

2 INTRODUCTION

2.1 SCOPE OF MANUAL

The remainder of the manual offers increased technical details, commands and features that expand upon the few you now know.

This section of the manual contains all the instructions necessary for operation of the RSTL Controller Board. This board is a factory-installed, or stand alone, option for remote computer control of the TCR, EMS, ESS and other power systems manufactured by Electronic Measurements, Inc.

2.2 GENERAL DESCRIPTION

The RSTL provides a means to remotely control Electronic Measurements Inc. power supplies. This board is either factory installed within the supply enclosure or within its own enclosure. The RSTL communicates via the General Purpose Interface Bus (GPIB) or the RS232C serial communications link.

The RSTL allows remote control of the power supply voltage and current programming functions. Front panel voltage and current controls are remotely locked out by the user via CMOS switches on the RSTL.

Programming of the Voltage and Current channels is via 12 bit D/A converters. The offset (zero) and gain (span) trimming of the programming signals is accomplished by four 8-bit D/A's pumping current into the 12 bit D/A programming loops. The values used to trim the unit are stored in an EEPROM in the microcontroller. At power up the trim levels are restored.

Readback is via a 21-bit A/D converter. The software routines used for calibration "use up" some of this resolution, leaving an apparent 16-bit resolution. This is more accurate than needed for the great majority of supplies. Trim adjustments for OFFSET and GAIN, in both VOLTAGE and CURRENT channels, for PROGRAM and READBACK are implemented in software. Readback trim settings may be disabled at any time, the default mode at power up is TRIM ON. Trim settings are stored in nonvolatile EEPROM address space.

2.3 ELECTRICAL SPECIFICATIONS

OPERATING TEMPERATURE: 0 TO 40 DEGREES CENTIGRADE.

ISOLATION from IEEE(RS232) to POWER SUPPLY: 1000VAC.

AC INPUT: 95-130 VAC or 190-260 VAC 1Ø 47-63 Hz

IEEE-488.1: SWITCH SELECTABLE PRIMARY ADDRESS.

RS232C : 8-BIT WORD, 1 STOP BIT, 1 START BIT.

SWITCH SELECTABLE BAUD RATE 150 TO 9600 Bd.

PROGRAMMING RESOLUTION: 12-BIT

PROGRAMMING LINEARITY ERROR: ± 1.5 LSB.

PROGRAMMING FS. DRIFT ERROR: ± 200 PPM/degree C.

PROGRAMMING ZERO DRIFT ERROR: $< 100\mu\text{V/degree C.}$

PROGRAMMING SETTLING TIME: 100uS

READBACK RESOLUTION: > 15 bits (depends on readback setpoints).

READBACK LINEARITY ERROR: $< 0.005\%$ FSO.

READBACK DRIFT ERROR: ± 2 LSB MAX. (0 TO 40 degrees C).

READBACK CONVERSION RATE: < 100 mS.

PROGRAMMING CALIB.: SOFTWARE (USING TRIMDACS - NO POTS)

READBACK CALIB: SOFTWARE (NO POTS)

REMOTE SHUTDOWN: DISABLE SUPPLY PWM

2.4 MECHANICAL SPECIFICATIONS

RSTL 488-1: Length x Width x Height = 16.64" x 1.94"(1/8 rack) x 5.22" (3 RU)

RSTL 488-2: Length x Width x Height = 16.562" x 19" x 1.719" (1 RU)