

CE

## PRO-T SERIES 10KW PROGRAMMABLE POWER SUPPLIES



The new PRO-T Series 10 kW programmable power supplies meet the sophisticated control and packaging requirements of high power test and measurement applications. Optional internal IEEE-488/RS-232 capability for various programming and readback functions with 12-bit resolution and accuracy is available. Other features not found in comparable products are output for remote meters, remote OVP programming and remote shutdown. The PRO-T Series yields 80% efficiencies at full power with an internal fast programming speed (<100ms full range), tight regulation (<0.1%) and low RMS ripple.

- 8 models from 0-16 to 0-600 Vdc and 16 to 625 Adc, thyristor-controlled and dc regulated
- 480 Vac, 50/60 Hz, 3-phase input; Optional inputs available
- Automatic V/I crossover with indicators
- Remote control functions: V, I, OVP shutdown, external meter/indicator drive
- No programming resistors in contact with output, avoids high-voltage

problems with programming components

- Unique circuit prevents load burn-out should remote programming lines open
- EMI protection on ac line
- OVP shutdown standard
- 0.1% line and load regulation (max.)
- 80% efficiency (typical)
- Fast programming speed (150 ms typical)
- Rear panel connector features: ac control, shutdown, voltage set, OVP set, local/remote I meter, remote V meter, OVP indication, thermal indication, remote sense.
- SCR crowbar (Option M5)
- Optional Internal IEEE-488/RS-232 Interface Card with V and I readback and adjustable OVP (Option M9C)
- CE Mark (Option M36)
- 5 year warranty

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PRO-T SERIES

# PRO-T SERIES SPECIFICATIONS

## DC OUTPUT CONSTANT VOLTAGE MODE

### Voltage Regulation

**Line and load combined:** 0.1% of the voltage setting or specification in table, whichever is greater.

**Temperature Coefficient:** 0.02%/°C of  $V_O$  max.

**Voltage Programming:** 100 mV per 1% of rated output. (0-10 V for 0-100% of rated output)

**Resistive Programming:** 100Ω per 1% of rated output. (0-10 kΩ for 0-100% of rated output)

**Stability:** 0.1%  $V_O$  max. for 8 hours after 30 minute warm-up with fixed line, load and temperature.

**Remote Sense:** 3 to 10V max. drop, +line, 0.75V max. drop, -line.

**Transient Response:** 40 ms (typ.) to return to ±1% band for a step load change of 50% to 100% or 100% to 50% of full load.

## CONSTANT CURRENT MODE

### Current Regulation

**Line and load combined:** 0.1%

$I_O$  max. of the output current setting or specification in table, whichever is greater.

**Temperature Coefficient:** 0.04%/°C of  $I_O$  max.

**Current Programming:** 100 mV per 1% of rated output. (0-10V for 0-100% of rated output)

**Resistive Programming:** 100Ω per 1% of rated output. (0-10kΩ for 0-100% of rated load)

**Stability:** 0.1%  $I_O$  max. for 8 hours after 30 minute warm up with fixed line, load and temperature.

## INPUT

**Voltage:** 480 Vac ±10%, 50/60 Hz, 3Ø

**Voltage Options:** See chart on next page.

## OPERATING DATA

**Efficiency:** 80% at full rated output (typical).

**Series Operation:** 200 Vdc max.; consult Sorensen for series operation of more than 2 units.

**Parallel Operation:** Direct paralleling of any number of units.

**Overvoltage Protection:** Adjustable 5-110% of rated output. Selectable front panel or remotely programmable.

**Ambient Operating Temperature Range:** 0 to +50°C (derated above 30°C)

**Storage Temperature:** -45°C to +85°C

**Cooling:** Forced air

**Humidity Range:** 0-80% RH, non-condensing

| Model        | Output Power  |                |       |      | Constant Voltage Mode                    |                 |        |              |                                   | Temp. Coeff., Voltage mV/°C | Voltage Drift % $V_O$ Max. (Typ.) | Programming Constants |      |
|--------------|---------------|----------------|-------|------|------------------------------------------|-----------------|--------|--------------|-----------------------------------|-----------------------------|-----------------------------------|-----------------------|------|
|              |               |                |       |      | Regulation Line and Load mV <sup>1</sup> | Ripple (PAR) mV |        | Resolution % | Transient Response Time ms (Typ.) |                             |                                   | Voltage Mode Ohms/V   | V/V  |
|              | Voltage (Vdc) | Current (A dc) |       |      |                                          | mV RMS          | mV p-p |              |                                   |                             |                                   |                       |      |
| PRO16-625T5* | 0-16          | 625            | 562   | 500  | 8-16                                     | 30              | 100    | .025%        | 40                                | 3.2                         | 0.1                               | 625                   | 1.6  |
| PRO32-310T5* | 0-32          | 310            | 279   | 248  | 16-32                                    | 20              | 120    | .025%        | 40                                | 6.4                         | 0.1                               | 313                   | 3.2  |
| PRO55-180T5* | 0-55          | 180            | 162   | 144  | 28-55                                    | 20              | 120    | .025%        | 40                                | 11.0                        | 0.1                               | 182                   | 5.5  |
| PRO80-125T5* | 0-80          | 125            | 112.5 | 100  | 40-80                                    | 30              | 120    | .025%        | 40                                | 16.0                        | 0.1                               | 125                   | 8.0  |
| PRO110-90T5* | 0-110         | 90             | 81    | 72   | 55-110                                   | 40              | 140    | .025%        | 40                                | 22.0                        | 0.1                               | 91                    | 11.0 |
| PRO160-62T5* | 0-160         | 62             | 55.8  | 49.6 | 80-160                                   | 60              | 180    | .025%        | 40                                | 32.0                        | 0.1                               | 63                    | 16   |
| PRO300-33T5* | 0-300         | 33             | 29.7  | 26.4 | 150-300                                  | 100             | 300    | .025%        | 40                                | 60.0                        | 0.1                               | 33                    | 30   |
| PRO600-16T5* | 0-600         | 16             | 14.4  | 12.8 | 300-600                                  | 150             | 600    | .025%        | 40                                | 120.0                       | 0.1                               | 17                    | 60   |

**NOTE: 1.** Regulation range as stated 0.1% of voltage or current, or stated range, whichever is greater.

\*See voltage options for other available inputs.

## PRO-T ACCESSORIES

**Caster Kit:** Part No. 1064395-1

## OPTIONS

**M5:** SCR Crowbar

**M9C Internal IEEE-488/RS-232 Interface:**

See page 50

**M36:** CE mark available on T2, T3 and T11 input options with additional (3 1/2" high) chassis

**M85:** Slave multichannel interface control  
See page 50

## VOLTAGE OPTIONS

**Specifying Note:** Select ac input voltage option below, and add as a part number suffix to specify power supplies.

**T1** - 208 Vac.

**T4** - 440 Vac.

**T10** - 230 Vac

**T2** - 380 Vac.

**T5** - 480 Vac. (Standard)

**T11** - 400 Vac.

**T3** - 415 Vac.

**T8** - 220 Vac.

**Example: PRO16-625**

**T5**

**M9C**

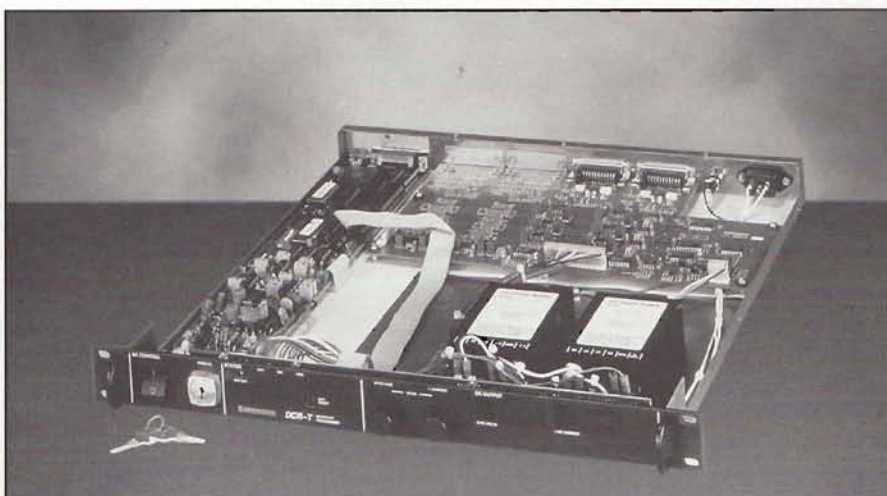
Internal IEEE-488/RS-232  
Interface option

Input Voltage

Power Supply

## Parallel Interface Controller (PIC)

A versatile Parallel Interface Controller (PIC) provides central control and monitoring of up to four PRO-T's operating in parallel. Centralized control eliminates the need to individually adjust each power supply, or to add up the readings of each power supply output. Many operating configurations are possible, i.e., manual panel control, remote voltage or resistance programming, use with an IEEE-488 programmer and others. For additional specifying details, contact Sorensen.



| Model        | Constant Current Mode         |                               |                 | Temp<br>Coeff.,<br>Current<br>mA/°C | Current<br>Drift<br>%I <sub>o</sub> Max.<br>(Typ.) | Programming<br>Constants<br>Current Mode |      | Power<br>Factor<br>(Typ.)<br>Lead Lag |    | Efficiency <sup>2</sup><br>% | Output<br>Power<br>kW |    |
|--------------|-------------------------------|-------------------------------|-----------------|-------------------------------------|----------------------------------------------------|------------------------------------------|------|---------------------------------------|----|------------------------------|-----------------------|----|
|              | Regulation<br>mA <sup>1</sup> | Ripple<br>(PARD)<br>mA<br>RMS | Resolution<br>% |                                     |                                                    | Ohms/A                                   | V/A  | .9                                    | .2 |                              |                       | 80 |
|              |                               |                               |                 |                                     |                                                    |                                          |      |                                       |    |                              |                       |    |
| PRO16-625T5* | 312-625                       | 2000                          | .025%           | 250                                 | 0.1                                                | 16.0                                     | 62.5 | .9                                    | .2 | 80                           | 10                    |    |
| PRO32-310T5* | 155-310                       | 1500                          | .025%           | 124                                 | 0.1                                                | 32.0                                     | 31   | .9                                    | .2 | 80                           | 10                    |    |
| PRO55-180T5* | 90-180                        | 900                           | .025%           | 72                                  | 0.1                                                | 56.0                                     | 18   | .9                                    | .2 | 80                           | 10                    |    |
| PRO80-125T5* | 62-125                        | 900                           | .025%           | 50                                  | 0.1                                                | 80.0                                     | 12.5 | .9                                    | .2 | 80                           | 10                    |    |
| PRO110-90T5* | 45-90                         | 800                           | .025%           | 36                                  | 0.1                                                | 111.0                                    | 9.0  | .9                                    | .2 | 80                           | 10                    |    |
| PRO160-62T5* | 31-62                         | 480                           | .025%           | 25                                  | 0.1                                                | 161.0                                    | 6.2  | .9                                    | .2 | 80                           | 10                    |    |
| PRO300-33T5* | 16-33                         | 240                           | .025%           | 13                                  | 0.1                                                | 303.0                                    | 3.3  | .9                                    | .2 | 80                           | 10                    |    |
| PRO600-16T5* | 8-16                          | 120                           | .025%           | 6                                   | 0.1                                                | 625.0                                    | 1.6  | .9                                    | .2 | 80                           | 10                    |    |

**NOTES:** 1. Regulation range as stated 0.1% of voltage or current, or stated range, whichever is greater.

2. Efficiency taken at max. power out and nominal ac volts input.

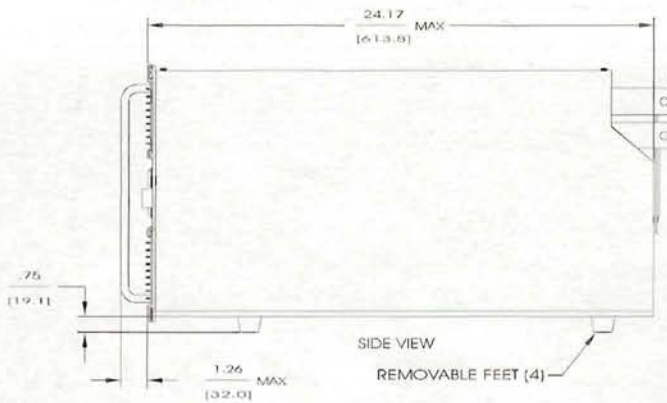
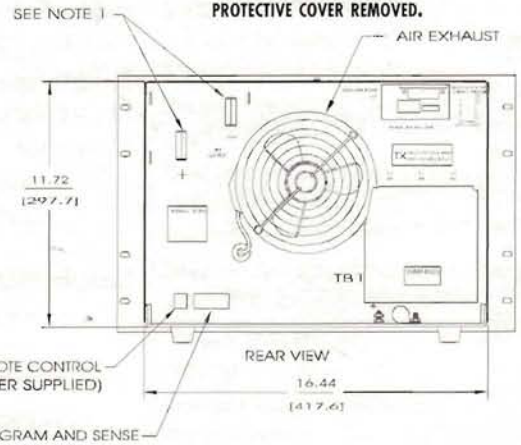
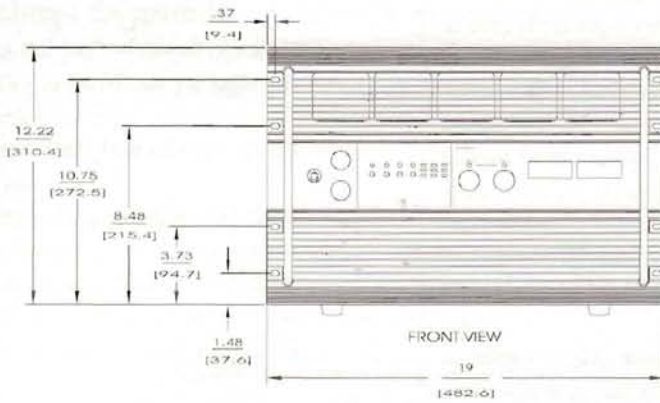
\* See Voltage options for other available inputs

# PRO-T SERIES • DIMENSIONAL DRAWINGS

(12-1/4 in. High) Fan Cooled

NOTE:

AC INPUT CONNECTIONS SHOWN WITH PROTECTIVE COVER REMOVED.



| J2 PROGRAM AND SENSE |                    |
|----------------------|--------------------|
| 1 - NC               | 19 - MODE IND -    |
| 2 - COM              | 20 - MODE LAG      |
| 3 - STBYRST          | 21 - NC            |
| 4 - OVP ND           | 22 - NC            |
| 5 - OTP ND           | 23 - ISO STBV/RST- |
| 6 - NC               | 24 - ISO STBV,RST- |
| 7 - REM ND           | 25 - ISO STBV,RST+ |
| 8 - REM/LOC          | 26 - ISO STBV/RST+ |
| 9 - NC               | 27 - NC            |
| 10 - NC              | 28 - NC            |
| 11 - COM             | 29 - DO NOT USE    |
| 12 - OVP SIT         | 30 - NC            |
| 13 - I SET           | 31 - NC            |
| 14 - V SET           | 32 - DO NOT USE    |
| 15 - STAY/RST        | 33 - (-)SENSE      |
| 16 - V METER         | 34 - NC            |
| 17 - I METER         | 35 - NC            |
| 18 - FTS             | 36 - (+)SENSE      |

NOTE 1: 300V AND 600V UNITS PROVIDED WITH OUTPUT STUDS IN PLACE OF BUSS BARS.

| DIMENSIONS IN. (MM) |            |            | WEIGHT<br>LB (KG) |
|---------------------|------------|------------|-------------------|
| HEIGHT              | WIDTH      | LENGTH     |                   |
| 12.25 (311.2)       | 19 (482.6) | 24 (609.6) | 310 (141)         |

Note: All dimensions are in inches (mm)