   |                                    |
|---|--|---|------------------------------------|
| Electrical machine equipment                | Acc. to EN60204  | For use with electronic equipment                           | Acc. to EN50178 / VDE0160          |
| Protection against dangerous shock currents | Acc. to VDE0106-101                                    | Protective separation / protection against electrical shock | VDE0100-410 / acc. to DIN57100-410 |
| Safety extra-low voltage                    | SELV acc. to IEC 60950-1, PELV according to EN 60204-1 | Safety transformers for switch-mode power supplies          | According to EN 61558-2-16         |

## Connection data (input)

|   |                      |   |                    |
|---|----------------------|---|--------------------|
| Conductor cross-section, AWG/kcmil , max.             | 4 AWG                | Conductor cross-section, AWG/kcmil , min. | 20 AWG             |
| Conductor cross-section, flexible , min.              | 0.75 mm <sup>2</sup> | Conductor cross-section, rigid , max.     | 16 mm <sup>2</sup> |
| Conductor cross-section, rigid , min.                 | 0.75 mm <sup>2</sup> | Connection system                         | PUSH IN            |
| Number of terminals                                   | 3 for L/N/PE         | Screwdriver blade                         | 0.6 x 3.5          |
| Wire connection cross section, flexible (input), max. | 16 mm <sup>2</sup>   |   |                    |

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## Technical data

## Connection data (output)

|   |                    |   |                      |
|---|--------------------|---|----------------------|
| Conductor cross-section, AWG/kcmil , max. | 4 AWG              | Conductor cross-section, AWG/kcmil , min. | 20 AWG               |
| Conductor cross-section, flexible , max.  | 16 mm <sup>2</sup> | Conductor cross-section, flexible , min.  | 0.75 mm <sup>2</sup> |
| Conductor cross-section, rigid , max.     | 16 mm <sup>2</sup> | Conductor cross-section, rigid , min.     | 0.75 mm <sup>2</sup> |
| Connection system                         | PUSH IN            | Number of terminals                       | 5 (+ + / - -)        |
| Screwdriver blade                         | 0.6 x 3.5          |   |                      |

## Connection data (signal)

|  |                      |  |                      |
|--|----------------------|--|----------------------|
| Wire connection cross-section, flexible (signal), max. | 1.5 mm <sup>2</sup>  | Wire connection cross-section, flexible (signal), min. | 0.14 mm <sup>2</sup> |
| Wire connection method                                 | PUSH IN              | Wire cross-section, AWG/kcmil , max.                   | 16                   |
| Wire cross-section, AWG/kcmil , min.                   | 26 mm <sup>2</sup>   | Wire cross-section, solid , max.                       | 1.5 mm <sup>2</sup>  |
| Wire cross-section, solid , min.                       | 0.14 mm <sup>2</sup> |  |                      |

## Signalling

|                          |  |   |
|--------------------------|--|---|
| Floating contact         | LED green/red                            | Green: Operation (failure-free), Flashing green: advance warning I>90%, Green/red flashing: output switched off (switch-off mode), Flashing red: overload/error |
| Status relay (max. load) | Yes<br>Output voltage OK (30 V DC / 1 A) |   |

## Classifications

|             |             |             |             |
|-------------|-------------|-------------|-------------|
| ETIM 6.0    | EC002540    | ETIM 7.0    | EC002540    |
| ETIM 8.0    | EC002540    | ETIM 9.0    | EC002540    |
| ECLASS 9.0  | 27-04-07-01 | ECLASS 9.1  | 27-04-07-01 |
| ECLASS 10.0 | 27-04-07-01 | ECLASS 11.0 | 27-04-07-01 |
| ECLASS 12.0 | 27-04-07-01 | ECLASS 13.0 | 27-04-07-01 |
| ECLASS 14.0 | 27-04-07-01 |             |             |

## Environmental Product Compliance

|                                      |                                      |
|--------------------------------------|--------------------------------------|
| RoHS Compliance Status               | Compliant with exemption             |
| RoHS Exemption (if applicable/known) | 6c, 7a, 7cl                          |
| REACH SVHC                           | Lead 7439-92-1                       |
| SCIP                                 | 6d8cdf22-8230-4af8-86c8-3558c716666d |

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**Technical data****Approvals**

Approvals



|                           |            |
|---------------------------|------------|
| ROHS                      | Conform    |
| UL File Number Search     | UL Website |
| Certificate no. (cULus)   | E258476    |
| Certificate no. (cULusEX) | E470829    |

**Downloads**

|   |   |
|---|---|
| Approval/Certificate/Document of Conformity | <a href="#">Lloyds Register Certificate</a><br><a href="#">ABS Certificate</a><br><a href="#">BV Certificate.pdf</a><br><a href="#">DNV Certificate.pdf</a><br><a href="#">RINA Certificate.pdf</a><br><a href="#">UL 508 CSA C22.2 Certificate.pdf</a><br><a href="#">UL 121201 CSA C22.2 Certificate.pdf</a><br><a href="#">DoP EN54.4</a><br><a href="#">Declaration of Conformity</a><br><a href="#">UK Conformity Assessed</a> |
| Engineering Data                            | <a href="#">CAD data – STEP</a><br><a href="#">Application notes – PROtop-topGUARD_IO-Link_CODESYS</a><br><a href="#">Application notes – PROtop_topGUARD_IO-Link_Twincat</a>   |
| User Documentation                          | <a href="#">Operating instruction</a><br><a href="#">IO-Link Register Description PROtop</a>  |
| Catalogues                                  | <a href="#">Catalogues in PDF-format</a>  |
| Brochures                                   | <a href="#">Produkt Information PROTOP DE</a><br><a href="#">Produkt Information PROTOP EN</a>  |

## PRO TOP1 960W 48V 20A

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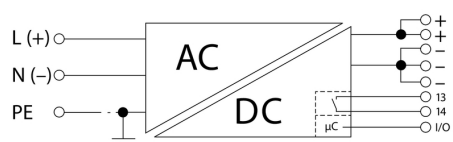
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# Drawings



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## Accessories

## BCF 3.81/180F



PUSH IN - Weidmüller's innovative connection system simplifies the wire connection process.

The benefits for users and applications:

- High packaging density due to very low component height. Simply insert the prepared wire - finished
- High component density with the compact SCDN / SCDN-THR two-tier pin header
- Simplified processing due to integrated push buttons for opening the clamping unit
- Intuitive handling – since the wire-entry area and handling area are clearly separated
- tool-free locking and releasing when using Weidmüller's patented release latch (LR)

The Weidmüller plug-in connectors, pitch 3.81 mm (0.15 inch), are compatible with the layout of customary plug-in connectors, can be coded and provide space for printing.

## General ordering data

| Type       | BCF 3.81/03/180F SN BK ... | Version   | Product data                                     | Packaging |
|------------|----------------------------|---|--|-----------|
| Order No.  | <a href="#">1971570000</a> | PCB plug-in connector, female plug, 3.81 mm, Number of poles: 3,              | IEC: 320 V / 17.5 A / 0.14 - 1.5 mm <sup>2</sup> | Box       |
| GTIN (EAN) | 4032248680504              | 180°, PUSH IN with actuator, Clamping range, max. : 1.5 mm <sup>2</sup> , Box | UL: 300 V / 10 A / AWG 26 - AWG 16               |           |
| Qty.       | 50 pc(s).                  |   |  |           |

## W-Series



Weidmüller's range of products includes end brackets that guarantee a permanent, reliable mounting on the terminal rail and prevent sliding. Versions with and without screws are available. The end brackets include marking options, also for group markers, and also a test plug holder.

## General ordering data

| Type       | WEW 35/2 V0 GF SW          | Version   |
|------------|----------------------------|---|
| Order No.  | <a href="#">1479000000</a> | End bracket, black, TS 35, V-0, Wemid, Width: 8 mm, 130 °C  |
| GTIN (EAN) | 4050118286779              |   |
| Qty.       | 50 pc(s).                  |   |
| Type       | WEW 35/1 V0 GF SW          | Version   |
| Order No.  | <a href="#">1478990000</a> | End bracket, black, TS 35, V-0, Wemid, Width: 12 mm, 130 °C |
| GTIN (EAN) | 4050118286892              |   |
| Qty.       | 50 pc(s).                  |   |

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## Accessories

### Slotted screwdriver



VDE insulated screwdriver sets, for working on live parts up to 1000 V AC and 1500 V DC, DIN EN 60900. IEC 900. Each piece is "GS" safety tested. Blade made from fully hardened, high-alloy chromium-vanadium-molybdenum steel, gun-metal finish.

### General ordering data

|            |                            |   |
|------------|----------------------------|---|
| Type       | SDIS SLIM 0.6X3.5X100      | Version   |
| Order No.  | <a href="#">2749610000</a> | Mounting tool, Blade width (B): 3.5 mm, Blade length: 100 mm, Blade |
| GTIN (EAN) | 4050118896350              | thickness (A): 0.6 mm   |
| Qty.       | 1 pc(s).                   |   |

### Installation



Mounting accessory for Weidmüller Power Supplies.

### General ordering data

|            |                            |                                       |
|------------|----------------------------|---------------------------------------|
| Type       | PRO TOP BRACKETS           | Version                               |
| Order No.  | <a href="#">2575900000</a> | Mounting foot                         |
| GTIN (EAN) | 4050118683059              |                                       |
| Qty.       | 1 pc(s).                   |                                       |
| Type       | CP A WALLADAPTER 30 MM     |                                       |
| Order No.  | <a href="#">1461870000</a> |                                       |
| GTIN (EAN) | 4050118268225              |                                       |
| Qty.       | 1 pc(s).                   |                                       |
| Type       | MTA 45 MF                  | Version                               |
| Order No.  | <a href="#">1251310000</a> | Electronics housings, Mounting flange |
| GTIN (EAN) | 4050118042719              |                                       |
| Qty.       | 1 pc(s).                   |                                       |



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### Communication modules



Weidmüller's plug-in communication modules enable individual components to exchange relevant data with the cloud. This lays the foundation for targeted process optimization using condition monitoring and remote controllability - factors that play a decisive role in increasing efficiency, quality, process stability and availability can contribute. The communication modules are designed according to IP20 protected, can be operated without tools and can be flexibly adapted to different customisable communication protocols.

### General ordering data

|            |                            |                      |
|------------|----------------------------|----------------------|
| Type       | PRO COM CAN OPEN           | Version              |
| Order No.  | <a href="#">2467320000</a> | Communication module |
| GTIN (EAN) | 4050118482225              |                      |
| Qty.       | 1 pc(s).                   |                      |
| Type       | PRO COM DISPLAY 7S         | Version              |
| Order No.  | <a href="#">2466960000</a> | Communication module |
| GTIN (EAN) | 4050118481808              |                      |
| Qty.       | 1 pc(s).                   |                      |
| Type       | PRO COM CAN OPEN EX        | Version              |
| Order No.  | <a href="#">2467340000</a> | Communication module |
| GTIN (EAN) | 4050118481822              |                      |
| Qty.       | 1 pc(s).                   |                      |
| Type       | PRO COM IO-LINK            | Version              |
| Order No.  | <a href="#">2587360000</a> | Communication module |
| GTIN (EAN) | 4050118599152              |                      |
| Qty.       | 1 pc(s).                   |                      |