

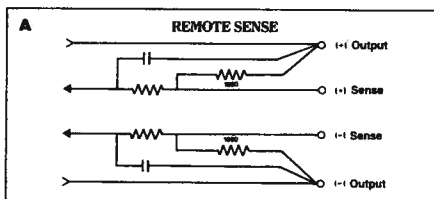
OPTION DESCRIPTIONS

The following Options are available on the PIONEER line of "Dependables" and "Internationals." Consult the chart on preceding page to determine the availability of options you desire on the unit you've selected. Mechanical packaging considerations may limit the number of options that can be combined. Consult factory for details.

-0 REMOTE SENSE (Standard) (Refer to diagram A)

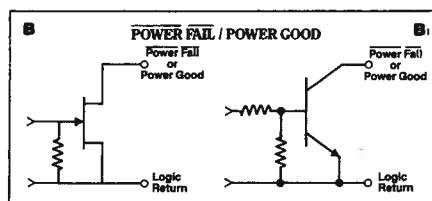
Remote sense is normally standard on all outputs and is accessible on the Molex interface connectors.

The circuit insures the correct voltage at the load with up to 0.5 volts total loop drop on the output lines. The sense circuit is internally tied to the output connectors through 100 ohm resistors; therefore, if the remote sense lines are open, the unit automatically senses locally at the output terminals without requiring an external jumper. The rise in regulated voltage caused by opening the remote sense leads is approximately 100 millivolts.



-1 POWER FAIL (Refer to diagram B)

The power fail circuit monitors the input line voltage via the input storage capacitors and also senses main inverter operation. The output is an open drain, depletion mode FET⁽¹⁾ with a 25V, 40mA rating and is available on the Molex interface connector. An external pull-up is required.

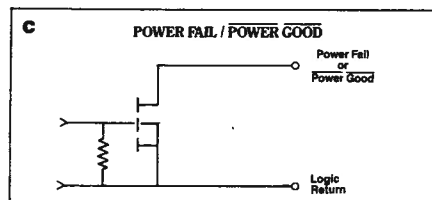


Upon loss of input line power the output signal will sink to logic return and provide a 2 msec minimum warning of loss of output regulation (consult factory for PM3000 series and PM2700 series).

Should main inverter operation cease due to an inhibit signal or a component failure the output will sink to logic return.

The circuit has a hysteresis band to prevent chattering at the threshold point. A transition from contact closure to open circuit will occur as the input is increased from brown-out to low line. A transition from open circuit to contact closure will occur as the line voltage is reduced from low line, but before reaching brown-out.

With an open drain, depletion mode FET, a POWER FAIL signal (contact closure) will continue to be generated even when the main inverter is not operating and no input power is applied.⁽¹⁾



-1C POWER FAIL NOT (Refer to diagram C)

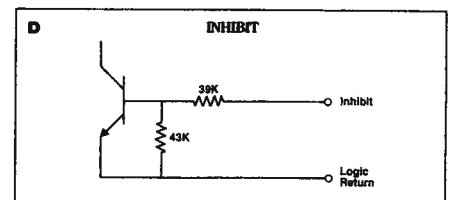
This is a -1 with an inverted logic level and an open drain enhancement mode FET.⁽¹⁾

-1D POWER FAIL FOR PARALLEL UNITS⁽⁴⁾ (Refer to diagram B)

This is to be used when two or more units are directly paralleled or paralleled using current sharing electronics. Logic levels are identical to the standard -1. The -1D is a "Keep alive" circuit which ensures minimum converter operation during paralleled conditions when the supply is operational but does not supply current to the load.

-1DX "KEEP ALIVE" FOR PARALLEL UNITS⁽⁴⁾

Identical to -1D except the power fail signal and attendant logic return wire (if used) are omitted to conserve Molex pins on the J1 connector.



-2 INHIBIT (Refer to diagram D)

2 volts or more will inhibit the supply; an open circuit or less than 0.5 volts will enable the supply.

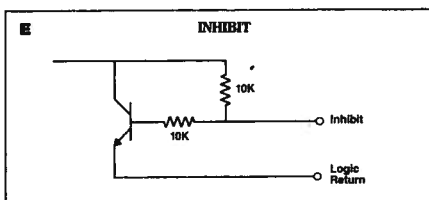
The inhibit function is available on the main channel and will shut down the entire unit when activated. This is accomplished by deactivating the control circuit electronics, preventing the main power inverter from operating. Initial inrush current and fan operation are unaffected by the inhibit line since the input power remains connected at all times.

The inhibit signal is available on the J1 Molex interface connector. The return for the inhibit signal is normally tied to the

Options

negative output terminal of the main channel. It is also available as a floating return on the Molex connector, or it can be tied to the positive sense line.⁽²⁾

The inhibit line presents an input load of 39K in series with a silicon junction which is, in turn, shunted by a 43K resistor. The circuit is TTL compatible, the input current at +2 volts being less than one TTL source (40uA).⁽³⁾



-2F LOGIC INHIBIT NOT

2 volts or more or an open circuit will inhibit the supply; less than 0.5 volts will enable the supply.

-2N LOGIC INHIBIT NOT (Opposite of -2)

(Refer to diagram D)

Less than 0.5 volts or open circuit will inhibit the supply; 2 volts or greater will enable the supply. Inhibit line impedance is same as -2.

-2T LOGIC INHIBIT (Opposite of -2F)

(Refer to diagram E)

Less than 0.5 volts will inhibit the supply; 2 volts or greater or an open circuit will enable the supply.

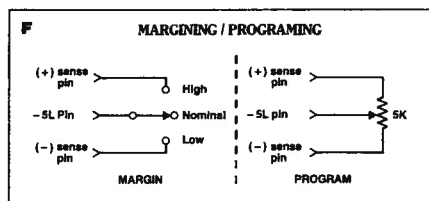
The inhibit line consists of two 10K resistors in series with a base-emitter junction. The input is connected to the center point of the two resistors. The free end is tied to the transistor collector in a bootstrap arrangement. The circuit is TTL compatible, the input current at +2 volts being less than one TTL source (40uA).

-3 OV CROWBAR (Main Channel Only)

A crowbar is triggered by the over-voltage circuit discharging the output in less than 50 usec. Available only on Channel #1 with 5 to 15V output (Note: Shut-down type OV on channel #1 is provided as standard and can be used in lieu of OV crowbar. OV crowbar not recommended for parallel applications).

-3S OVP SECONDARY CHANNELS (Shut-down type)

A shut down type OVP is provided as standard on the main channel and as an option on individual secondary channels (ch. #2, 3, 4). The 3S option senses the voltage at the output terminals. The overvoltage sense circuits are summed together via opto-couplers to the main channel OVP shut-down circuit. An overvoltage condition on any one channel with a -3S will cause the entire supply to be latched-off. Trip points are 115% to 135% of nominal voltage. The circuit is reset by cycling input power.



-4 OVERTEMPERATURE PROTECTOR

The supply is latched off in the event of an overtemperature condition or loss of airflow. The unit will reset after a suitable cool-down period and subsequent recycling of the input line.

-5L REMOTE PROGRAMMING/ MARGINING ±5%

(Refer to diagram F)

Allows 5K Pot to adjust output continuously from -5% to +5% or three position switch to adjust output to -5%, 0% and

+5% of nominal. Center point connects to single wire line and end points of pot or switch connect to remote sense terminals. As this line is brought toward (+) sense potential the output will go above nominal; as line is brought toward (-) sense potential the output will go below nominal. The output will return to nominal value when the line is left open circuit. If remote sense is not used the end contacts of the pot/switch should be tied to the channel output terminals.

-5LO REMOTE PROGRAMMING/ MARGINING

(Refer to diagram F)

±10%

-5M MARGIN CHECK SWITCH

±5% (Switch located on front panel)

-5MO MARGIN CHECK SWITCH

±10% (Switch located on front panel)

-6 DIRECT PARALLEL OPERATION⁽⁴⁾

Current foldback point is set between 100% and 105% of rated output and short circuit current is 50% of rated output or greater.

In direct parallel applications, one or more supplies will operate in a transconductance or current limited mode. The -6 option prevents pre-mature converter failure resulting from operation in an overcurrent condition.

-8F POWER GOOD NOT

(Refer to diagram C)

An -8T with an inverted logic level and an open drain enhancement mode FET⁽¹⁾ output.

Notes:

- (1) PM2900 and PM3000 only. All other models use open collector transistors. See figure B1
- (2) See LRF and LRN options for logic return wire.
- (3) PM2900 and PM3000 models. Individual circuits for other models may vary although all are TTL compatible.
- (4) Consult factory for paralleling applications.

Options

-8T POWER GOOD

(Refer to diagram B)

The option is available for individual channels (Ch. 1, 2, 3, 4). The power good circuit monitors the channel output voltage via the remote sense leads. The output is an open drain, depletion mode FET* with a 25V, 40mA rating and is available on the Molex interface connector. An external pull-up is required.

The power good monitors are summed together via opto-couplers to the power good output circuit. Upon loss of output regulation of any one channel the output will sink to logic return. The power good trip limits are $\pm 4\%$ of nominal channel output voltage with a $\pm 1\%$ tolerance ($\pm 3\%$ to $\pm 5\%$ trip band range). For proper operation the remote sense leads of that channel must be connected (either remotely or locally).

With an open drain, depletion mode FET, a POWER GOOD NOT is signal (contact closure) will continue to be generated even when the main inverter is not operating and no AC is applied.⁽¹⁾

-8UV UNDER VOLTAGE MONITOR⁽⁴⁾

This option is to be used on channels which are paralleled with diode isolation or with power shelf modules. Operation is identical to -8T except the lower trip point is $-15\% \pm 5\%$ of nominal and there is no upper trip point. Sensing occurs at the output terminals instead of the remote sense leads.

-20 DIODE ISOLATED CHANNEL SET-UP FOR PARALLELING APPLICATIONS⁽⁴⁾

In paralleling applications with diode isolation the foldback and OVP settings of the channel must be set with the output one diode drop (1 volt) higher than the nominal bus voltage. This is necessary since these functions are driven by the output terminals of the channel. In some applications the output power of the unit

may force a reduction in channel output current.

This option is normally required for secondary channels on power shelf modules.

-DD DISK DRIVE OPTION

Allows a 15 amp continuous rated channel to be run at 20 amps peak for 30 seconds to allow disk drive start-up. Current limit is set at 21 to 24 amps to avoid gross loss of output regulation (output to hold within 1%). All performance parameters however—ripple and noise, dynamics and regulation—are guaranteed only to a 15 amp level. However, if the channel with this option is operated continuously above 15 amps, damage to the unit may occur.

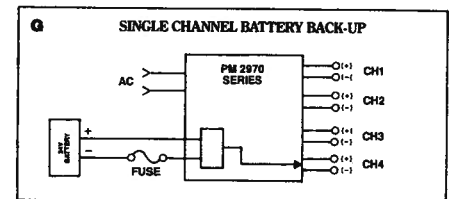
For the purpose of setting current limit, full load is defined as 20 amps. For purposes of performance testing and burn-in, full load is defined as 15 amps.

-LRF FLOATING LOGIC RETURN WIRE

The logic return wire is normally tied to the negative output stud of channel 1. In cases where excessive channel 1 cable drops are seen, where the supply is to be used as both a negative or positive output on the main channel, or where inhibit lines are "daisy-chained," a floating logic return wire should be used. This is brought out at the Molex interface connector and should be tied to the user's inhibit driver return connection (usually system common).

-LRN LOGIC RETURN WIRE TIED TO POSITIVE OUTPUT OF CH. 1

In cases where channel 1 is a negative supply the logic return wire should be tied to the positive output terminal of channel one. This maintains all logic interface signals referenced to system common instead of below ground potential. Where excessive cable drops are encountered the -LRF option should be specified instead.



-SCB SINGLE CHANNEL BATTERY BACK-UP (Refer to diagram G)

Available on one secondary channel output, the SCB provides battery back-up during AC power outages. This option is useful for holding up memory or other devices requiring uninterrupted power and is an economical alternative to traditional UPS when full system hold-up is both unnecessary and costly.

The SCB requires a 24 volt battery (Two YAUSA NP 15-12 15.0 AH) with a customer supplied in-line fuse. A 5 volt, 15 amp output is standard with currents up to 45 amps available by internally paralleling secondary channels.

Features included on the SCB include overvoltage, overcharge, and deep discharge protection. A 1.5 amp current-limited, float charge is provided for the battery.

Additional information can be found on the following applications:

Option #	Description	Application Note #
-0	Remote Sense	AN-04-020
-1	Power Fail	AN-04-010, AN-04-011
-2	Inhibit	AN-04-040
-5	Margining/Programming	AN-04-030
-6	Direct Paralleling	AN-03-010, AN-03-050
-8	Power Good	AN-04-010, AN-04-012
-SCB	Voltage Memory Back-up	AN-10-010
-LRN	Logic Return Wire	AN-04-050

Notes:

- (1) PM2900 and PM3000 only. All other models use open collector transistors. See figure B1
- (2) See LRF and LRN options for logic return wire.
- (3) PM2900 and PM3000 models. Individual circuits for other models may vary although all are TTL compatible.
- (4) Consult factory for paralleling applications.