Non-isolated 5V Power Supply

10V-30V Input

10/100 Ethernet Transformer

2500 mA Max.

5.11V nominal
Battery-Backed SRAM
Board ID = 8

Force Boot to SD card

3.3V

1.5K should be near ON

LEDs

RS-232 Transceiver

RS-485 Transceiver

Console

DB9M

Right Angle Push Switch

Technologic Systems

Aug. 10, 2012

Title: TS-8820 Console, RS-485, Board ID

Rev: A  Designer RLM  Sheet 4 of 18
Four 12-bit DAC channels (0-10V Range)

12-bit DAC
0 to 2.5V levels

Gain = 4.15

12-bit DAC
0 to 2.5V levels

Gain = 4.15
ADC 1

Simultaneous sampling of all 8 A/D inputs
Software selectable ranges ±5V or ±10V
200K samples per second
> 1 MΩ input impedance

8 A/D channels

Simultaneous Sampling

Allows up to 8 Thermistors
8 A/D channels
Simultaneous Sampling

ADC 2

Simultaneous sampling of all 8 A/D inputs
Software selectable ranges
±1.5V or ±10V
200K samples per second
> 1 MΩ input impedance
+12.5V Boost Regulator

Precision 2.5V Reference

10 uH = LQH3NPN100NJ

SC4503 - 75 cents @ 100
Non-Isolated Inputs
with Pull-up Resistors
+40V tolerant

TX Current Loop
Daughter Board
Header
Dual H-bridge

Non-Isolated Outputs
Sinks 1000 mA

74HCT04 provides level shifting to 5V levels
Isolated Inputs

32V tolerant  50 KHz Bandwidth

ISO_IN # 1

ISO_IN # 4

ISO_IN # 7

ISO_IN # 2

ISO_IN # 5

ISO_IN # 8

ISO_IN # 3

ISO_IN # 6

Technologic Systems

Aug. 10, 2012

Title: TS-8820  Isolated Digital Inputs

Rev: A  Designer  Sheet  11 of 18
USB Power Switch

External
Two USB ports
Opto-Isolated Power and Isolated CAN

**Opto-Isolated Power**

- **Si8421AB**
  - 870 mS @ 1K
  - Max prop delay ± 35 ns (1 Mbps max)
  - 5 mA: current drain from each rail
  - ADU5311A: equiv except 150 ns
  - ISO7221: equiv except 400 ns

**CAN Transceiver**

- **LP2985-50DBVR**
  - 150 mA

- **ISO7221 (TI)**
  - equiv except 400 ns

- **PM GD370XN** = Dual N-channel
  - 350 mohm typ @ 4.5V

- **PM GD290, PM GD400** also
  - 1.5 ohm typ.
  - 4.0 ohm max.
  - 700 mohm max.

- **B0520LW** = 300 mV @ 100 mA

- **BAT54** = 800 mV @ 100 mA

**CAN Transmission**

- **Si8421AB**, **MAX253**, **MAX253**, and **ISO7221** also

**CAN Isolation**

- **ISO_CLK_PH1**, **ISO_CLK_PH2**

- **ISO_ISO_5V**, **ISO_COM_5V**

- **5V**, **3.3V**, **24V**

**Title**: TS-8820 Isolated Power and CAN

**Date**: Aug. 10, 2012

**Designer**: Sheet 15 of 18
Two 100-pin Module Connectors

Ethernet

USB Ports

Console

Serial Ports

Boot Strap

<table>
<thead>
<tr>
<th>BUS_DIR</th>
<th>SBC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NAND Flash</td>
</tr>
<tr>
<td>0</td>
<td>SD Card</td>
</tr>
</tbody>
</table>

OFF_BD_RESET is an Output from the SBC used to reset all peripherals.

TS-8820 base board requires < 300 mA of 3.3V current.

Use a 1.2KΩ pull-up resistor on OFF_BD_RESET to strip logic low.