Section 26

SELECTED OPTIONS

Power Fail Options

(-1) POWER FAIL: Upon loss of AC line, signal goes from high to low before loss of output regulation.

(-1C) POWER FAIL: Upon loss of AC line, signal goes from low to high before loss of output regulation.

(-1CL) POWER FAIL: Upon loss of AC line, signal goes from low to high before loss of output regulation. LED on is good and off indicates failure.

(-1CZ) POWER FAIL: Upon loss of AC line, signal goes from low to high before loss of output regulation. External pull up required, (open collector capable of sinking up to 40V and 40mA, 1K).

(-1CZL) POWER FAIL: Upon loss of AC line, signal goes from low to high before loss of output regulation. LED on is good and off indicates failure. No Internal Pull up provided. (open collector capable of sinking up to 40V and 40mA, 1K).

(-1L) POWER FAIL: Upon loss of AC line, signal pulls low before loss of output regulation. LED on is AC good and off is fault condition.

(-1U) DC LINE MONITOR: Power fail signal that senses the input voltage and goes high to low when input voltage drops less than or equal to 40VDC.

(-1Z) POWER FAIL: Upon loss of AC line, signal goes from high to low before loss of output regulation. External pull up required.

(-8GL) POWER SUPPLY FAIL: High TTL signal indicates output voltage is good and low indicates no output. LED on is good and off is bad. Works only with 2T Inhibit option.

(-48L) UNIT PRESENT: The power supply present pin is tied to logic return.

(-128) POWER SUPPLY FAIL: Provides output logic high signal when DC output is present. When the DC output is not present the output of this option will drop to logic ground. Note: When the units are used in parallel, a load of 3 amps per power supply must be on the system bus to insure that this signal is high for each power supply.

(-128F) POWER SUPPLY FAIL: Provides output logic low signal when DC output is present. When the DC output is not present the output of this option is open collector. Internal pull-up provided.

(-128L) POWER SUPPLY FAIL: Provides output logic high signal when DC output is present. When the DC output is not present the output of this option will drop to logic ground. . Note: When the units are used in parallel, a load of 3 amps per power supply must be on the system bus to insure that this signal is high for each power supply.
LED on indicates output good.

(-128FZL) POWER SUPPLY FAIL: Provides output logic low signal when DC output is present. When the DC output is not present the output of this option is open collector. External pull-up is required. LED on indicates output good.

(-128ZL) POWER SUPPLY FAIL: Provides output logic high signal when DC output is present. When the DC output is not present the output of this option will drop to logic ground. External pull-up is required. LED on indicates output good.

(-158) POWER SUPPLY FAIL: Power Supply fail (DC Output) signal with a 300 ohms pull up resistor.

Logic Inhibit Options

(-2) LOGIC INHIBIT: 2 volt or more will inhibit the supply, an open circuit or less than 0.5 volts will enable the supply. Logic inhibit return should be connected to system common.

(-2F) LOGIC INHIBIT: Two volts or more or an open circuit will inhibit the supply, less than 0.5 volts will enable the supply. Logic inhibit return should be connected to system common.

(-2N) LOGIC INHIBIT: Less than 0.5 volts or open will inhibit the supply. Two volts or more will enable the supply, Logic inhibit return should be connected to negative output.

(-2T) LOGIC INHIBIT: Less than 0.5 volts will inhibit the supply. Two volts or more or an open circuit will enable the supply. Logic inhibit return should be connected to system common.

Current Sharing Options

(-6B) CURRENT SHARING: Allows two or more similar power supply main outputs to load share using a single wire. A single wire scheme that averages the output current of all supplies. Each supply compares this signal to the output current it is producing. Any difference will cause the supply. Any difference will cause the supply to automatically re-adjust it's output voltage until that value is zero. The output bus voltage will be the average of the individual power supply settings. As long as all supplies are adjusted to within 4% they all share. A failed power supply does not drag down the bus voltage because there is an internal switch that disconnects the option from the load share bus when the unit fails. The bus voltage will re-average among the remaining units. For units 3KW and smaller.

(-6C) CURRENT SHARING: Allows two or more identical units to current share when they are connected in parallel. Each unit provides an output consisting of a single wire which are tied together. This output produces a voltage that is proportional to the output current at all times, whether the unit is operating alone or in parallel with the other units. The control voltage specification is 5V at full load and 0.5V at 10% load. The control circuit for each unit integrates the error voltage and modifies the reference voltage for that unit to null the error. At equilibrium, all errors are nulled and, since the control voltage is common, all the currents are equalized. In the absence of other units the integration voltage goes to zero and the reference voltage is not modified. This means that during the current sharing, the unit with the highest voltage becomes the master and the other units become slaves or followers. The maximum perturbation on the reference voltage shall not cause the output voltage to increase or decrease more than 5% of the initial setting. A failure of a slave unit causes no increase in the current sharing balance. A failure of the "master" unit could cause a current unbalance of up to 4%. For units larger than 3KW.

(-6D) CURRENT SHARING: Droop load sharing is a method of increasing the output impedance of each converter so that when a load is applied the drop of the output voltage from each converter is proportional to the current drawn from each converter, i.e. the converter with the largest load has the most drop and the converter with the lightest load has the least drop. This has a tendency to equalize the output voltages of the units which in turn forces load sharing. No extra current sharing wires are needed for load sharing. The number following the D will indicate the droop percentage; 6D3 will indicate a 3% droop. At no-load the output will be 3% higher than the output at full load. The plain 6D denotes a 10% droop.

(-6I) INTERNAL CURRENT SHARING: Provides internal single wire current sharing when the two outputs are externally connected in parallel.

(-20C) DIODE ISOLATION: Built in isolation diodes in the positive output line to prevent a failed power supply from affecting the bus. This option is used when power supplies must current share.

Power Good/Power Quality Options

(-8) POWER GOOD: The power good monitors the channel output voltage via the remote sense leads. The signal goes from low to open collector when output is out of ±4% tolerance band. Internal Pull up provided.

(-8AL) POWER GOOD: The output voltage will be detected prior to the "OR'ing Diode". Warning will be generated at 21/42 volts, depending on the output voltage. Low output will be indicated by a "Zero" or an "On" transistor FET. LED indicates "On" for the output above the detect point.

(-8Z) POWER GOOD: The power good monitors the channel output voltage via the remote sense leads. The signal goes from low to open collector when output goes out of ±4% tolerance band. External 1k pull up required.

(-8FZ) POWER GOOD: The power good monitors the channel output voltage via the remote sense leads. The signal goes from low to open collector when output goes out of ±4% tolerance band. External 1k pull up required.

(-8T) POWER GOOD: The power good monitors the channel output voltage via the remote sense leads. The signal sinks to logic return when output is out of a ±4% tolerance band.

(-8TL) POWER GOOD: The power good monitors the channel output voltage via the remote sense leads. The signal sinks to logic return when output is out of a ±4% tolerance band. LED on is good and off indicates failure.

(-8UV) UNDER VOLTAGE DETECT: Signal pulls low when output drops more than 15%±5% of the nominal. There is no upper trip point. Sensing occurs at the output terminals instead of the remote sense leads.

(-8UVZ) UNDER VOLTAGE DETECT: Signal pulls low when output drops more than 15%±5% of the nominal. There is no upper trip point. Sensing occurs at the output terminals instead of the remote sense leads. External 1K Pull up is required. External pull up required. (Open collector capable of sinking up to 40V and 40mA, 1K)

(-8UVL) UNDER VOLTAGE DETECT: Signal pulls low when output drops more than 15%±5% of the nominal. There is no upper trip point. Sensing occurs at the output terminals instead of the remote sense leads. High good (LED on) and Low bad (LED off).

(-8FUVL) UNDER VOLTAGE DETECT: Signal pulls high when output drops more than 15%±5% of the nominal. There is no upper trip point. Sensing occurs at the output terminals instead of the remote sense leads. Low good (LED on) and High bad (LED off).

(-8FUV) UNDER VOLTAGE DETECT: Signal pulls high when output drops more than 15%±5% of the nominal. There is no upper trip point. Sensing occurs at the output terminals instead of the remote sense leads.

(-8FUVZ) UNDER VOLTAGE DETECT: Signal pulls high when output drops more than 15%±5% of the nominal. There is no upper trip point. Sensing occurs at the output terminals instead of the remote sense leads. Low is good and High is bad. External pull up required. (open collector capable of sinking up to 40V and 40mA, 1K).

(-8UVLZ) UNDER VOLTAGE DETECT: Signal pulls low when output drops more than 15%±5% of the nominal. There is no upper trip point. Sensing occurs at the output terminals instead of the remote sense leads. High good (LED on) and low bad (LED off). External pull up required. (open collector capable of sinking up to 40V and 40mA, 1K)

(-8FUVLZ) UNDER VOLTAGE DETECT: Signal pulls high when output drops more than 15%±5% of the nominal. There is no upper trip point. Sensing occurs at the output terminals instead of the remote sense leads. Low good (LED on) and High bad (LED off). External pull up required. (open collector capable of sinking up to 40V and 40mA, 1K)

(-182) UNDER VOLTAGE DETECT, 7 TO 10%: Under voltage detection level is 7% to 10%. Signal is low for Output Good. Signal is High for Output Bad. The output voltage will be measured before the isolation diode. A separate lead must be brought out of the supply for testing and monitoring.

Current Limit/Current Monitor/Current Programming Options

(-25) CURRENT LIMIT: Power supply limits at maximum output current during a short circuit load condition. Current limit set between 105% to 115%. These limits apply to units smaller than 3.1KW.

(-25) CURRENT LIMIT: Power supply limits at maximum output current during a short circuit load condition. Current limit set between 102% to 108%. These limits apply to units larger than 3.1KW.

(-33) CURRENT MONITOR: The current monitor signal is referenced to the negative output. It is accurate to within +/- 10%, from 10% to 100% load. The analog signal 0V to 5V is proportional to the load when increased from no load to maximum load.

(-33Y) CURRENT MONITOR: The current monitor signal is referenced to the negative output. It is accurate to within +/- 10%, from 10% to 100% load. The analog signal 0V to 2.5V is proportional to the load when increased from no load to maximum load.

(-60) PROGRAMMABLE OUTPUT CURRENT LIMIT: Current limit is controlled over the range of 0 amps to full load with a 0 to 5V control voltage. Ripple and noise may increase below 50% of Current Programming Voltage. Accuracy and offset are not guaranteed below 5% of Current Programming Voltage.

(-60A) PROGRAMMABLE OUTPUT CURRENT LIMIT: Current limit is controlled over the range of half load to full load with a 0 to 5V control voltage.

(-60C) PROGRAMMABLE OUTPUT CURRENT LIMIT: Output current limit if programmable from 10% to 100% via a control signal of 0 to 5V.

(-142) PROGRAMMABLE OUTPUT CURRENT: Nominal Output is 48V @ 60A. Current Limit is controlled over the range of 25A to 60A via a 0 to 5V control voltage.

(-149) BURP CURRENT LIMIT:
In the event of a short or overload condition on the output of the supply, the supply must shut off its output and attempt to power up its output at least every 7 to 10 seconds. After 10 to 16 retries the power supply will disable its output. Reset is accomplished by the inhibit line or recycling the AC line.

(-176) PROGRAMMABLE CURRENT LIMIT: Nominal output is 24D150. Current limit is controlled over the range of 5A to 150A via a 0 to 5VDC control voltage.

(-176A) CURRENT PROGRAMMING: With this option, the output current limit changes linearly with respect of an input programming voltage that varies from 0 to 5V, such that at 0.5V the current limit is at 10% of full load and at 5V it is a 100% of full load. The programming voltage, ideally, is 0 to 5V corresponding to zero to full load. Since it is not possible to guarantee zero current at 0V, due to tolerances and offset errors, currents are defined at 0.5V for 10% load and 5V at full load. If the load resistance is too high for the programmed current, the output voltage is limited to that specified by the customer. Otherwise the output voltage adjust itself to the product of the programmed current and output load resistance. The output load resistance can vary from zero, short circuit, to infinity, open circuit.

(-179) PROGRAMMABLE CURRENT LIMIT: The standard power supplies will be modified as follows: One supply will be connected to accept a 0 to 5V signal for a 0 to 150A output. This will be the lower supply (more negative) in a chain of power supplies connected in series. This supply's transfer curve will not be linear below 20% load, but will be programmable down to at least 2.5A, maybe less. The power supply's ripple may increase as the current is reduced, and the supply may even pulse skip. This option will also include an internal reverse protection diode across the output terminals.

Protection Options

(-4D) OVER TEMPERATURE PROTECTION: Non-latchable OVT. The unit shuts down in the event of over temperature and comes up automatically after it has cooled down. Standard OVT is configured as latchable where the ac power is recycled to restart.

(42M) INPUT VOLTAGE SUPPRESSION (MOV): MOV's, Transorbs or the equivalent placed on a PCB connected internally to the input terminals to suppress input spikes. Normally there are three devices, 1 from each input line to chassis, and 1 from line to line.

(-151) BUILT-IN INTERNAL FUSE: A 30A input fuse is installed internally.

(-HB) HUMISEALED PC BOARDS

Voltage Adjustment/Voltage Programming Options

(-5L) MARGIN/PROGRAM: Allows ±5% change of primary channel.

(-5LO) MARGIN/PROGRAM: Allows ±10% change of primary channel.

(-61D) PROGRAMMABLE OUTPUT VOLTAGE LIMIT: Output voltage is programmable from 50% to 100% via a control signal of 0 to 5V.

(-127) SPECIAL VOLTAGE ADJUST: Provides for an adjustment of the output voltage from 12 (±0.5) to 48 VDC via the Margin Circuit with input of 0 to 5 VDC.

(-127A) SPECIAL VOLTAGE ADJUST: Provides for an adjustment of the output voltage from 21.5 (±0.5) to 53 VDC via the Margin Circuit with input of 0 to 5 VDC.

(-127B) SPECIAL VOLTAGE ADJUST: Provides for an adjustment of the output voltage from 12 (±0.5) to 56 VDC via the Margin Circuit with input of 0 to 5 VDC.

(-141) PROGRAMMABLE OUTPUT VOLTAGE: Nominal Output is 48V @ 60A. Output is controlled over the range of 12V to 50V via a 0 to 5V control voltage.

(-150) SPECIAL REMOTE SENSE: 2V of sense compensations.

(-154) 1.5 –5.5V ADJUSTMENT RANGE: Takes a 5V, 150A power supply and modifies the adjustment network to allow an output voltage adjustment of 1.5 to 5.5Vdc.

(-171) PROGRAMMABLE OUTPUT VOLTAGE: Nominal Output is 5V @ 300A. Output is controlled over the range of 1V to 5V via a 0 to 5V control voltage.

(-180) VOLTAGE MIRROR: This option allows voltage equalization for a string of “seriesed” PS. The lower of the two PS’s becomes the controller for the upper one. That is, in a set of 3 PS’s connected in series, where PS1 is the most negative in the chain, PS1 will control the voltage of PS2 and PS2 will control the voltage of PS3. Any voltage adjustment, programming, margining, etc, must be done on the most negative power supply in the chain. The most negative PS in the chain will not have the Voltage Mirror option, ie, no
(-180) in the type number. The voltage Mirror input pin, on the units with the (-180) in the type number, must be

connected to the remote sense pin of the PS immediately below it (lesser voltage) in the chain. The positive remote sense lead of the most negative PS should be connected to the positive load sense point while the negative remote sense lead of the most negative PS should be connected to the negative load sense point. All other PS remote sense leads should be tied to their respective output terminals. The current limit of all PS will be set to 105% of rated current. This option will also include an internal reverse protection diode across the output terminals.

(-199) PROGRAMMABLE OUTPUT VOLTAGE:

The output is programmed using
A control voltage from 0V to 4V. The voltage is adjusted per table below:

Control (V)	Output (V)
1	27
1.5	28
2.0	29
2.5	30
3.0	31
3.5	32
4	33

(235) MARGIN/PROGRAM: Allows +10% change in CH1. Connecting the margin pin to the positive side of CH1 provides +10% change in CH1

(-263) VOLTAGE ADJUST: Provides for an adjustment of the output voltage from 0% to 100% with an external 1k ohm potentiometer.

(-264) PROGRAMMABLE OUTPUT VOLTAGE: Output voltage is programmable from 75% to 100% via an external pot. Three pins will be provided for the voltage adjust pot.