

POWER SUPPLIES

Protection Features and CIIL Programming

CIIL Programming for the Multiple Output and Autoranging System DC Power Supplies

CIIL (Control Interface Intermediate Language) is now a test instrument module programming language standard for many military test equipment programs, including all new U.S. Air Force programs and some U.S. Navy and U.S. Marine programs.

CIIL, which is a compiled form of ATLAS, provides a uniform programming format for all basic test instrumentation. The CIIL standard reduces the effort required for system upgrades and modifications, such as those needed to keep a system up to date with the latest technology.

One difficulty with CIIL is how to handle instrument capabilities that do not fit in with any approved CIIL command. Such commands are handled in the instrument's native language which is accessible through the CIIL Go to Alternate Language <GAL> command.

The CIIL programmable HP Power Supply (ordered as Option 700) contains a CIIL interpreter in ROM internal to the power supply.

HP system DC power supplies with Option 700 are designed to follow the guidelines of CIIL standard 2806763 Rev. B. The signal type produced by a DC power supply is designated by the CIIL noun <DCS>. Of the many noun modifiers defined by CIIL, five apply to the DC signal produced by an HP system power supply. These are voltage <VOLT>, current <CURR>, voltage limit <VLTL>, current limit <CURL>, and settling time <SETT>.

The following CIIL commands are accepted: FNC, SET, SRX, SRN, INX, FTH, RST, OPN, CLS, STA, IST, CNF, and GAL.

All of the basic functions of a standard HP system power supply can be implemented with the Option 700 unit. Output voltage and current measurement readback is implemented with the CIIL <INX> and <FTH> commands. Some features, such as the Foldback protection available with the HP 603XA series or the Over-Current Protection available with the HP 662XA series, must be programmed in the alternate language because CIIL does not provide for them. The alternate language also contains most of the standard HP system DC power supply commands, including all of the output setting commands, the measurement readback commands, the echo query commands, the output disable command, and the self test, status, reset, and clear commands.

Option 700 is available with HP's line of programmable system DC power supplies, Models HP 6030A, 6031A, 6032A, 6033A, 6038A, 6621A, 6622A, 6623A, and 6624A.

The FLT and INH lines can be chained together to cause a network of power supplies to shut down if a fault occurs.

Protection Features for Programmable System Power Supplies

Discrete Fault Indicator or Status Monitor Line

The fault indicator line, FLT, is a two pin TTL output port accessible on the rear panel of our system DC power supplies. The FLT line will go true whenever the power supply has gone into Fault Mode. The conditions which could cause the supply to enter Fault Mode are listed below.

CV	-constant voltage mode
CC	-constant current mode
OR	-over range
OV	-overvoltage protection circuit tripped
OT	-overtemperature protection tripped
AC	-input AC out of range
FLD or OCP	-foldback or overcurrent protection tripped
ER	-programming error occurred
RI	-remote inhibit line tripped

By programming a special mask register, the programmer can select which of these nine conditions will cause the power supply to enter Fault Mode. For example, if constant voltage operation is preferred, then the user can set up the power supply to enter Fault Mode if it goes into constant current. Any or all of the conditions in the status register can be masked to cause a fault if they occur.

Both the FLT line and the HP-IB SRQ line are set by the same fault register. The FLT line will provide redundancy for the SRQ line in the event of an HP-IB or controller interruption or failure.

Remote Inhibit Line

The remote inhibit line, INH, is a two pin TTL input port accessible from the rear panel of our system DC power supplies. This line provides the means for disabling the power supply directly, without involving the HP-IB. When the INH line is invoked, the power supply output goes to zero and the Remote Inhibit (RI) bit is set in the status register.

Together, the FLT and INH lines can be used in a variety of configurations to provide added protection.

These features are standard with HP's line of programmable system DC power supplies, Models HP 6030A, 6031A, 6032A, 6033A, 6038A. HP Models 6621A, 6622A, 6623A and 6624A incorporate these features in Option 750. See page 438 for ordering information.

