

## Features

- 4:1 Wide Input Voltage Range
- 20 Watts Output Power
- 1.6kVDC Isolation
- Fixed Operating Frequency
- Six-Sided Continuous Shield
- UL 1950 Component Recognized
- Standard 50.8 x40.6x10.2mm Package
- Efficiency to 84%

**POWERLINE**  
DC/DC-Converter

## RP20-S\_DEW Series

**20 Watt  
Single &  
Dual  
Output**



**RECOM**

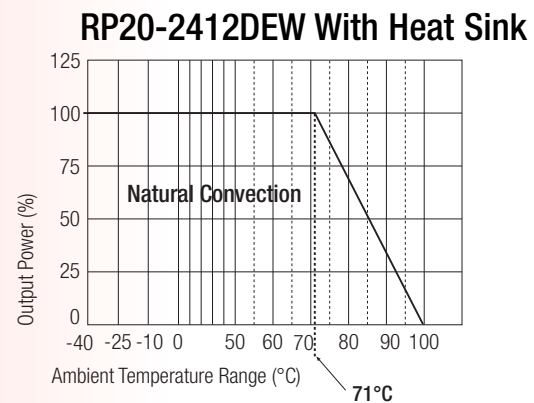
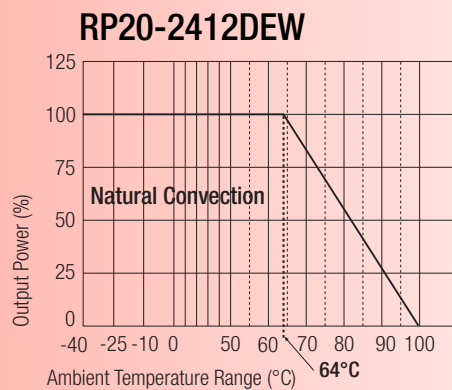
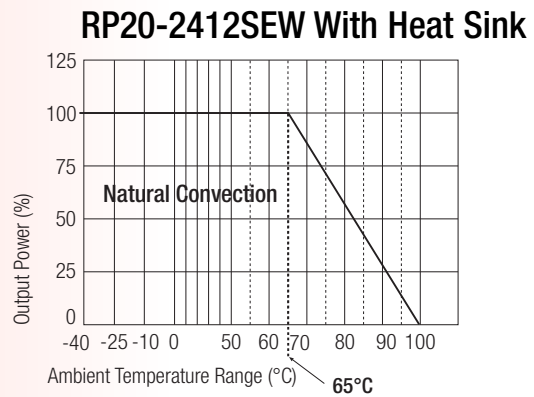
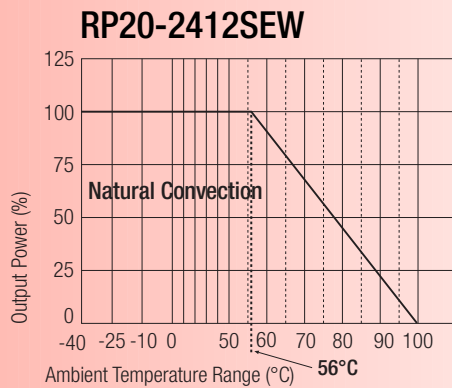
### Selection Guide 24V and 48V Input Types

| Part Number   | Input Range<br>VDC | Output Voltage<br>VDC | Output Current<br>mA | Input <sup>(4)</sup><br>Current<br>mA | Efficiency <sup>(5)</sup><br>% | Capacitive <sup>(6)</sup><br>Load max.<br>μF |
|---------------|--------------------|-----------------------|----------------------|---------------------------------------|--------------------------------|--|
| RP20-243.3SEW | 9-36               | 3.3                   | 4000                 | 764                                   | 76                             | 13000  |
| RP20-2405SEW  | 9-36               | 5                     | 4000                 | 1111                                  | 79                             | 6800   |
| RP20-2412SEW  | 9-36               | 12                    | 1670                 | 1082                                  | 81                             | 2200   |
| RP20-2415SEW  | 9-36               | 15                    | 1330                 | 1082                                  | 81                             | 755  |
| RP20-483.3SEW | 18-75              | 3.3                   | 4000                 | 377                                   | 77                             | 13000  |
| RP20-4805SEW  | 18-75              | 5                     | 4000                 | 548                                   | 80                             | 6800   |
| RP20-4812SEW  | 18-75              | 12                    | 1670                 | 541                                   | 81                             | 2200   |
| RP20-4815SEW  | 18-75              | 15                    | 1330                 | 541                                   | 81                             | 755  |
| RP20-2405DEW  | 9-36               | ±5                    | ±2000                | 1111                                  | 79                             | ±3400  |
| RP20-2412DEW  | 9-36               | ±12                   | ±833                 | 1082                                  | 81                             | ±680   |
| RP20-2415DEW  | 9-36               | ±15                   | ±666                 | 1068                                  | 82                             | ±450   |
| RP20-4805DEW  | 18-75              | ±5                    | ±2000                | 556                                   | 79                             | ±3400  |
| RP20-4812DEW  | 18-75              | ±12                   | ±833                 | 527                                   | 83                             | ±680   |
| RP20-4815DEW  | 18-75              | ±15                   | ±666                 | 521                                   | 84                             | ±450   |

### Description

The EW-Series of DC/DC Converters are fully certified to EN 60950: 2000. This makes them ideal for all Telecom and safety applications where approved isolation is required.

## Derating-Graph (Ambient Temperature)



Derating graphes are valid only for the shown part numbers. If you need detailed derating-information about a part-number not shown here please contact our technical customer service at [info@recom-development.at](mailto:info@recom-development.at)

### Specifications (typical at nominal input and 25°C unless otherwise noted)

|  |                     |                         |
|--|---------------------|-------------------------|
| Input Voltage Range                                    | 24V nominal input   | 9-36VDC                 |
|  | 48V nominal input   | 18-75VDC                |
| Input Filter   | Pi Type             |                         |
| Input Surge Voltage (100 ms max.)                      | 24V Input           | 50VDC                   |
|  | 48V Input           | 100VDC                  |
| Input Reflected Ripple (nominal Vin and full load)     | 25mA <sub>p-p</sub> |                         |
| Start Up Time (nominal Vin and constant resistor load) | 20ms typ.           |                         |
| Remote ON/OFF (see note 7)                             | DC-DC ON            | Open or 3.5V < Vr < 12V |
|  | DC-DC OFF           | Short or 0V < Vr < 1.2V |
| Remote OFF input current                               | Nominal input       | 20mA                    |
| Output Power   | 20W max.            |                         |
| Output Voltage Accuracy (full Load and nominal Vin)    | Single & Dual       | ±2%                     |
|  | Auxiliary           | ±5%                     |
| Voltage Adjustability                                  | ±10%                |                         |
| Line Regulation (LL-HL at full load)                   | Single (W)          | ±0.2%                   |
|  | Dual (W)            | ±0.5%                   |
|  | Auxiliary           | ±5%                     |
| Minimum Load (see Note 1)                              | 10% of FL           |                         |

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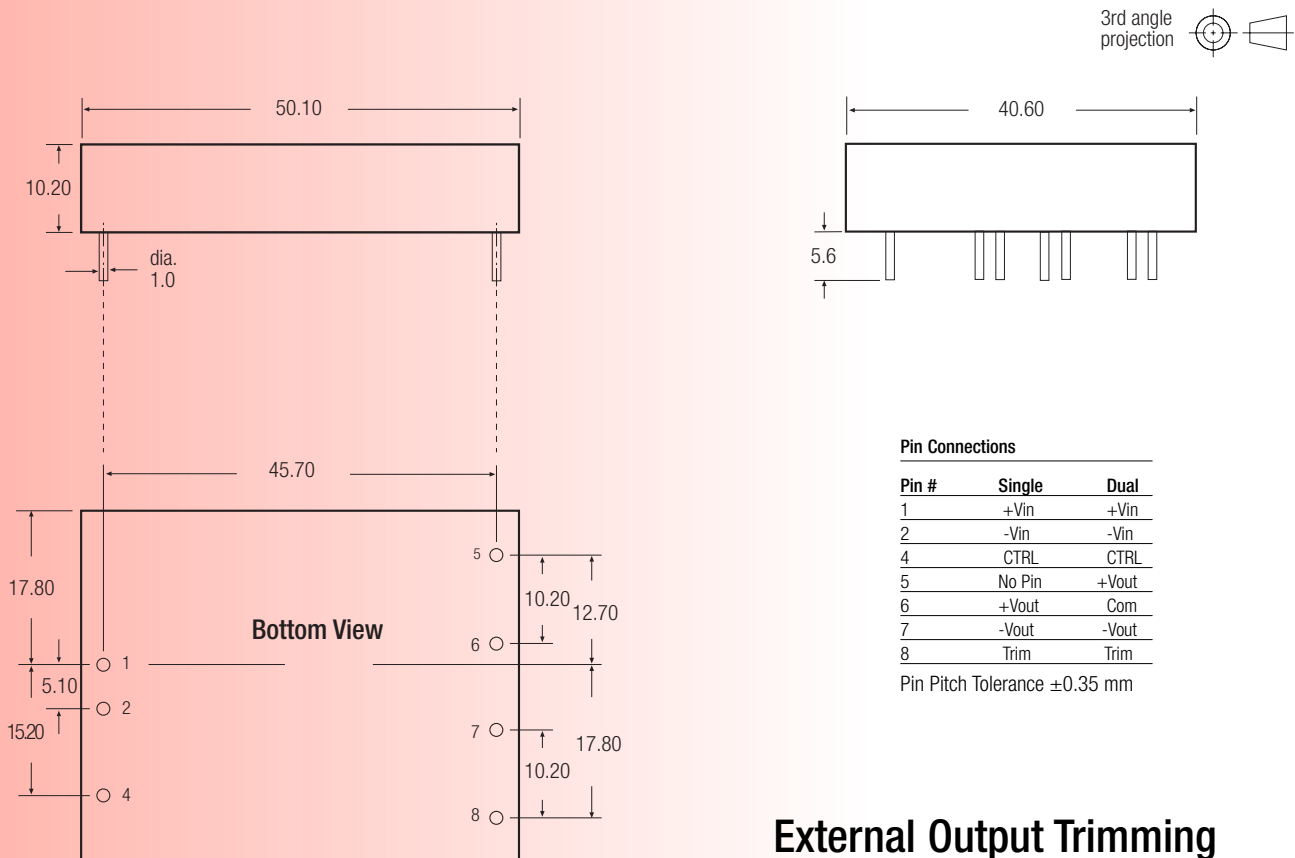
**Specifications** (typical at nominal input and 25°C unless otherwise noted)

|   |                                   |                                       |
|---|-----------------------------------|---------------------------------------|
| Line Regulation (LL-HL at full load)      | Single (W)                        | ±0.2%                                 |
|   | Dual (W)                          | ±0.5%                                 |
|   | Auxiliary                         | ±5%                                   |
| Load Regulation (25% to 100% FL)          | Single                            | ±0.5%                                 |
|   | Dual                              | ±3%                                   |
|   | Auxiliary                         | ±5%                                   |
| Cross Regulation (Note 9)                 | Dual                              | ±5%                                   |
|   | Auxiliary                         | ±5%                                   |
| Ripple and Noise (20MHz bandwidth)        | Single                            | 75mVp-p                               |
|   | Dual                              | 100mVp-p                              |
|   | Auxiliary                         | 1% of Vout                            |
| Temperature Coefficient                   |                                   | ±0.02%/°C, max.                       |
| Transient Response (25% load step change) |                                   | 500µS                                 |
| Over Voltage Protection                   | 3.3V                              | 3.9V                                  |
| Zener diode clamp (only single)           | 5V                                | 6.2V                                  |
|   | 12V                               | 15V                                   |
|   | 15V                               | 18V                                   |
| Short Circuit Protection                  |                                   | Hiccup, automatic recovery            |
| Efficiency                                |                                   | see „Selection Guide“ table           |
| Isolation Voltage                         |                                   | 1.600VDC min.                         |
| Isolation Resistance                      |                                   | 10 <sup>9</sup> Ω min.                |
| Isolation Capacitance                     |                                   | 300pF max.                            |
| Operating Frequency                       |                                   | 300kHz typ.                           |
| Approved to Safety Standards              |                                   | EN60950                               |
| Operating Temperature Range               |                                   | -40°C to +85°C(with derating)         |
| Maximum Case Temperature                  |                                   | +100°C                                |
| Storage Temperature Range                 |                                   | -55°C to +105°C                       |
| Thermal Impedance                         | Natural convection                | 10°C/Watt                             |
|   | Natural convection with Heat Sink | 8.24°C/Watt                           |
| Thermal Shock                             |                                   | MIL-STD-810D                          |
| Vibration                                 |                                   | 10-55Hz, 2G, 30 Min. along X, Y and Z |
| Relative Humidity                         |                                   | 5% to 95% RH                          |
| Case Material                             |                                   | Nickel-Coated copper                  |
| Base Material                             |                                   | Non-conductive black plastic          |
| Potting Material                          |                                   | Epoxy (UL94-V0)                       |
| Conducted Emissions                       | EN55022                           | Level A                               |
| Radiated Emissions                        | EN55022                           | Level A                               |
| ESD                                       | EN61000-4-2                       | Perf. Criteria 2                      |
| Radiated Immunity                         | EN61000-4-3                       | Perf. Criteria 2                      |
| Fast Transient                            | EN61000-4-4                       | Perf. Criteria 2                      |
| Surge                                     | EN61000-4-5                       | Perf. Criteria 2                      |
| Conducted Immunity                        | EN61000-4-6                       | Perf. Criteria 2                      |
| Weight                                    |                                   | 48g                                   |
| Dimensions                                |                                   | 50.8 x 40.6 x 10.2mm                  |
| MTBF (see note 2)                         |                                   | 1.928 x 10 <sup>6</sup> Hours         |

## Notes :

1. The RP20 series requires a minimum of 10% loading on the output to maintain specified regulation. Operation under no-load condition will not damage these devices, however they may not meet all listed specification.
2. BELLCORE TR-NWT-000332. Case I: 50% Stress, Temperature at 40°C (Ground fixed and controlled environment).
3. Simulated source impedance of 12uH. 12uH inductor in series with +Vin.
4. Maximum value at nominal input voltage and full load of standard type.
5. Typical value at nominal input voltage and full load.
6. Test by minimum Vin and constant resistor load.
7. The ON/OFF control voltage is reference to negative input.
8. Heat sink is optional and P/N: 7G-0011A. Operation temperature range please see curve.
9. Cross regulation: Dual output—Asymmetrical load 25% to 100% full load  
Triple output – 3.3V / 5V 100% load and one of auxiliary 100% load, other auxiliary load change from 25% to 100% load
10. See application notes for EMI-filtering.

## Package Style and Pinning (mm)



## External Output Trimming

Output can be externally trimmed by using the method shown below.

( ) for dual output trim

