

## Intelligent VS Power

### Up to 4920 Watts

**Total Power:** Up to 4920 Watts  
**Input Voltage:** 85 - 264 Vdc  
 120 - 300 Vdc  
**# of Outputs:** Up to 24

**iVS™**



Rev. 7.9.09\_145  
 iVS Series  
 1 of 11



## Special Features

- Full medical EN60601 approval
- Intelligent I<sup>2</sup>C control
- Voltage adjustment on all outputs (manual or I<sup>2</sup>C)
- Configurable input and output OK signals and indicators
- Configurable inhibit/enable
- Configurable output UP/DOWN sequencing
- High power density (12 W/cu-in)
- Intelligent fan (speed control/fault status)
- uP controlled PFC input with active Inrush protection
- I<sup>2</sup>C monitor of voltage, current, and temperature
- Programmable voltage, current limit, inhibit/enable through I<sup>2</sup>C
- Optional extended hold-up module (SEMI F47 compliance)
- Increased power density to 150%
- Optional conformal coating
- Industrial temp range (-40 °C to 70 °C)
- Uses standard iMP modules
- Field upgradeable firmware
- RoHS compliant

## Safety

- **UL** UL60950/UL2601
- **CSA** CSA22.2 No. 234 Level 5
- **VDE** EN60950/EN60601-1
- **BABT** Compliance to EN 60950/EN60601 BS 7002
- **CB** Certificate and report
- **CE** Mark to LVD

## Electrical Specifications

| Input                    |                                                                                                                                  |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Input range:             |                                                                                                                                  |
| iVS1 & iVS3              | 90 - 264 Vac 1Ø; 120 - 300 Vdc                                                                                                   |
| iVS6 & iVS8              | 170 - 264 Vac 3Ø                                                                                                                 |
| iVS8H                    | 480 Vac nominal 3Ø<br>380 Vac nominal 3Ø derate to 3800 W max.<br>47 - 440 Hz                                                    |
| Frequency:               |                                                                                                                                  |
| Inrush current:          | 40 A peak maximum (soft start)                                                                                                   |
| Efficiency:              | Up to 85% @ full case load                                                                                                       |
| Power Factor:            | 0.99 typ. meets EN61000-3-2                                                                                                      |
| Turn-on time:            | AC on 1.5 sec typical, inhibit/enable 150ms typical Programmable;<br>50ms internal turn-on delay (Dual Output only)              |
| EMI Filter:              | CISPR 22/EN55022 Level "B"                                                                                                       |
| Leakage current:         | 500 µA max. @ 240 Vac; 47-63 Hz                                                                                                  |
| Radiated EMI:            | CISPR 22/EN55022 Level "B"                                                                                                       |
| Holdover storage:        | 10 ms minimum (independent of input Vac) additional 20mSEC<br>holdover storage with optional HUP module<br>(SEMI F47 compatible) |
| AC OK:                   | >5ms early warning minutes before outputs lose regulation Full cycle<br>ride thru (50 Hz). Programmable                          |
| Harmonic distortion:     | Meets EN61000-3-2                                                                                                                |
| Isolation:               | Meets EN60950 and EN60601                                                                                                        |
| Global inhibit / enable: | TTL, Logic "1" and Logic "0"; configurable                                                                                       |
| Warranty:                | 3 years                                                                                                                          |



## Output

|                                                                                         |                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Adjustment range:*</b>                                                               | ± 10% minimum all outputs (manual)<br>(full module adjustment range using I <sup>2</sup> C)                                                                                                                                                                                                                                             |
| Factory set point accuracy:                                                             | 1%                                                                                                                                                                                                                                                                                                                                      |
| I <sup>2</sup> C output program accuracy:                                               | ± 5%                                                                                                                                                                                                                                                                                                                                    |
| Margining:                                                                              | ± 4 - 6% nominal analog (single output module only)                                                                                                                                                                                                                                                                                     |
| Overall regulation:                                                                     | 0.4% or 20 mV max. (1500 W modules 1% max.)                                                                                                                                                                                                                                                                                             |
| Ripple:                                                                                 | RMS: 0.1% or 10 mV, whichever is greater<br>Pk-Pk: 1.0% or 50 mV, whichever is greater<br>Bandwidth limited to 20 MHz                                                                                                                                                                                                                   |
| Dynamic response:                                                                       | < 2% or 100 mV, with 25% load step                                                                                                                                                                                                                                                                                                      |
| Recovery time:                                                                          | To within 1% in < 300 µsec                                                                                                                                                                                                                                                                                                              |
| <b>Overcurrent protection:**</b>                                                        | Configurable through I <sup>2</sup> C (calibration required). Single output module and main output of the dual output module 105-120% of rated output current. Aux output of dual output module 105-140% of rated output current. Special programmable OCP delay on 1500 W module from 100 mSec to 25.5 seconds with shutdown features. |
| Short-circuit protection:                                                               | Protected for continuous short-circuit. Recovery is automatic upon removal of short (Shutdown mode on 1500 W module).                                                                                                                                                                                                                   |
| <b>Overvoltage protection:*</b>                                                         | Configurable through I <sup>2</sup> C                                                                                                                                                                                                                                                                                                   |
| Single output module:                                                                   | 2 - 5.5 V 122 - 134% ; 6 - 60 V 110 - 120%                                                                                                                                                                                                                                                                                              |
| Dual output module:                                                                     | 2 - 6 V 122 - 134% ; 8 - 28 V 110 - 120%                                                                                                                                                                                                                                                                                                |
| Triple output module:                                                                   | No overvoltage protection provided                                                                                                                                                                                                                                                                                                      |
| <b>Thermal protection:*</b>                                                             | Configurable through I <sup>2</sup> C<br>All outputs disabled when internal temp exceeds safe operating range. > 5ms warning (AC OK signal) before shutdown                                                                                                                                                                             |
| Remote sense:                                                                           | Up to 0.5 V total drop (not available on triple output module)                                                                                                                                                                                                                                                                          |
| Single wire parallel:                                                                   | Current share to within 2% of total rated current                                                                                                                                                                                                                                                                                       |
| DC OK:*                                                                                 | +/-5% of nominal. Configurable through I <sup>2</sup> C                                                                                                                                                                                                                                                                                 |
| Minimum load:                                                                           | Not required                                                                                                                                                                                                                                                                                                                            |
| Housekeeping bias voltage:                                                              | 5 Vdc @1.0 A max. present whenever AC input is applied                                                                                                                                                                                                                                                                                  |
| <b>Module inhibit:*</b>                                                                 | Configured and controlled through I <sup>2</sup> C                                                                                                                                                                                                                                                                                      |
| Output/Output isolation:                                                                | > 1 Megohm, 500 V                                                                                                                                                                                                                                                                                                                       |
| * Can be controlled via I <sup>2</sup> C                                                |                                                                                                                                                                                                                                                                                                                                         |
| ** Controlled via I <sup>2</sup> C but requires load calibration (except 1500 W module) |                                                                                                                                                                                                                                                                                                                                         |

## Environmental Specifications

|                                 |                                                                                                  |
|---------------------------------|--------------------------------------------------------------------------------------------------|
| Operating temperature:          | -40 ° to 70 °C ambient. Derate each output 2.5% per degree from 50 ° to 70 °C. (-20 °C start up) |
| Storage temperature:            | -40 °C to 85 °C                                                                                  |
| Electromagnetic susceptibility: | Designed to meet EN61000-4; -2, -3, -4, -5, -6, -8, -11 Level 3                                  |
| Humidity:                       | Operating; non-condensing 10% to 95% RH                                                          |
| Vibration:                      | IEC68-2-6 to the levels of IEC721-3-2                                                            |
| MTBF demonstrated:              | > 550,000 hours at full load, 220 Vac and 25 °C ambient conditions                               |

## Output Module Line-up

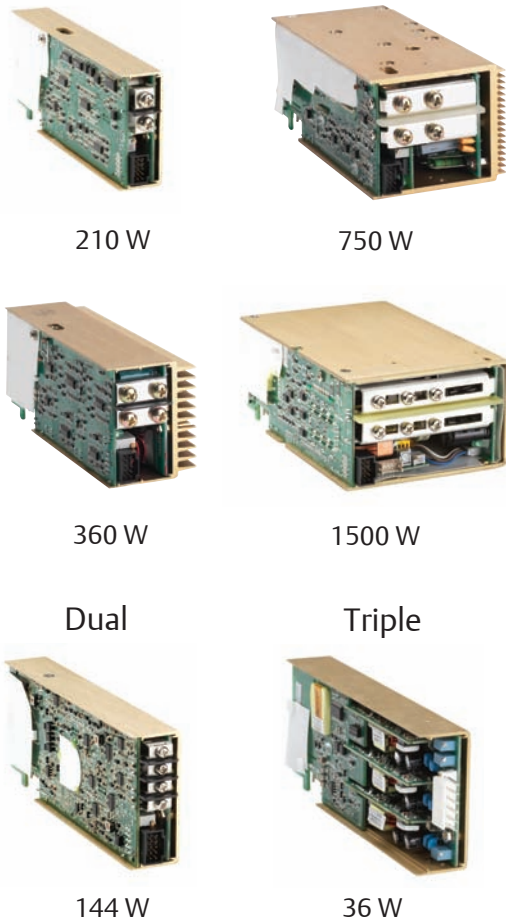
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| Module Code                               | 1      | 2      | 3      | 5      | 4                                                                                                  | —                                                                      |
|-------------------------------------------|--------|--------|--------|--------|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| Module Type                               | Single | Single | Single | Single | Dual                                                                                               | Triple                                                                 |
| Max output power                          | 210 W  | 360 W  | 750 W  | 1500 W | 144 W                                                                                              | 36 W                                                                   |
| Max output current                        | 35 A   | 60 A   | 150 A  | 140 A  | 10 A                                                                                               | 2 A                                                                    |
| Output voltages available*                | 2-60 V | 2-60 V | 2-60 V | 6-60 V | 8 - 15*, 24 - 28; 8 - 15*, 8 - 15*; 8 - 15*, 2 - 6; 2 - 6, 2 - 6; 24 - 28, 24 - 28; 24 - 28, 2 - 6 | 8-15, 8-15, 2-6; 8-15, 8-15, 8-15; 8-15, 8-15, 18-28; 8-15, 18-28, 2-6 |
| Standard voltage increments               | 25     | 25     | 25     | 18     | 16                                                                                                 | 18                                                                     |
| Remote sense                              | Yes    | Yes    | Yes    | Yes    | Yes                                                                                                | No                                                                     |
| Remote margin                             | Yes    | Yes    | Yes    | Yes    | No                                                                                                 | No                                                                     |
| V-Program - I <sup>2</sup> C Control      | Yes    | Yes    | Yes    | Yes    | Yes                                                                                                | No                                                                     |
| Active Current Share                      | Yes    | Yes    | Yes    | Yes    | Yes                                                                                                | No                                                                     |
| Module Inhibit - I <sup>2</sup> C Control | Yes    | Yes    | Yes    | Yes    | Yes                                                                                                | Yes                                                                    |
| Module Inhibit - Analog                   | Yes    | Yes    | Yes    | Yes    | Yes                                                                                                | No                                                                     |
| Overvoltage/Overcurrent protection        | Yes    | Yes    | Yes    | Yes    | Yes                                                                                                | Yes                                                                    |
| Minimum load required                     | No     | No     | No     | No     | No                                                                                                 | No                                                                     |
| Slots occupied in any iVS case            | 1      | 2      | 3      | 4      | 1                                                                                                  | 1                                                                      |

\* Note: Contact Factory for extended range down to 6 V

### Single

## Output Module Voltage/Current\*



| Voltage | Voltage Code | Single Output Module Code |        |        |         | Dual Output*** |       | Triple Output |       |       | I <sup>2</sup> C Adjustment Ranges**** |
|---------|--------------|---------------------------|--------|--------|---------|----------------|-------|---------------|-------|-------|----------------------------------------|
|         |              | 1                         | 2      | 3      | 5       | 4              | 4     | -             | -     | -     |                                        |
| 2 V     | A            | 35 A                      | 60 A   | 150 A  | —       | 10 A           | 10 A  | —             | —     | 2 A   | 1.8 - 2.2                              |
| 2.2 V   | B            | 35 A                      | 60 A   | 150 A  | —       | 10 A           | 10 A  | —             | —     | 2 A   | 2.0 - 2.4                              |
| 3 V     | C            | 35 A                      | 60 A   | 150 A  | —       | 10 A           | 10 A  | —             | —     | 2 A   | 2.7 - 3.3                              |
| 3.3 V   | D            | 35 A                      | 60 A   | 150 A  | —       | 10 A           | 10 A  | —             | —     | 2 A   | 3.0 - 3.6                              |
| 5 V     | E            | 35 A                      | 60 A   | 150 A  | —       | 10 A           | 10 A  | —             | —     | 2 A   | 4.5 - 5.5                              |
| 5.2 V   | F            | 35 A                      | 60 A   | 144 A  | —       | 10 A           | 10 A  | —             | —     | 2 A   | 4.7 - 5.7                              |
| 5.5 V   | G            | 34 A                      | 58 A   | 136 A  | —       | 10 A           | 10 A  | —             | —     | 2 A   | 5.0 - 6.1                              |
| 6.0 V   | H            | 23 A                      | 42 A   | 97.5 A | 140 A   | 10 A*          | 10 A* | —             | —     | 2 A   | 5.4 - 6.6                              |
| 8.0 V   | I            | 20 A                      | 36 A   | 84.4 A | 140 A   | 10 A           | 4 A   | 1 A           | 1 A   | 1 A   | 7.2 - 8.8                              |
| 10 V    | J            | 18 A                      | 32 A   | 75 A   | 140 A   | 10 A           | 4 A   | 1 A           | 1 A   | 1 A   | 9.0 - 11.0                             |
| 11 V    | K            | 17 A                      | 31 A   | 68 A   | 136.3 A | 10 A           | 4 A   | 1 A           | 1 A   | 1 A   | 9.9 - 12.1                             |
| 12 V    | L            | 17 A                      | 30 A   | 62.5 A | 125 A   | 10 A           | 4 A   | 1 A           | 1 A   | 1 A   | 10.8 - 13.2                            |
| 14 V    | M            | 14 A                      | 21 A   | 53.5 A | 107 A   | 9 A            | 4 A   | 1 A           | 1 A   | 1 A   | 12.6 - 15.4                            |
| 15 V    | N            | 14 A                      | 20 A   | 50 A   | 100 A   | 8 A            | 4 A   | 1 A           | 1 A   | 1 A   | 13.5 - 16.5                            |
| 18 V    | O            | 11 A                      | 19 A   | 41.6 A | 83.3 A  | —              | —     | —             | 0.5 A | 0.5 A | 16.2 - 19.8                            |
| 20 V    | P            | 10.5 A                    | 18 A   | 37.5 A | 75 A    | —              | —     | —             | 0.5 A | 0.5 A | 18.0 - 22.0                            |
| 24 V    | Q            | 8.5 A                     | 15 A   | 30 A   | 62.5 A  | 4 A            | 2 A   | —             | 0.5 A | 0.5 A | 21.6 - 26.4                            |
| 28 V    | R            | 6.7 A                     | 11 A   | 26.8 A | 53.5 A  | 3 A            | 2 A   | —             | 0.5 A | 0.5 A | 25.2 - 30.8                            |
| 30 V    | S            | 6.5 A                     | 11 A   | 25 A   | 50 A    | —              | —     | —             | —     | —     | 27.0 - 33.0                            |
| 33 V    | T            | 6.2 A                     | 10.9 A | 22.7 A | 35.8 A  | —              | —     | —             | —     | —     | 29.7 - 36.3                            |
| 36 V    | U            | 5.8 A                     | 10 A   | 20.8 A | 35.8 A  | —              | —     | —             | —     | —     | 32.4 - 39.6                            |
| 42 V    | V            | 4.2 A                     | 7.5 A  | 16 A   | 35.7 A  | —              | —     | —             | —     | —     | 37.8 - 46.2                            |
| 48 V    | W            | 4.0 A                     | 7.5 A  | 15.6 A | 31.2 A  | —              | —     | —             | —     | —     | 43.2 - 52.8                            |
| 54 V    | X            | 3.7 A                     | 6.0 A  | 13.9 A | 27.7 A  | —              | —     | —             | —     | —     | 48.6 - 59.4                            |
| 60 V    | Y            | 3.5 A                     | 6.0 A  | 12.5 A | 25 A    | —              | —     | —             | —     | —     | 54.0 - 66.0                            |

### Contact Factory

|          |   |      |      |       |       |   |      |  |  |  |           |
|----------|---|------|------|-------|-------|---|------|--|--|--|-----------|
| Special* | Z | 35 A | 60 A | 150 A | —     | — | 10 A |  |  |  | 2.3 - 2.6 |
| Special* | Z | 35 A | 60 A | 150 A | —     | — | 10 A |  |  |  | 3.7 - 4.4 |
| Special* | Z | 20 A | 36 A | 80 A  | 140 A | — | 8 A  |  |  |  | 6.7 - 7.1 |

\* Note: Contact Factory for extended range down to 6 V.

\*\* Increments of current not shown can be achieved by paralleling modules (add currents of each module selected).

\*\*\* Total output power on dual model must not exceed 144 W.

\*\*\*\* For single output modules only.

## Ordering Information

Sample below is 3210 W case with 12 V @ 125 A; 24 V @ 8.5 A; 5 V @ 60 A; 12 V @ 10 A and 12 V @ 4 A; with no options.

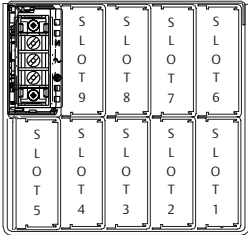
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| Case Size                                                                                                                                                                                                                                                                                                                                                                                                          | Module/Voltage/Option Codes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Case Option Codes                                                                                                                                                                                                                                                                                                         | Software Code                                                | Hardware Code                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------|
| <b>iVS1</b>                                                                                                                                                                                                                                                                                                                                                                                                        | <b>5L1 - 1Q1 - 2EO - 4LL0</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>00</b>                                                                                                                                                                                                                                                                                                                 | <b>A</b>                                                     | <b>###</b>                                       |
| <b>Case Size (mm)</b><br><b>1-Phase Input</b><br>1 = 5" x 5" x 11"; 1500 W - 3210 W, 9 Slots<br>(127 x 127 x 279.4)<br>3 = 5" x 8" x 11"; 1800 W - 4500 W, 14 Slots<br>(127 x 203.2 x 279.4)<br><b>3-Phase Input</b><br>6 = 5" x 5" x 11"; 3120 W, 9 Slots<br>(127 x 127 x 279.4)<br>8 = 5" x 8" x 11"; 4920 W, 14 Slots<br>(127 x 203.2 x 279.4)<br>8H = 5" x 8" x 11"; 4920 W, 14 Slots<br>(127 x 203.2 x 279.4) | <b>Module Codes</b><br>Module/voltage/option codes<br>Module Codes:<br>(None) = 36 W triple O/P (1 slot)<br>1 = 210 W single O/P (1 slot)<br>2 = 360 W single O/P (2 slot)<br>3 = 750 W single O/P (3 slot)<br>5 = 1500 W single O/P (slot 4)<br>4 = 144 W dual O/P (1 slot)<br>HUP = Extra 30mS hold-up (1 slot)<br><b>Voltage Codes:</b><br>See Output Module Voltage/Current table above<br><b>Option Codes:</b><br>0 = Standard<br>1 = Module enable<br>2 = Constant current<br>3 = 1 & 2 combined<br>4 = Set for use in standard (non-intelligent case)<br>5 = Shutdown mode for 1500 W<br>6 = 1 & 5 combined<br>7-9 Future | <b>Case Option Codes</b><br>First Digit<br>0 - 9 = Parallel code<br>(See parallel codes table below)<br>Second Digit<br>0 = No options<br>1 = Reverse air<br>2 = Not used<br>3 = Global enable<br>4 = Fan Off w/inhibit<br>5 = Opt 1 + Opt 3<br>6 = Opt 1 + Opt 4<br>7 = Opt 3 + Opt 4<br>8 = Opt 1 + 3 + 4<br>9 = Future | Software code used for configuration change. "A" is standard | Factory assembled for hardware of firmware mods. |
| <b>Ordering Note:</b><br>1. USB to I2C module order code 73-769-001                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                           |                                                              |                                                  |

| Parallel Code | Slot No.                                              | Diagram | iVS1, 6 Possible Configurations                                 | Diagram | iVS3, 8, 8H Possible Configurations                                                                     |
|---------------|-------------------------------------------------------|---------|-----------------------------------------------------------------|---------|---------------------------------------------------------------------------------------------------------|
| 1             | 1 & 2                                                 |         | 210 210; 210 144; 144 144                                       |         | 210 210; 210 144; 144 144                                                                               |
| 2             | 2 & 3                                                 |         | 360 360; 360 210; 360 144; + above                              |         | 360 360; 360 210; 360 144; + above                                                                      |
| 3             | 3 & 4                                                 |         | 750 360; 750 210; 750 144; 210 210; 210 144; 144 144            |         | 750 750; 750 360; 750 210; 750 144; 210 210; 210 144; 144 144                                           |
| 4             | 4 & 5                                                 |         | 1500 210; 1500 144; 210 210; 210 144; 144 144; 360 210; 360 144 |         | 1500 1500; 1500 750; 1500 360; 1500 210; 1500 144; 210 210; 210 144; 144 144; 360 360; 360 210; 360 144 |
| 5             | 3, 4, & 5                                             |         | 750 210 210; 750 210 144; 750 144 144                           |         | 750 210 210; 750 210 144; 750 144 144                                                                   |
| 6             | 4 & 6                                                 |         | 1500 1500; 1500 750                                             |         |                                                                                                         |
| 7             | 4, 5, & 6                                             |         | 1500 210 210; 1500 210 144; 1500 144 144                        |         | 1500 210 210; 1500 210 144; 1500 144 144                                                                |
| 8             | iVS1,6: 3 & 6<br>iVS3,8,8H: 4, 5, & 9                 |         | 750 750                                                         |         | 1500 1500 1500; 1500 1500 750; 1500 1500 360; 1500 1500 210; 1500 1500 144                              |
| 9             | iVS1,6: 1 & 6<br>iVS3, 8, 8H: 4, 5 & 9; 12 & 13       |         | 1500 1500; 1500 360; 1500 144                                   |         | 1500 1500 1500 360; 1500 1500 1500 210; 1500 1500 1500 144                                              |
| A             | iVS1,6: 3 & 4; 8 & 9<br>iVS3, 8, 8H: 4 & 5; 11 & 12   |         | 750 210 & 750 210                                               |         | 1500 1500 & 750 750                                                                                     |
| C             | iVS1,6: 3, 4 & 6<br>iVS3, 8, 8H: 6 & 7; 3, 4, 11 & 12 |         | 750, 360, 750                                                   |         | 750 750 360 750 750                                                                                     |
| E             | iVS3, 8, 8H: 3, 4, 11, & 12                           |         |                                                                 |         | 750 750 750 750                                                                                         |
| F             | iVS3, 8, 8H: 3 & 4; 11 & 12                           |         |                                                                 |         | 750 360 & 750 210; 750 750 & 750 750                                                                    |
| G             | iVS3, 8, 8H: 3, 4 & 9                                 |         |                                                                 |         | 750 750 750                                                                                             |
| H             | iVS3, 8, 8H: 11 & 12                                  |         |                                                                 |         | 750 750                                                                                                 |

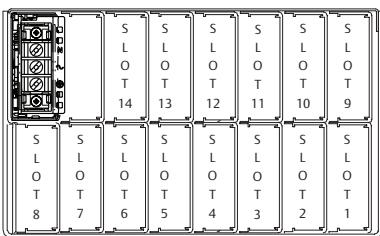
## iVS Case Specifications

### iVS1 and iVS6



|                                                                                  | Input       |                            |
|----------------------------------------------------------------------------------|-------------|----------------------------|
|                                                                                  | 90-264 Vac  | 170-264 Vac                |
| iVS1 = 5" x 5" x 11"<br>(127 x 127 x 279.4)<br>9 available slots                 | 1500 W max. | 3210 W max.                |
| iVS6 = 5" x 5" x 11"<br>(127 x 127 x 279.4)<br>9 available slots<br>3-phase only | N/A         | 170-264 Vac<br>3210 W max. |

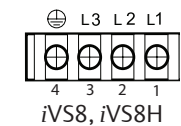
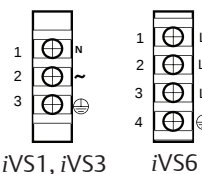
### iVS3, iVS8, and iVS8H



|                                                                      | Input       |                                                  |
|----------------------------------------------------------------------|-------------|--------------------------------------------------|
|                                                                      | 90-264 Vac  | 170-264 Vac                                      |
| iVS3 = 5" x 8" x 11"<br>(127 x 203.2 x 279.4)<br>14 available slots  | 1800 W max. | 4500 W max.                                      |
| iVS8 = 5" x 8" x 11"<br>(127 x 203.2 x 279.4)<br>14 available slots  | N/A         | 170-264 Vac<br>4920 W max.                       |
| iVS8H = 5" x 8" x 11"<br>(127 x 203.2 x 279.4)<br>14 available slots | N/A         | 380 Vac<br>3800 W max.<br>480 Vac<br>4920 W max. |

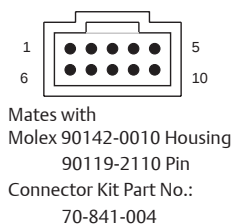
## Pin Connectors

Figure 1. AC Input



| AC Input | Single Phase           | 3 Phase |
|----------|------------------------|---------|
| Pin No.  | Function               |         |
| 1        | AC neutral             | Line 1  |
| 2        | AC line (hot)          | Line 2  |
| 3        | Chassis (earth) ground | Line 3  |
| 4        | Chassis (earth) ground |         |

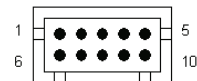
Figure 2. Connector J1



### PFC Input Connector (control & signals)

| Pin No. | Function                                 |
|---------|------------------------------------------|
| 1       | Input AC OK - "emitter"                  |
| 2       | Input AC OK - "collector"                |
| 3       | Global DC OK - "emitter"                 |
| 4       | Global DC OK - "collector"               |
| 5       | No connection                            |
| 6       | Global inhibit/optional enable logic "0" |
| 7       | Global inhibit/optional enable logic "1" |
| 8       | Global inhibit/optional enable return    |
| 9       | +5 VSB housekeeping                      |
| 10      | +5 VSB housekeeping return               |

Figure 3. Connector J2



Mates with  
Landwin 2050S1000 housing  
2053T011P pin  
Connector Kit Part No.:  
70-841-023

### I<sup>2</sup>C Bus Output Connector

| Pin No. | Function                       |
|---------|--------------------------------|
| 1       | No connection                  |
| 2       | No connection                  |
| 3       | No connection                  |
| 4       | Serial clock signal (SCL)      |
| 5       | Serial data signal (SDA)       |
| 6       | Address bit 0 (A0)             |
| 7       | Address bit 1 (A1)             |
| 8       | Address bit 2 (A2)             |
| 9       | Secondary return (GND)         |
| 10      | 5 VCC external bus (5 VCC bus) |

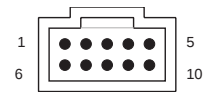
## iMP Modules DC-DC Converter Output Modules

Control Signal Information, J1 Control Connector

| Pin No. | Function                    |                           |
|---------|-----------------------------|---------------------------|
| 1       | + Remote Sense              | single or dual o/p main   |
| 2       | Remote Margin / V. Program  | single o/p                |
| 3       | Margin High                 | single o/p                |
| 4       | - Remote Sense / Margin Low | single or dual o/p main   |
| 5       | Spare                       |                           |
| 6       | Module, Isolated Inhibit    | single or dual o/p        |
| 7       | Module Inhibit return       | single or dual o/p        |
| 8       | Current Share (SWP)         | single or dual o/p main   |
| 9       | + Remote Sense V2           | dual o/p, single is spare |
| 10      | - Remote Sense V2           | dual o/p, single is spare |

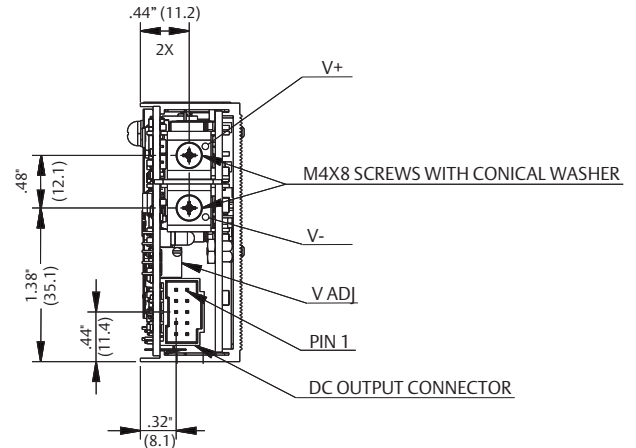
\*Note: All iMP modules have a green DCOK LED.  
(except for 36 W module)

Figure 4. Connector J1

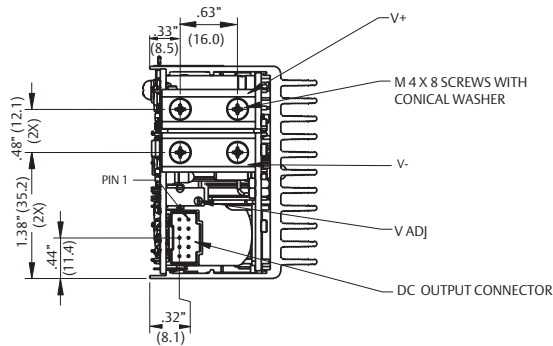


Mates with  
Molex 90142-0010 Housing  
90119-2110 Pin

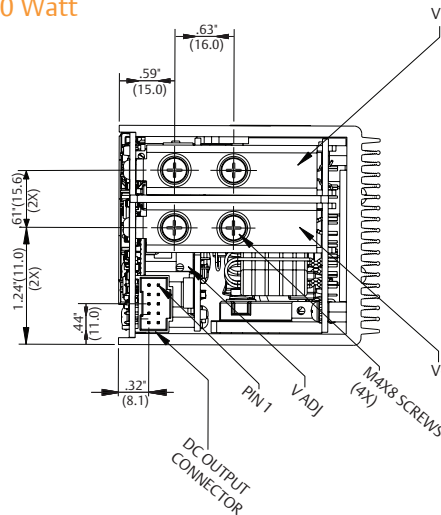
### Single 210 Watt



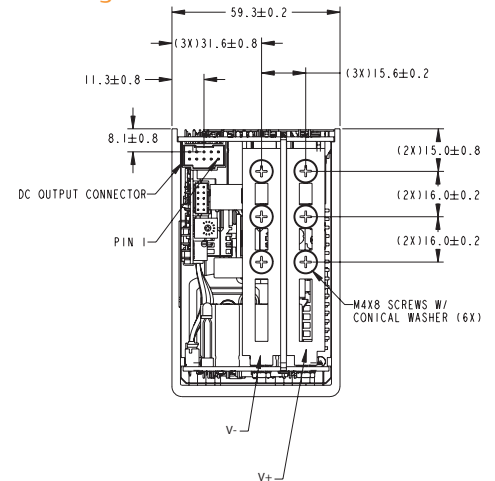
### Single 360 Watt



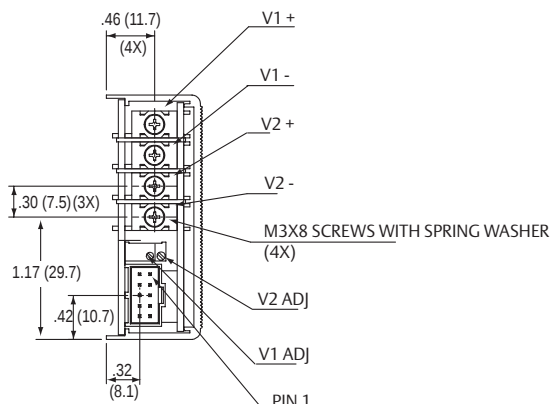
### Single 750 Watt



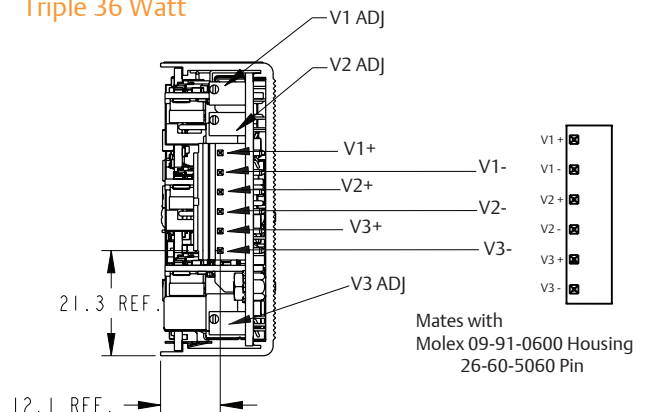
### Single 1500 Watt



### Dual 144 Watt



### Triple 36 Watt

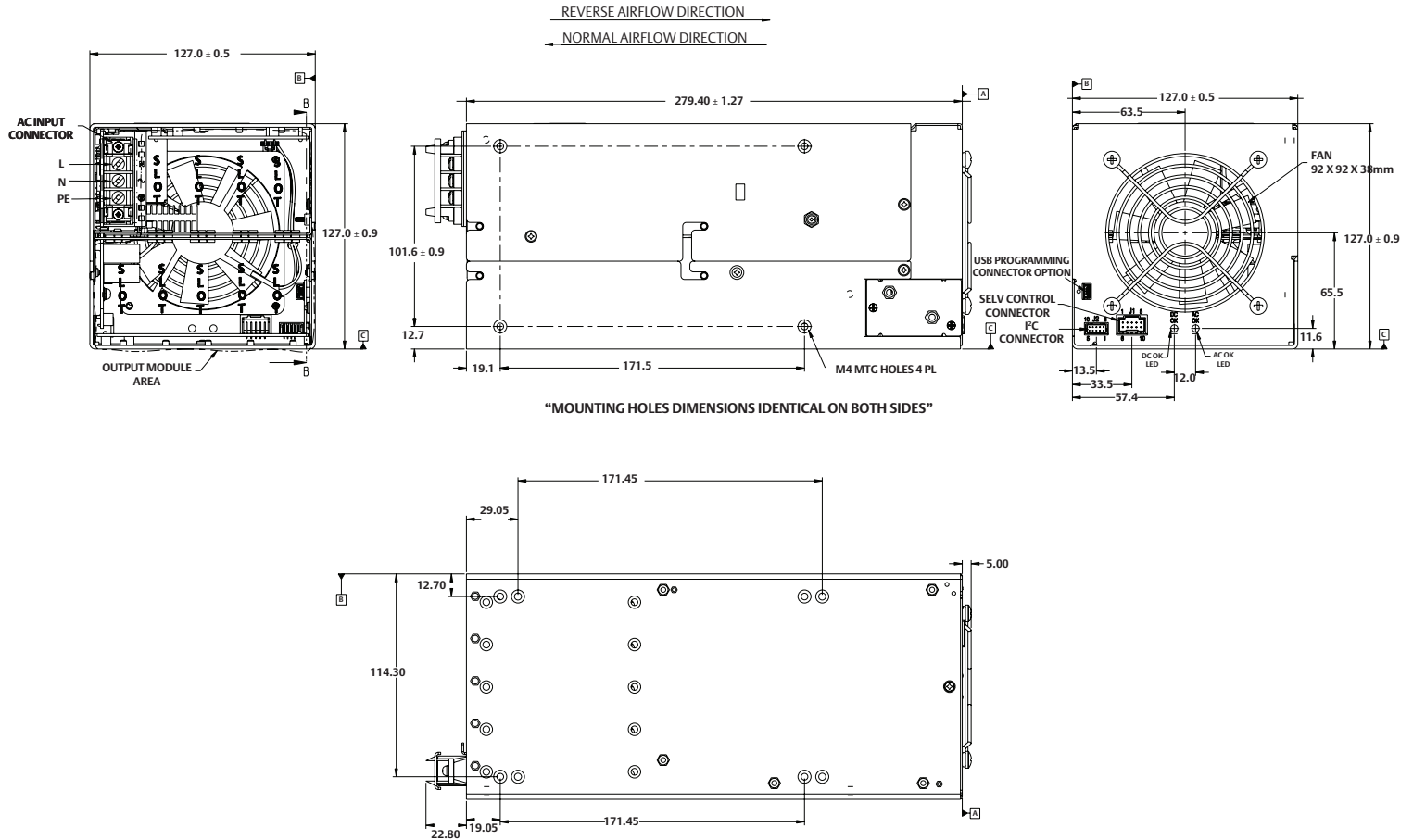


## iVS Series

### iVS1 (1500/3210 Watts Max)

5-Inch Case Size: iVS1: 5" x 5" x 11" (127mm x 127mm x 279.4mm)  
Weight: iVS1 Case: 6.2 lbs. • 1500 W Single: 2.0 lbs. • 750 W Single: 1.6 lbs.  
• 360 W Single: 1.0 lb. • 210 W Single: 0.6 lb. • 144 W Dual: 0.6 lb.

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## Notes

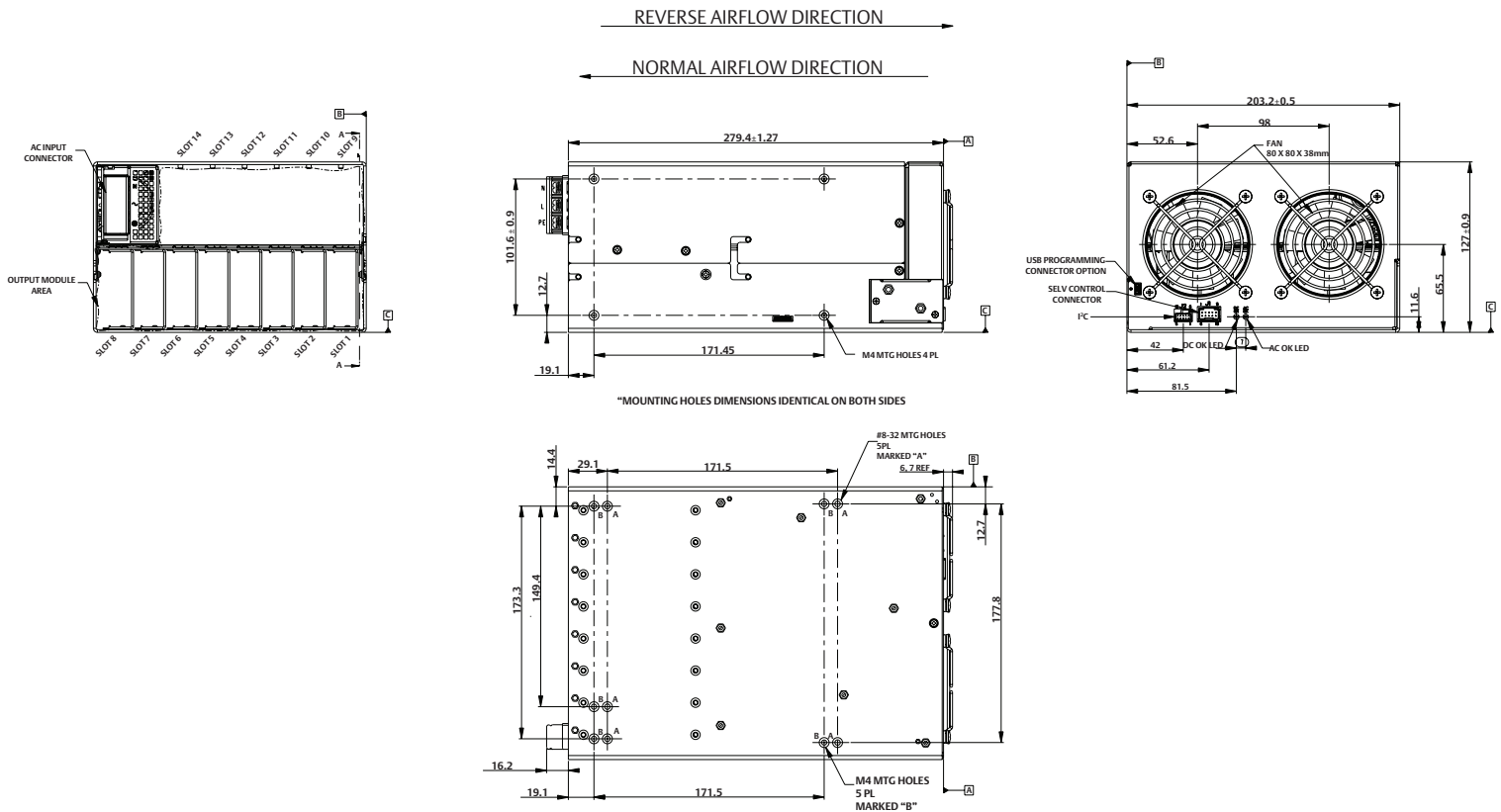
1. Input: Barrier type. Three No. 6-32 B.H. screws (0.375" centers). Max torque: 6 in-lbs. (0.67 N-m).
2. Control connectors: (J1) 10 position housing, gold plated contacts. Mates with Molex 90142-0010 housing with 90119-2110 crimp contacts (Molex C - Grid III Series). Connector kit includes mating connector and 10 pins, Astec part #70-841-004. (J2) 10 position housing (Landwin 2051P1000T). Mates with housing 2050S1000 (Landwin) with 2053T011P (Landwin) pins.
3. Chassis material: aluminum with chemical film coating (conductive).
4. All dimensions are in millimeters and inches, and are typical.
5. Customer mounting -3 sides M4, bottom also includes 8-32 mounting holes. Max. penetration is 0.155" (4.0 mm). Max. torque: 5 in-lbs. (0.57 N-m).
6. Output module connections: All single O/P modules are M4 x 8mm screws. Max. torque: 10 in-lbs. (1.13 N-m). Dual O/P module is M3 x 8mm screws. Max. torque: 5 in-lbs. (0.57 N-m).

## iVS Series

### iVS3 (1800/4500 Watts Max)

8-Inch Case Size: iVS3: 5" x 8" x 11" (127mm x 203.2mm x 279.4mm)  
Weight: iVS3 Case: 9.0 lbs. • 1500 W Single 2.0 lbs. • 750 W Single: 1.6 lbs.  
• 360 W Single: 1.0 lb. • 210 W Single: 0.6 lb. • 144 W Dual: 0.6 lb.

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## Notes

1. Input: Barrier type. Three M4 screws (0.512" centers). Max torque: 7 in-lbs. (0.79 N-m).
2. Control connectors: (J1) 10 position housing, gold plated contacts. Mates with Molex 90142-0010 housing with 90119-2110 crimp contacts (Molex C - Grid III Series). Connector kit includes mating connector and 10 pins, Astec part #70-841-004. (J2) 10 position housing (Landwin 2051P1000T). Mates with housing 2050S1000 (Landwin) with 2053T011P (Landwin) pins.
3. Chassis material: aluminum with chemical film coating (conductive).
4. All dimensions are in millimeters and inches, and are typical.
5. Customer mounting -3 sides M4, bottom also includes 8-32 mounting holes. Max. penetration is 0.155" (4.0 mm). Max. torque: 5 in-lbs. (0.57 N-m).
6. Output module connections: All single O/P modules are M4 x 8mm screws. Max. torque: 10 in-lbs. (1.13 N-m). Dual O/P module is M3 x 8mm screws. Max. torque: 5 in-lbs. (0.57 N-m).

## iVS Series

### iVS6 (3210 Watts Max)

5-Inch Case Size: iVS6: 5" x 5" x 11" (127mm x 127mm x 279.4mm)

Weight: iVS6 Case: 6.0 lbs. • 1500 W Single 2.0 lbs.

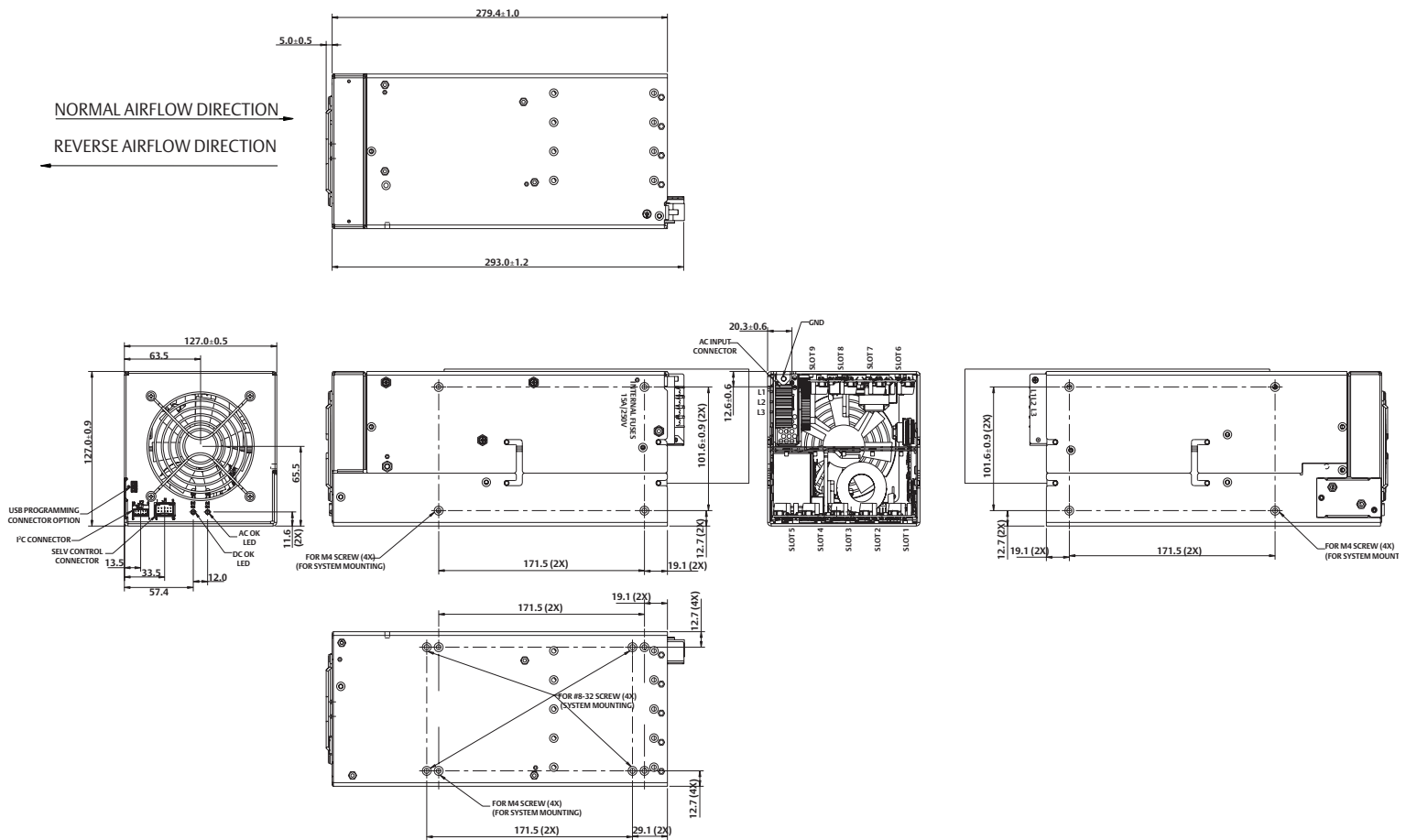
• 750 W Single: 1.6 lbs. • 360 W Single: 1.0 lb.

• 210 W Single: 0.6 lb. • 144 W Dual: 0.6 lb.

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## Notes

1. Input: Barrier type. Four M3 screws (0.325" centers). Max torque: 6 in-lbs. (0.67 N-m).
2. Control connectors: (J1) 10 position housing, gold plated contacts. Mates with Molex 90142-0010 housing with 90119-2110 crimp contacts (Molex C - Grid III Series). Connector kit includes mating connector and 10 pins, Astec part #70-841-004. (J2) 10 position housing (Landwin 2051P1000T). Mates with housing 2050S1000 (Landwin) with 2053T011P (Landwin) pins.
3. Chassis material: aluminum with chemical film coating (conductive).
4. All dimensions are in millimeters and inches, and are typical.
5. Customer mounting -3 sides M4, bottom also includes 8-32 mounting holes. Max. penetration is 0.155" (4.0 mm). Max. torque: 5 in-lbs. (0.57 N-m).
6. Output module connections: All single O/P modules are M4 x 8mm screws. Max. torque: 10 in-lbs. (1.13 N-m). Dual O/P module is M3 x 8mm screws. Max. torque: 5 in-lbs. (0.57 N-m).

## iVS Series

### iVS8 (4920 Watts Max)

8-Inch Case Size: iVS8: 5" x 8" x 11" (127mm x 203.2mm x 279.4mm)

Weight: iVS8 Case: 9.0 lbs. • 1500 W Single 2.0 lbs.

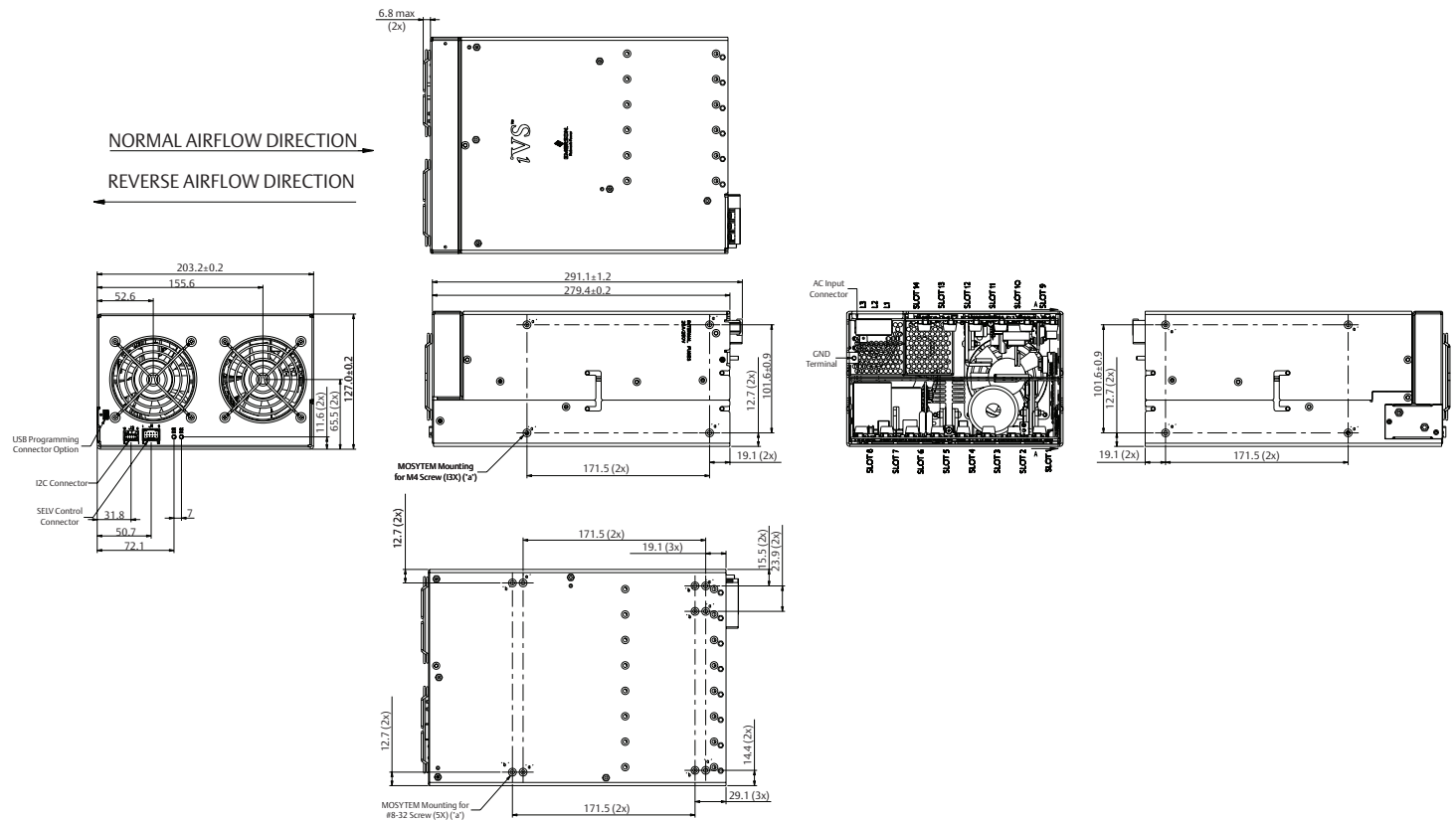
• 750 W Single: 1.6 lbs. • 360 W Single: 1.0 lb.

• 210 W Single: 0.6 lb. • 144 W Dual: 0.6 lb.

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iVS Series

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## Notes

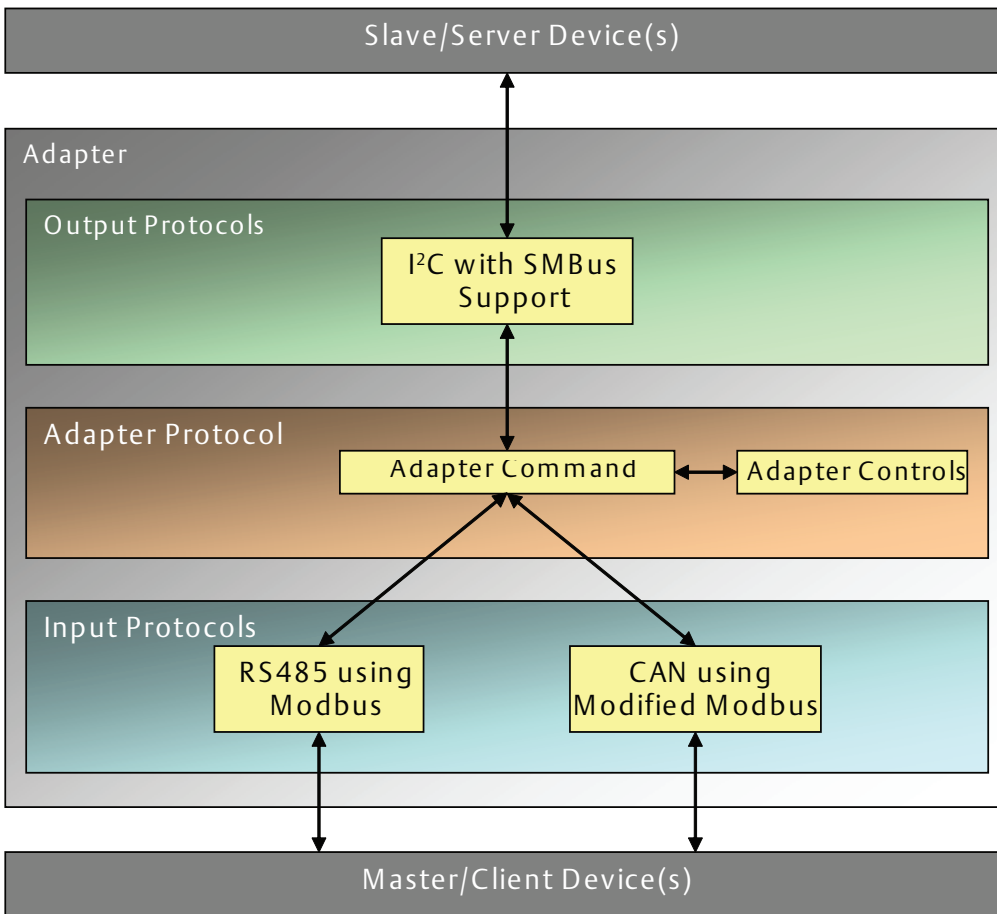
1. Input: Barrier type. Three M3.5 screws (0.394" centers). Max torque: 6 in-lbs. (0.67 N-m).
2. Control connectors: (J1) 10 position housing, gold plated contacts. Mates with Molex 90142-0010 housing with 90119-2110 crimp contacts (Molex C - Grid III Series). Connector kit includes mating connector and 10 pins, Astec part #70-841-004. (J2) 10 position housing (Landwin 2051P1000T). Mates with housing 2050S1000 (Landwin) with 2053T011P (Landwin) pins.
3. Chassis material: aluminum with chemical film coating (conductive).
4. All dimensions are in millimeters and inches, and are typical.
5. Customer mounting -3 sides M4, bottom also includes 8-32 mounting holes. Max. penetration is 0.155" (4.0 mm). Max. torque: 5 in-lbs. (0.57 N-m).
6. Output module connections: All single O/P modules are M4 x 8mm screws. Max. torque: 10 in-lbs. (1.13 N-m). Dual O/P module is M3 x 8mm screws. Max. torque: 5 in-lbs. (0.57 N-m).

## Optional CANBUS or RS485 Interface

The RS485/CAN-to-I<sup>2</sup>C uses 2 Input Protocols and 1 Output Protocol.

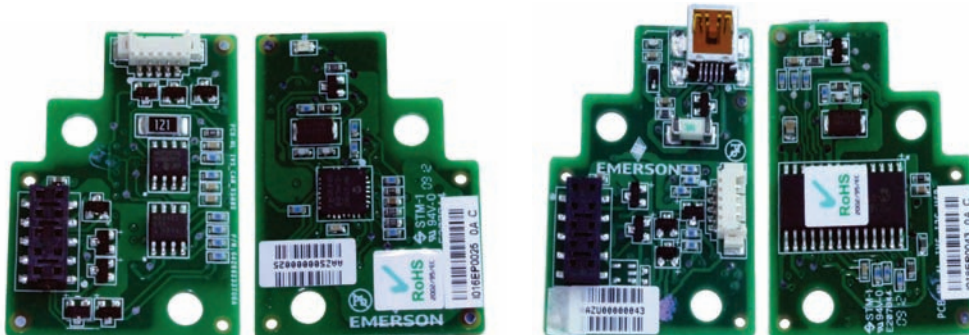
The Input Protocols used are RS485 using Modbus (Command Index: 0x01), and CAN using modified Modus (Command Index: 0x02).

The Output Protocol use is: I<sup>2</sup>C with SMBus support (Command Index: 0x80).



### RS485/CAN - to - I<sup>2</sup>C

For Detailed Info, Download the Software Requirements Specification (SRS) from  
[www.PowerConversion.com/products/cat/103/iVS-series-ac-dc-power-supplies](http://www.PowerConversion.com/products/cat/103/iVS-series-ac-dc-power-supplies)



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