



The PH-A280 series of isolated DC-DC converters operate from a wide range 200 to 425Vdc input and are available in multiple power levels from 50 to 600W. Output voltages cover 3.3V to 48V and can be adjusted using the trim terminal by up to -60% to +20%. All models feature remote sense and remote on/off and can be conduction cooled to a cold plate or mounted with an optional heatsink. The 300 and 600W models are certified to EN 62477-1 (OVC III) for use in industrial robots connected to an incoming distribution panel, avoiding the requirement for an isolation transformer. These efficient converters are also well suited for HVDC (High Voltage Direct Current) power transmission systems and renewable energy applications.

| Features | Benefits |
|--|--|
| • Wide Range 200 to 425Vdc Input | • Suitable for HVDC Applications |
| • Baseplate Cooled | • Can be Conduction or Convection Cooled (With an Optional Heatsink) |
| • -40 to 100°C Baseplate Temperature | • Operates in Harsh Environments |
| • Certified to IEC/EN62477-1 (OVC III) | • No External Transformer Needed |
| • Up to 93% Efficient | • Easier To Cool In the End System |

| Model Selector | | | | | | | |
|----------------|--------------------|----------------------|---------------------|-------------------|--|---|--|
| Model | Output Voltage (V) | Adjustment Range (V) | Maximum Current (A) | Maximum Power (W) | Input Current (A) 280V input, 100% load | Efficiency (%) 280V input, 100% load | Ovoltage Protection (%) ⁽²⁾ |
| PH75A280-3.3 | 3.3 | 2.97 - 3.96 | 15 | 49.5 | 0.22 | 83 | 130 - 200 |
| PH100A280-3.3 | 3.3 | 2.97 - 3.96 | 20 | 66 | 0.29 | 83 | 130 - 200 |
| PH50A280-5 | 5 | 4 - 6 | 10 | 50.0 | 0.21 | 86 | 125 - 150 |
| PH75A280-5 | 5 | 4 - 6 | 15 | 75.0 | 0.32 | 86 | 125 - 150 |
| PH100A280-5 | 5 | 4 - 6 | 20 | 100.0 | 0.42 | 86 | 125 - 150 |
| PH300A280-5 | 5 | 2.5 - 6 | 60 | 300.0 | 1.22 | 89 | 125 - 145 |
| PH50A280-12 | 12 | 9.6 - 13.2 | 4.2 | 50.4 | 0.2 | 89 | 115 - 145 |
| PH75A280-12 | 12 | 9.6 - 13.2 | 6.3 | 75.6 | 0.31 | 89 | 115 - 145 |
| PH100A280-12 | 12 | 9.6 - 13.2 | 8.4 | 100.8 | 0.41 | 89 | 115 - 145 |
| PH150A280-12 | 12 | 9.6 - 13.2 | 12.5 | 150.0 | 0.62 | 88 | 115 - 145 |
| PH300A280-12 | 12 | 4.8 - 14.4 | 25 | 300.0 | 1.22 | 89 | 125 - 145 |
| PH75A280-15 | 15 | 12 - 16.5 | 5 | 75.0 | 0.3 | 90 | 115 - 145 |
| PH150A280-15 | 15 | 12 - 16.5 | 10 | 150.0 | 0.6 | 90 | 115 - 145 |
| PH50A280-24 | 24 | 19.2 - 26.4 | 2.1 | 50.4 | 0.2 | 89 | 115 - 145 |
| PH75A280-24 | 24 | 19.2 - 26.4 | 3.2 | 76.8 | 0.31 | 90 | 115 - 145 |
| PH100A280-24 | 24 | 19.2 - 26.4 | 4.2 | 100.8 | 0.4 | 90 | 115 - 145 |
| PH150A280-24 | 24 | 19.2 - 26.4 | 6.3 | 151.2 | 0.61 | 89 | 115 - 145 |
| PH300A280-24 | 24 | 9.6 - 28.8 | 12.5 | 300.0 | 1.2 | 90.5 | 125 - 145 |
| PH600A280-24 | 24 | 14.4 - 28.8 | 25 | 600.0 | 2.33 | 93 | 125 - 145 |
| PH75A280-28 | 28 | 22.4 - 30.8 | 2.7 | 75.6 | 0.3 | 90 | 115 - 145 |
| PH150A280-28 | 28 | 22.4 - 30.8 | 5.4 | 151.2 | 0.61 | 90 | 115 - 145 |
| PH300A280-28 | 28 | 11.2 - 33.6 | 10.8 | 302.4 | 1.2 | 91 | 125 - 145 |
| PH50A280-48 | 48 | 38.4 - 52.8 | 1.1 | 52.8 | 0.21 | 89 | 115 - 145 |
| PH75A280-48 | 48 | 38.4 - 52.8 | 1.6 | 76.8 | 0.31 | 90 | 115 - 145 |
| PH100A280-48 | 48 | 38.4 - 52.8 | 2.1 | 100.8 | 0.4 | 90 | 115 - 145 |
| PH150A280-48 | 48 | 38.4 - 52.8 | 3.2 | 153.6 | 0.6 | 90 | 115 - 145 |
| PH300A280-48 | 48 | 19.2 - 57.6 | 6.3 | 302.4 | 1.19 | 92 | 125 - 145 |

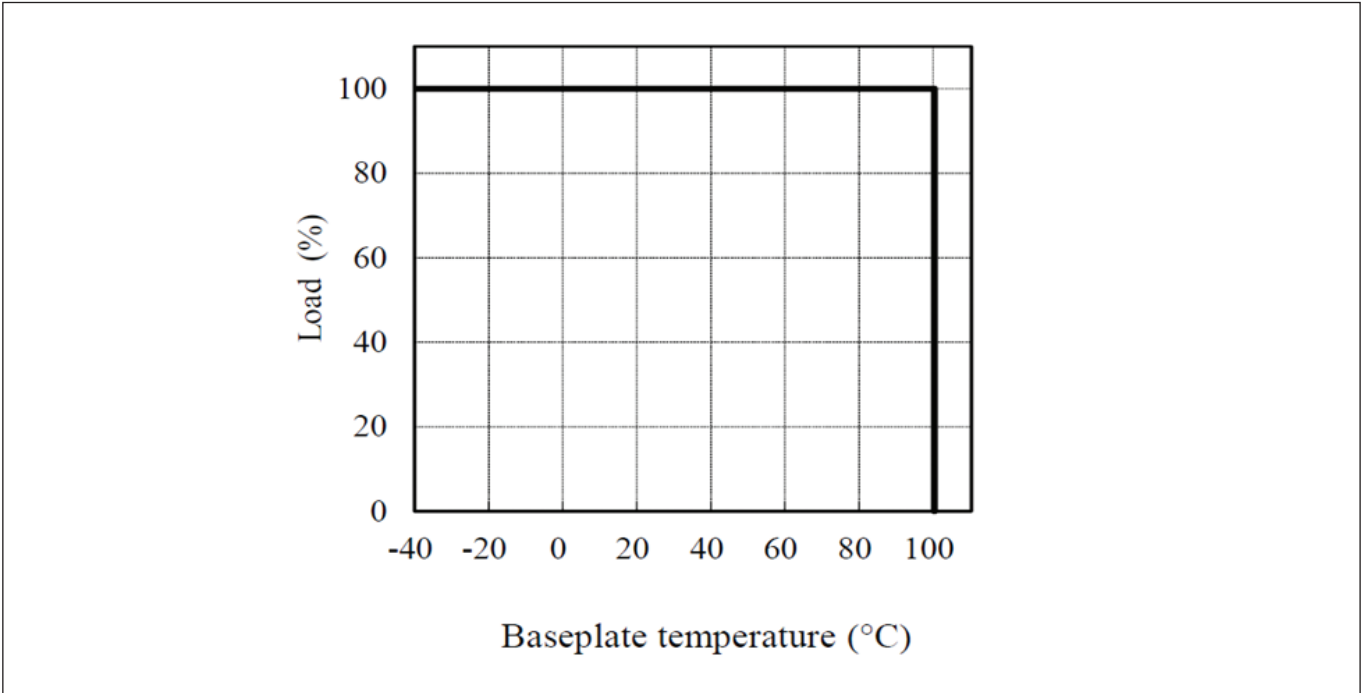
| Options | |
|---------|----------------------------|
| Suffix | Description |
| Blank | M3 tapped mounting inserts |
| /T | 3.3mm non-threaded inserts |

| Heat Sink Accessories | |
|-----------------------|--|
| Suffix | Description |
| HAQ-10T | PH50A to 150A 25mm transverse fins |
| HAH-10T | PH300A and 600A 25mm transverse fins |
| HAH-15L | PH300A and 600A 38mm longitudinal fins |

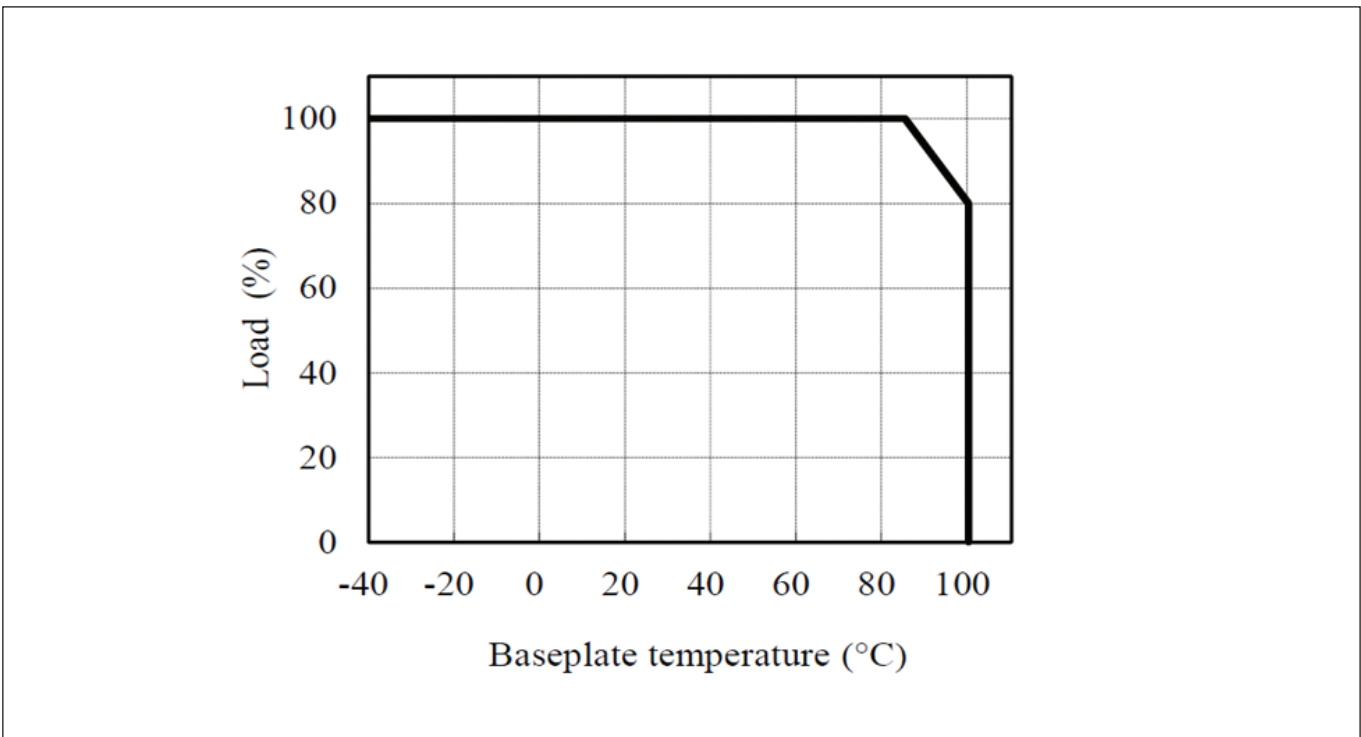
| Specifications | | | |
|-------------------------------------|--------|--|--------------------|
| Model | | PH50A to PH150A | PH300A to PH600A |
| Input | | | |
| Input Voltage range | Vdc | 200 - 425V | |
| Input Current (280Vdc) | A | See model selector | |
| No Load Power Consumption | W | See evaluation data on website | |
| Efficiency (280Vdc) | - | See model selector | |
| Safety Agency Certifications | - | IEC/UL/CSA/EN62368-1, 60950-1, EN62477-1 OVC III (PH300A and 600A only), CE Mark (LVD and RoHS) | |
| Output | | | |
| Line Regulation | mV | 3.3V - 5V: 10mV; 12V: 24mV; 15V: 30mV, 24V: 48mV, 28V: 56mV, 48V: 96mV | |
| Load Regulation | mV | 3.3V - 5V: 10mV; 12V: 24mV; 15V: 30mV, 24V: 48mV, 28V: 56mV, 48V: 96mV | |
| Ripple & Noise | mV | 3.3V - 5V: 100mV; 12V - 15V: 150mV; 24V: 240mV, 28V: 280mV, 48V: 400mV (1) | |
| Temperature Coefficient | %/°C | 0.02%/°C | |
| Minimum Load | - | No minimum load required | |
| Overcurrent Protection | - | 102 - 150% Constant current style. (PH600A constant current and hiccup) | |
| Overvoltage Protection | V | Yes, see model selector | |
| Remote Sense | - | Yes | |
| Remote On/Off | - | Yes; Low = ON, High = OFF | |
| Parallel Operation | - | Not possible | |
| Series Operation | - | Possible, see installation manual | |
| Environmental | | | |
| Operating Temperature | °C | -40°C to +100°C Base-plate, -40°C to +85°C Ambient (See derating section) | |
| Storage Temperature | °C | -40°C to +100°C | |
| Humidity (non condensing) | %RH | 5 - 95% RH Operating and Non Operating | |
| Cooling | - | Conduction, convection or forced air (See Installation Manual for heatsink selection) | |
| Altitude | m | 3,000m | |
| Withstand Voltage (For 1 minute) | VAC | Input to Base-plate: 2.5kVAC; Input to Output 3.0kVAC; Output to Base-plate: 500VAC | |
| Isolation Resistance | MΩ | >100MΩ at 25°C, 70%RH & 500VDC | |
| Vibration | - | Non Operating, 10-55Hz (sweep for 1 min.) Amplitude 0.825mm constant (Max 49 m/s ²) X,Y,Z 1 hour each | |
| Shock | - | 196.1m/s ² | |
| Other | | | |
| Weight (Typ) | g | 55 | 100 |
| Size (WxHxD) | mm | 37.2 x 12.7 x 58.3 | 61.0 x 12.7 x 57.9 |
| Size (WxHxD) | Inches | 1.46 x 0.5 x 2.30 | 2.4 x 0.5 x 2.28 |
| MTBF - Telcordia SR-332 issue 3 (3) | Hours | 2 128,235 | 1,174,511 |
| Warranty | yrs | 5 years | |

- Notes
- See website for detailed specifications, test methods and installation manual
- (1) PH300A280-48 480mV
 - (2) Cycle input or remote on/off to reset
 - (3) PH100A280-48 model, 40°C baseplate, full load, 280Vdc input. PH300A280-24 model, 40°C baseplate, full load, 280Vdc input, ground benign (See full reliability data on website)

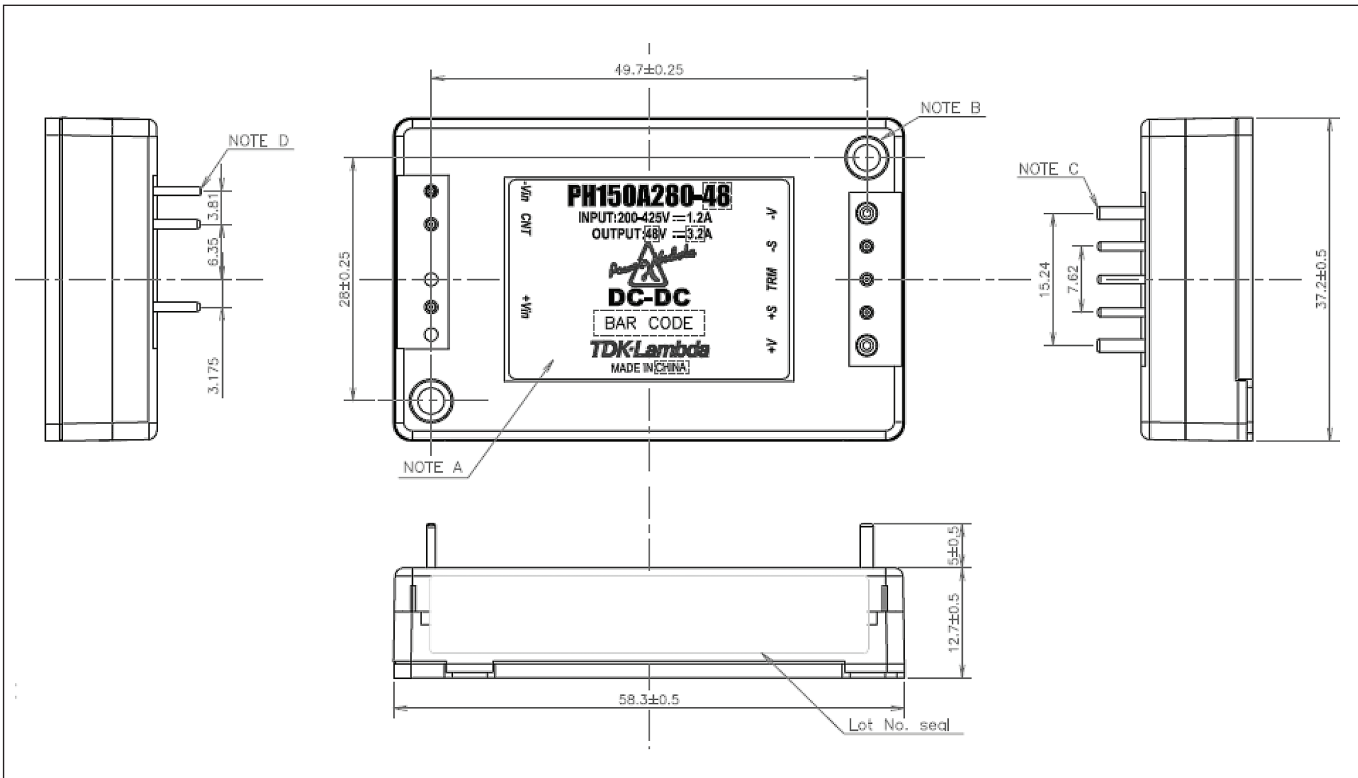
Derating Curve (PH50A to PH300A)



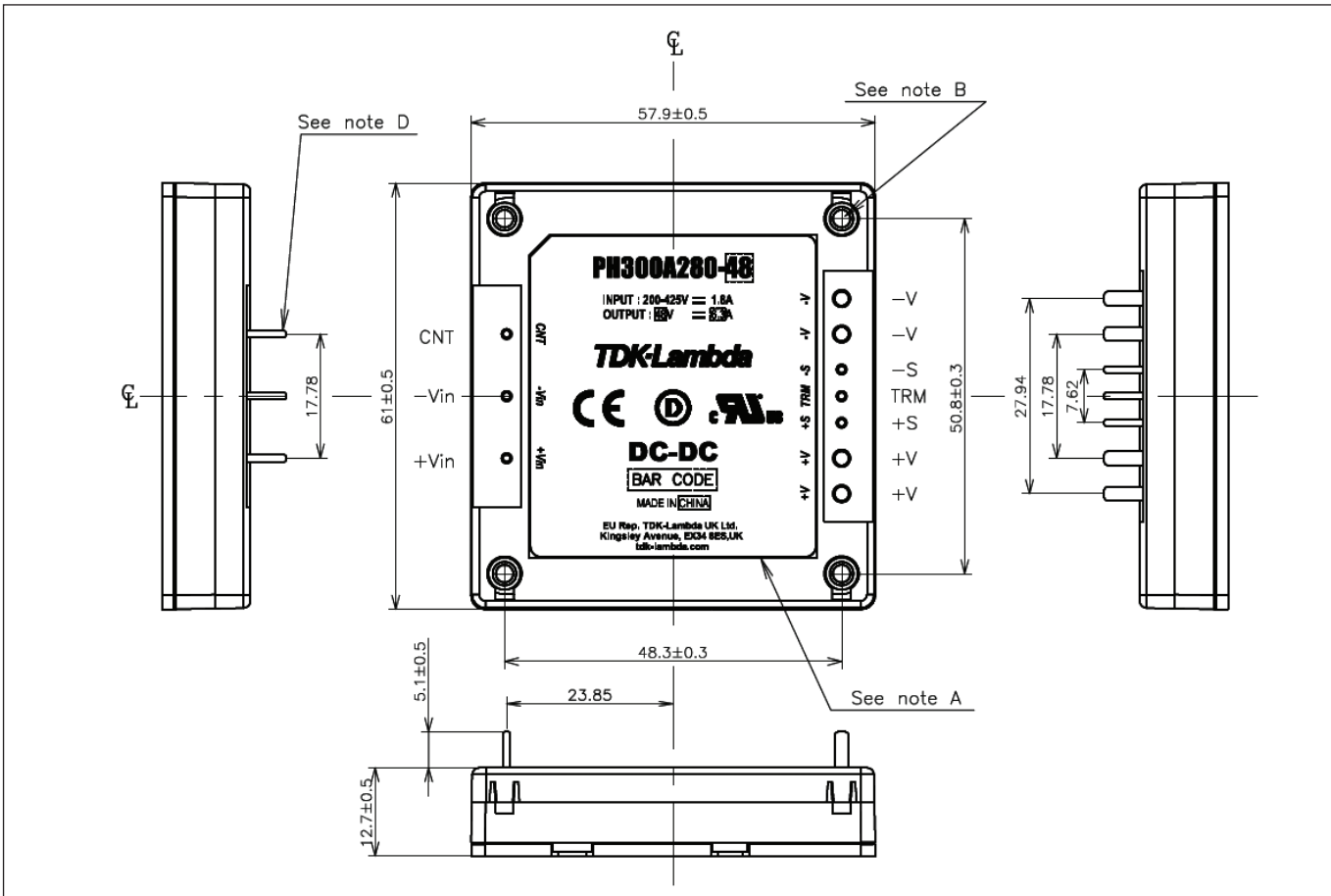
Derating Curve (PH600A)



Outline Drawing PH50A to PH150A



Outline Drawing PH300A to PH600A





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