Local Control Box

Booster High Level RF

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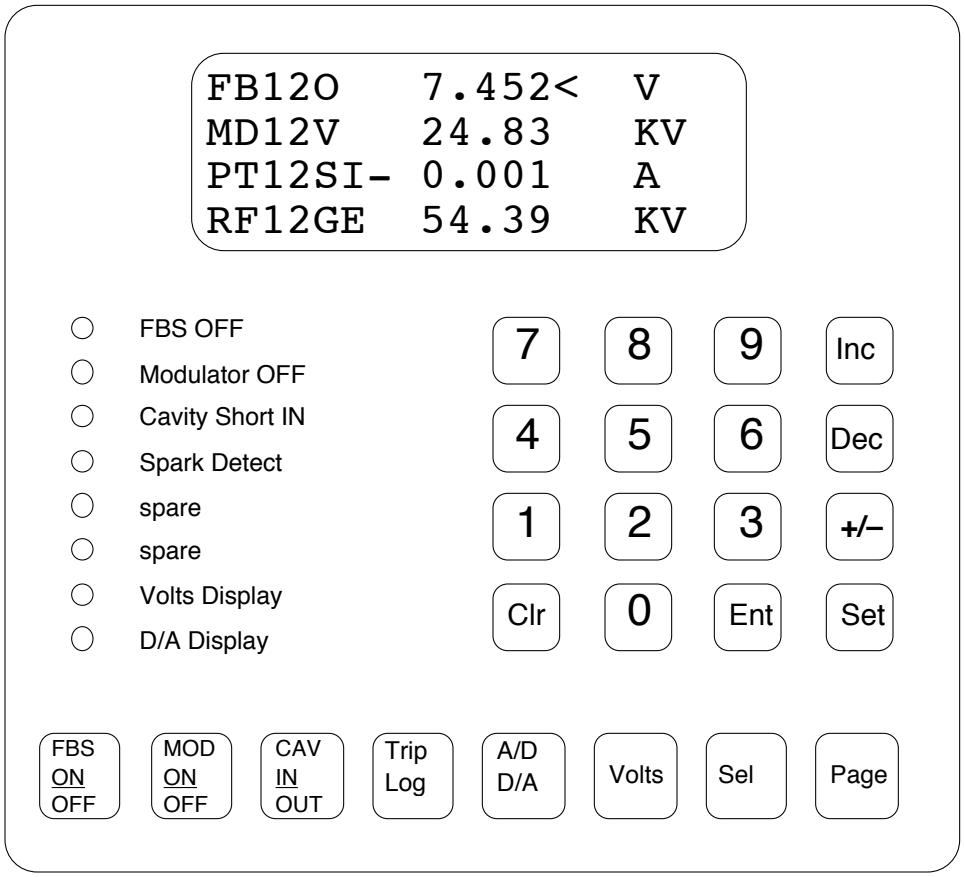
As part of the new installation of controls for the Booster high level RF system, a local control box was proposed to replace the front panel of the MIU crate, used since about 1970 to interface I/O signals to the Lockheed Electronics MAC–16 mini-computer. (The MIU interface depended heavily on the particular I/O channel interface design supported by the MAC–16 and is unavailable for use with a replacement system.) The control box purchased for the new local control support is a DynaComp GreyLine 2200 Series operator panel that provides a four-line 20-character alphanumeric display, a numeric keypad that includes 6 additional keys, a row of 8 function keys, and a set of 8 labeled LEDs. The labels for the keys can be configured by the implementer. The box interfaces to the IRM serial port at rates up to 19200 baud.



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After some local testing and consultation with representatives of the high level RF group, several suggestions seemed attractive. The display itself is used to show up to four parameter lines. Each 20-character line provides for a 6-character name, a space, a 7-character numeric value field, a control marker character, a space, and a 4-character units text field.

The Clr button on the numeric keypad is used as a "clear entry" when entering a numeric value. The Ent button is used to commit to an entered value and perform the setting. The +/– button allows entering an arbitrary signed decimal setting value. The Inc and Dec buttons permit incremental adjustment for an analog setting. In either case, the setting targets the parameter indicated by the control marker.

The labeled lights on the left side show whether the FBS or Modulator is OFF, whether the Cavity Short is IN, whether a spark was detected on the last update cycle, and whether volts and/or setting values are being displayed.

The bottom row of push buttons toggles between ON/OFF or IN/OUT states. The Trip Log button shows the summary trip counts plus the time of the last clearing of trip counts. Press the Trip log button again to return to the normal four-parameter list.

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TRIPS  11/09/95 0758
FBS=   10
MOD=    3
STA=   16
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The A/D D/A button toggles between displaying reading values and setting values on the four-line parameter list. The D/A display light indicates when setting values are displayed. This mode is indicated by an engineering units field of "V. ". The Volts button causes the display values to be in A/D (or D/A) volts units. Press the Volts button again to revert back to normal engineering units display.

The Sel button sequences the control marker through the controllable parameters of the current available set of four-parameters, in case more than one such parameter is controllable. The Page button sequences through the available four-parameter displays. If the control box isn't used for a period of time, it will revert to the first four-parameter list.

The functionality described above is supported via a local application called HLRF that was written by Bob Peters. See the following URL for more information:

http://garlic.fnal.gov/booster_controls/