Description

The EL5825 REV A demo board is designed for demonstrating the operation of Intersil's high precision reference voltage generator, the EL5825. For a detailed description, please refer to the data sheet. A parallel port Visual Basic program is used to drive the SDI, SCLK, and ENA pins for the channel and voltage selection.

8-Channel Circuit Description

Please refer to Figure 1 and the single demo board circuit. On the board, V_S is the supply voltage (5V to 16V). V_{SD} is the digital supply (3.3V to 5V). REFH is the high reference output voltage (REFL < REFH ≤ V_S). REFL is the low reference output voltage (0 ≤ REFL < REFH). REFH and REFL voltage are supplied by EL5220 and can be adjusted by the 10K Trim POT.

R_{20} to R_{23}, R_{26}, R_{28} to R_{30} are 1.5k load resistors. C_6, C_{11}, and C_{21} are the 0.1µF local bypass capacitors.

C_1 to C_{10} are 180pF load capacitors. If bigger capacitors are required, then, a serial resistor (20Ω to 100Ω) must be used between the output and the capacitor.

16-Channel Circuit Description

A 16-channel voltage reference generator can be simply formed by connecting two single boards together (See Figure 2). The resistors and capacitors connections are the same as the 8-channel connection for each board. Board one contains channel 1 to channel 8 and board two contains channel 9 to channel 16. The parallel port on board two drives the logic signals. The SDO pin on board two is shorted to SDI pin on board one. The REFL pin in board one is shorted to REFH in board two. Those make the channels in board one, high voltage references, and the channels in board two, low voltage references.

Control Software

For 8-channel and 16-channel configuration, two separated Visual Basic programs are used to drive the parallel port to output the data stream for SDI, SCLK, and ENA inputs. To install the software, just copy the EL5825.exe and EL5825dual.exe to your Windows desktop. If your operating system is Win98, copy the files "ntport.dll and zntport.sys" to the directory: C:\windows\system. If your operating system is NT or Win2000, copy the files "ntport.dll and zntport.sys" to the directory: C:\winnt\system32.

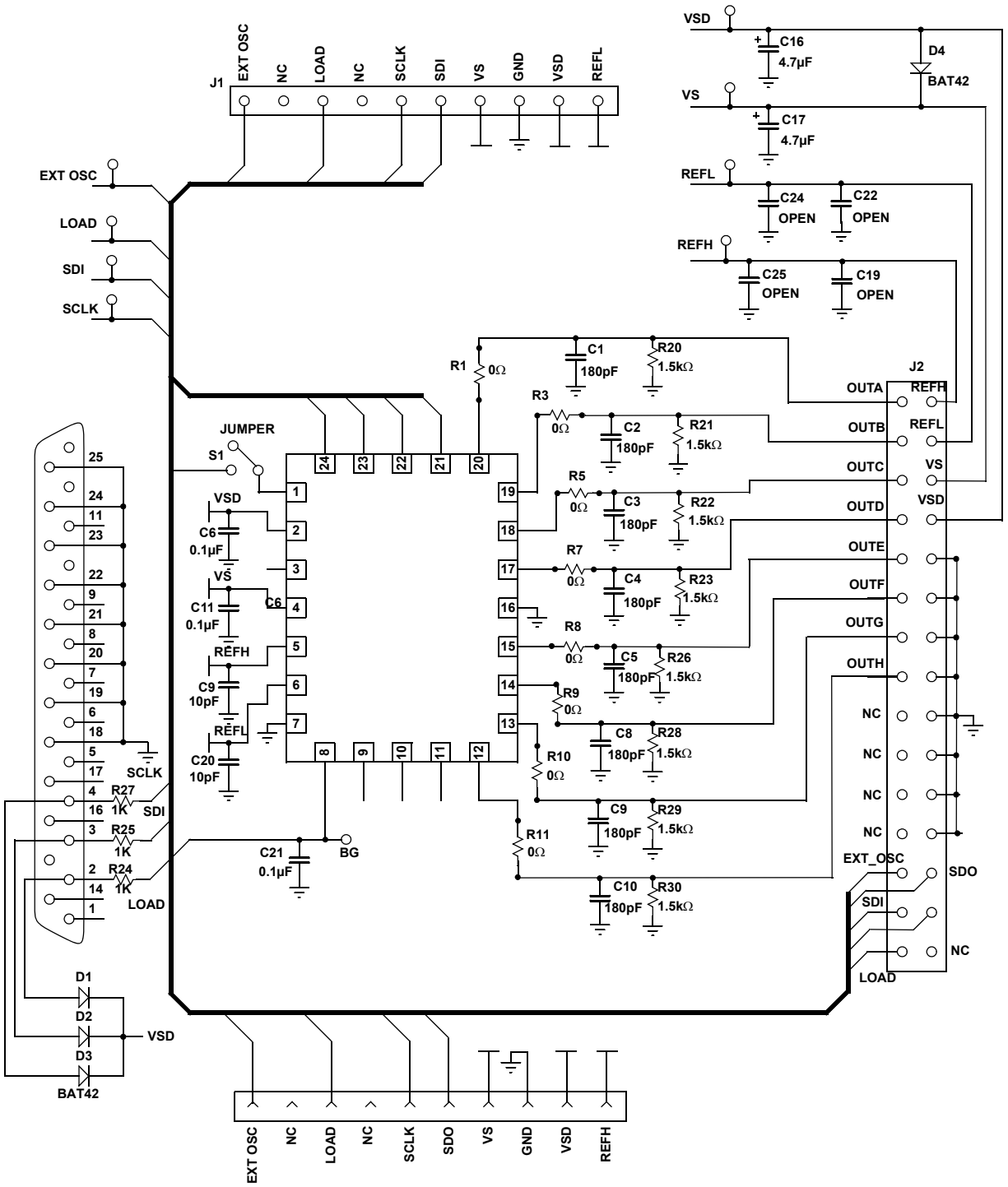
Single Board Control (8-Channel)

Click the EL5825.exe icon on your windows desktop, a single board control panel shows up (See Figure 3). On the panel, you can set your reference high and reference low voltage. You can set the voltage for each channel. The "Send" button outputs a 16-bit single channel data. The "SendAll" button outputs 8-channel data. The "Write to File" button can save the setup to a file and the "Read From File" button can load the setup from the file.

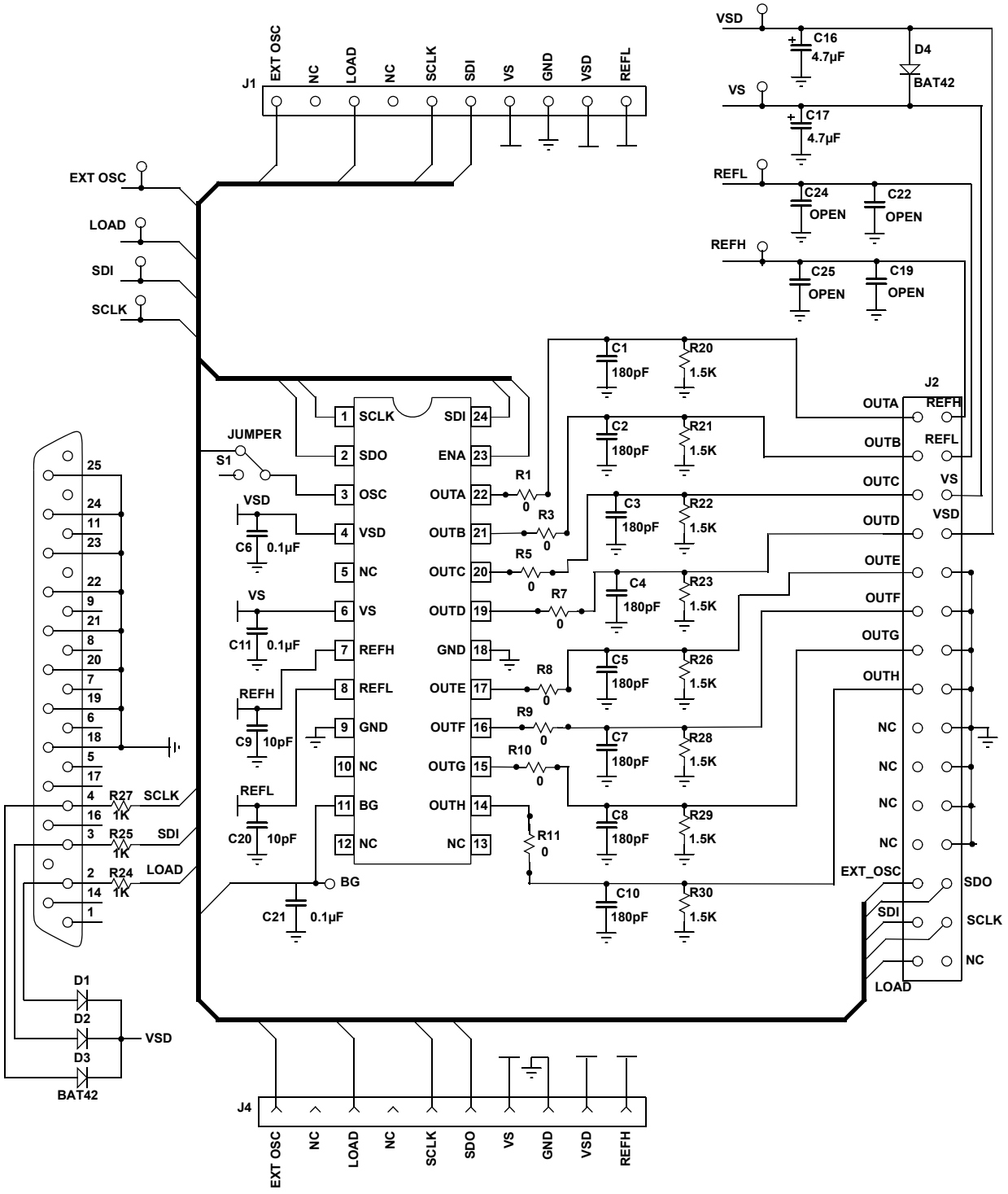
Dual Board Control (16-Channel)

When you click the EL5825dual.exe icon on your Windows desktop, a dual board control panel shows up (See Figure 4). On the panel, you can set your reference high and reference low voltage for board one and board two. You can set the voltage for each channel. On our 16-channel configuration, the reference high on board two is shorted to reference low in board one. So, the V_{REF} Low 1-8 must have the same value as V_{REF} High 9-16. The "Send" button outputs a 32 bit dual channel data. The "SendAll" button outs 16 channel data. The "Write to File" button can save the setup to a file and the "Read From File" button can load the setup from the file. For the dual board connection, the OSC pins are shorted together. If no external oscillator is used, then board one can set to the external oscillator mode and use the internal oscillator output in board two.

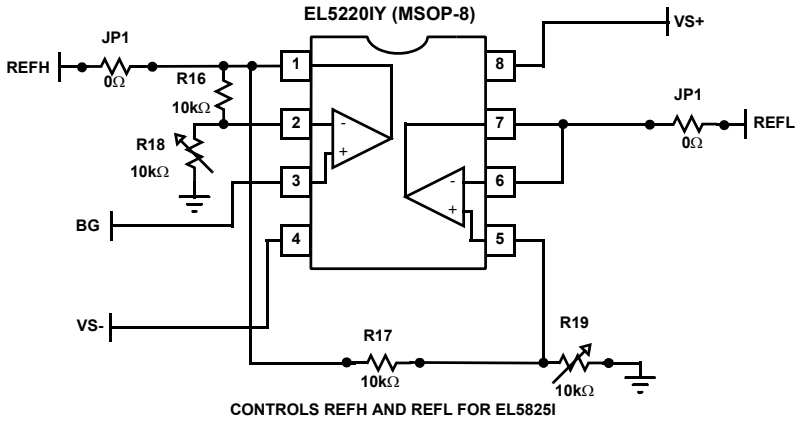
EL5825IL Rev A. Demo Board Circuit



EL5825IRE Rev A. Demo Board Circuit



EL5825IY Rev A. Demo Board Circuit



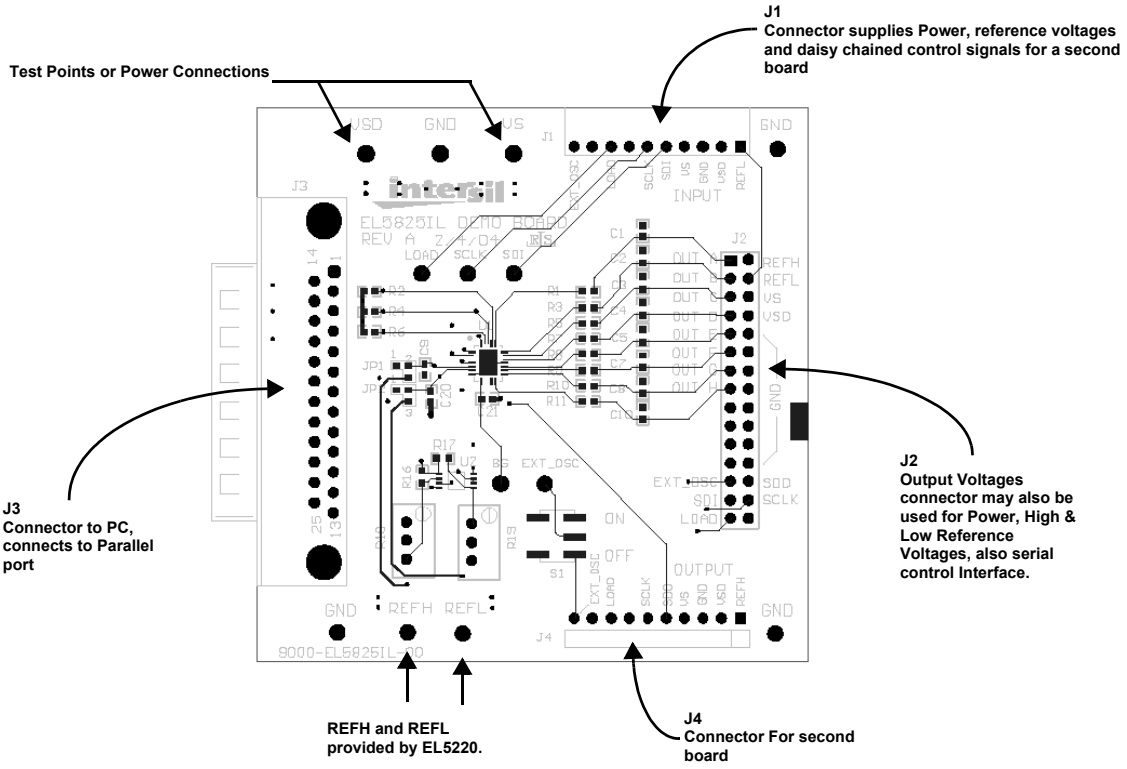


FIGURE 1. 8-CHANNEL

EL5825I Rev A. Demo Board Circuit

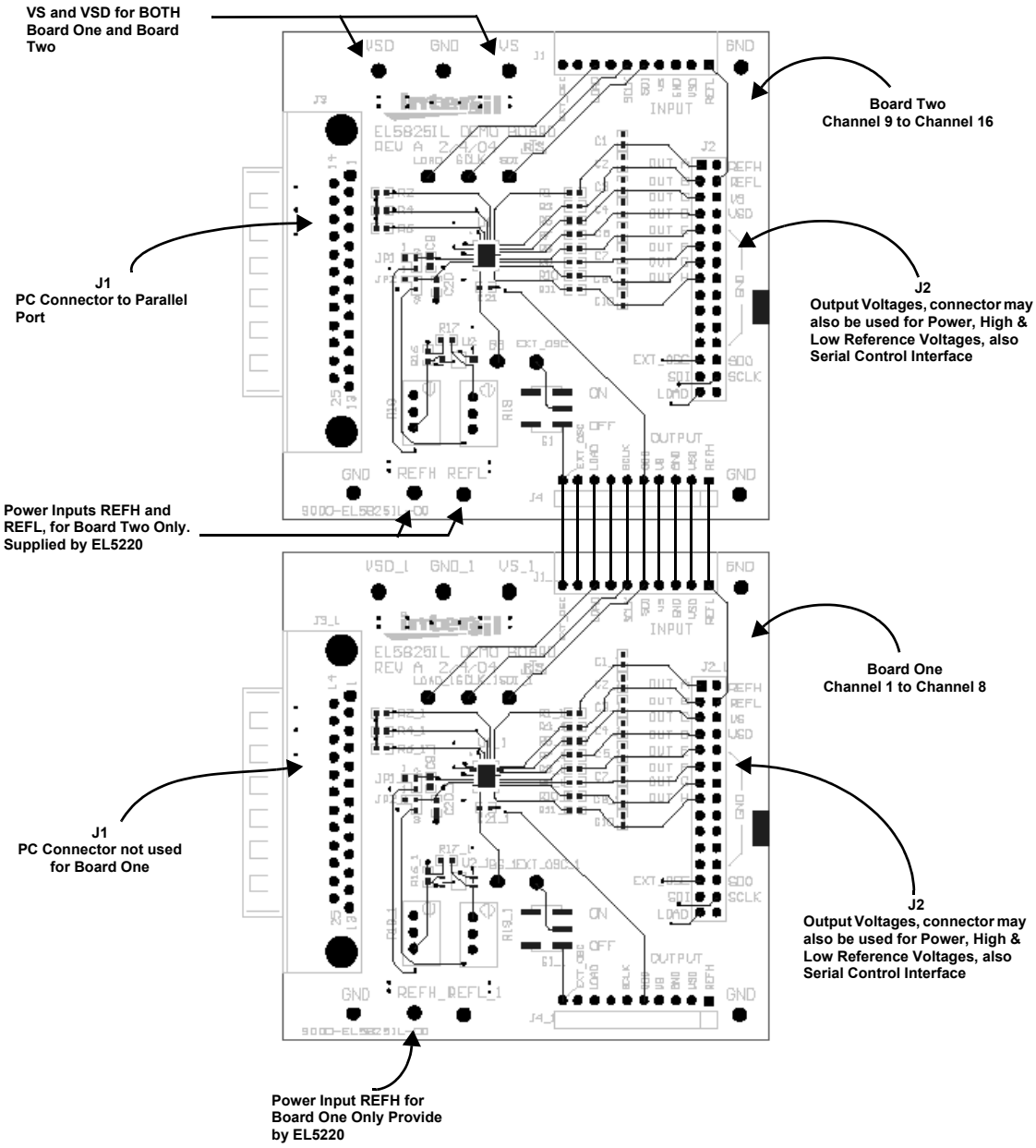


FIGURE 2. 16-CHANNEL

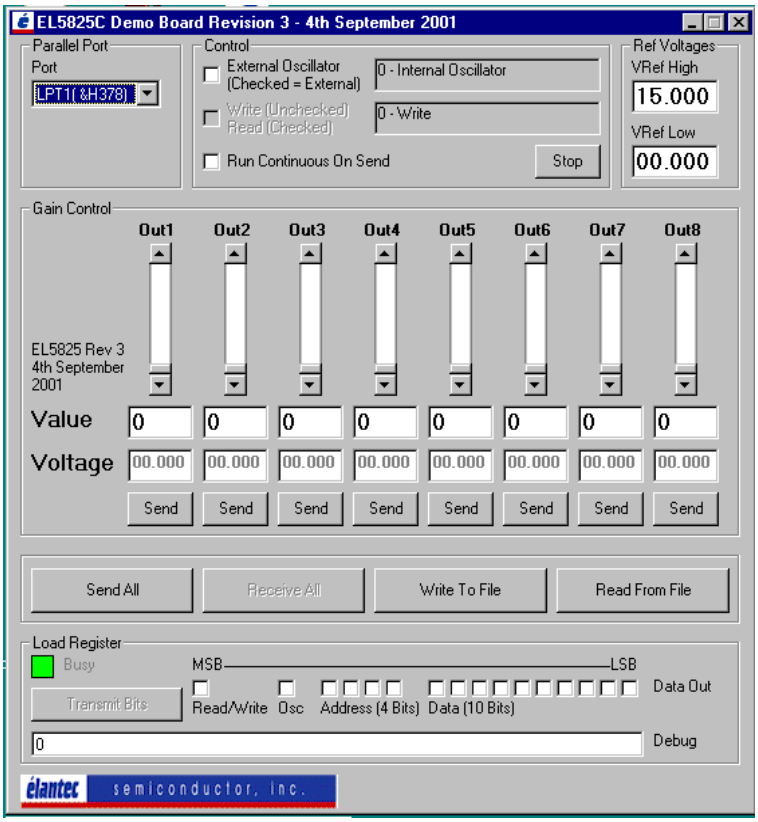

EL5825C Demo Board Revision 3 - 4th September 2001
Parallel Port
Port
LPT1 (&H378)
Control
External Oscillator (Checked = External)
0 - Internal Oscillator
Write (Unchecked) Read (Checked)
0 - Write
Run Continuous On Send
Stop
Ref Voltages
VRef High
15.000
VRef Low
00.000
Gain Control
Out1
Out2
Out3
Out4
Out5
Out6
Out7
Out8
EL5825 Rev 3 4th September 2001
Value
Voltage
Send
Send All
Receive All
Write To File
Read From File
Load Register
Busy
MSB
LSB
Transmit Bits
Read/Write
Osc
Address (4 Bits)
Data (10 Bits)
Data Out
Debug
intersil semiconductor, inc.

FIGURE 3.

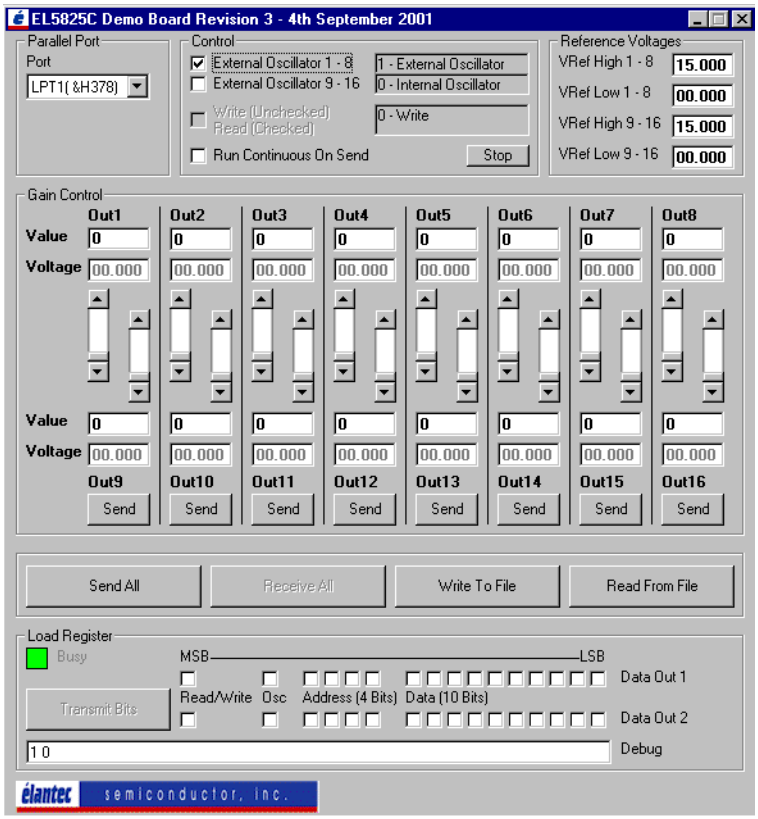


FIGURE 4.