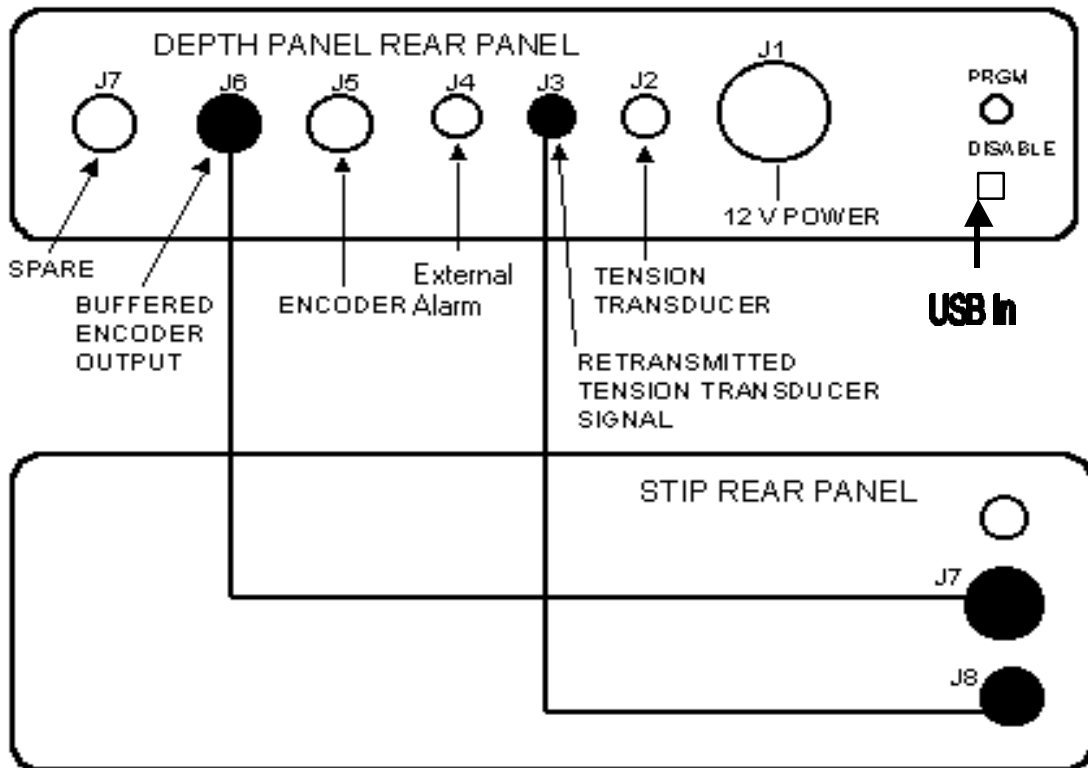


Depth Tension Line Speed Panel USB R9 PCB

The Depth, Line Speed and Line Tension Panel uses three industrial process meters to provide simultaneous digital readout of the three measurements. Meter 1 is setup in a counting mode and can accommodate virtually any encoder resolution. Meter 2 is setup in a rate \ counter indicator mode and runs from the same encoder signals as Meter 1. Meter 3 senses a 4 - 20 ma signal from a pressure transducer connected to the measure head weight indicator system. Meters for other types of line weight sensor are available.

The panel is intended to be powered by a 12 volt battery and contains power supply providing regulated 12.0 volts and 5.0 volts for indicator and encoder power. The panel also provides 24 volts excitation for the pressure transducer. The encoder pulses are converted to depth and direction signals and routed to the depth and line speed meters and are also buffered and output to the rear panel connectors for input to the logging system. A retransmitted 4 - 20 ma signal is also available at the rear panel also for input to the logging system.



The above diagram illustrates the connections to the rear of the depth panel and the connections between the depth panel and the SDS tool interface.

The Depth Panel is shipped from SDS with the process meters setup as indicated below. These settings should be the most appropriate with optional settings as indicated.

Setup for Depth Counter 1

Two sets of DIP switches must be set for proper function of the Depth meter. Switch one is located on the back of the meter. Switch two is located on the right side, as viewed from the front,

(SW-1 On Meter - 1, 4, 7, 8 ON/DOWN and 2, 3, 5, 6 OFF/UP)

(SW-2 On Meter - 1, 2 ON/DOWN and 3, 4, 5, 6, 7, 8, 9, 10 OFF/UP)

Programming may only be accomplished by activating the 'program enable' switch at the rear of the panel. Other than changing the scale factor, re-programming should only be necessary upon installation of a new meter.

CODE	ENTRY	
41	1	Set unit personality to COUNTER
43	2	Set inputs to COUNT with UP/DOWN Control
44	1	Set to SINGLE EDGE COUNTING
45	2	Set scale multiplier to .01
46	2	Set decimal point and leading zero blanking
51	-2	Set reset mode to manual reset to preset
52	-6	Set Output1 Alarm control to Boundry
53	0.01	Set Output1 Time Delay to minimum
54	3	Set Output2 Termination to Terminate at Reset
55	0.01	Set Output2 Time Delay to minimum
61	4	Set Right hand Dummy Zeros to None
66	2	Set Operator enabled functions to Reset and Preset only

With the settings above, to read out in feet (or meters)

*** Scale factor = 100 divided by encoder pulses per foot (or encoder pulses per meter)**

JP5 Setting	120 ppr Encoder	400 ppr Encoder	600 ppr Encoder	1200 ppr Encoder
1-2 No Divide	0.8333	0.2500	0.1667	0.0833
3-4 /2	1.6667	0.5000	0.3333	0.1666
5-6 /4	3.3333	1.0000	0.6666	0.3333
7-8 /8	6.6666	2.0000	1.3333	0.6666

***Scale Factors - Note placing a “-“ sign in front of scale factor reverses encoder direction.**

Setup for Depth Counter 2 / Line Speed

Two sets of DIP switches must be set for proper function of the Depth/Line Speed meter. Switch one is located on the back of the meter. Switch two is located on the right side, as viewed from the front,

(SW-1 On Meter - 1, 4, 7, 8 ON/DOWN and 2, 3, 5, 6 OFF/UP)

(SW-2 On Meter – 1, 2,10 ON/DOWN and 3, 4, 5, 6, 7, 8, 9 OFF/UP)

Programming may only be accomplished by activating the 'program enable' switch at the rear of the panel. Other than changing the scale factor, re-programming should only be necessary upon installation of a new meter.

CODE	ENTRY	
41	1	Set unit personality to RATEMETER/COUNTER
42	3	Set Reset for both Rate and Counter
43	2	Set inputs to COUNT with UP/DOWN Control
44	1	Set to SINGLE EDGE COUNTING
45	2	Set scale multiplier to .01
46	2	Set counter decimal point and leading zero blanking
51	1	Set Output1 to Rate and Output2 to Counter
52	6	Set Rate Alarm control to Boundry
53	0.01	Set Rate Time Delay to minimum
54	3	Set Counter Termination to Terminate at Reset
55	0.01	Set Counter Time Delay to minimum
56	-2	Set Reset Counter to Preset 2
61	4	Set Right hand Dummy Zeros to None
62	1	Set Time Rate to 1 Second
63	1	Set Rate Update Time
64	3	Set Rate Scale Multiplier to 10
65	2	Set Rate decimal point and leading zero blanking
66	2	Set Operator enabled functions to Reset and Preset only

With the settings above, to read out in feet per minute (or meters per minute)

*** Scale factor = 60 divided by encoder pulses per foot (or meter)**

JP5 Setting	120 ppr	400 ppr	600 ppr	1200 ppr
1-2 No Divide	0.5000	0.1500	0.1000	0.0500
3-4 /2	1.0000	0.3000	0.2000	0.1000
5-6 /4	2.000	0.6000	0.4000	0.2000
7-8 /8	4.0000	1.2000	0.8000	0.4000

Scale factor for the Depth 2 Counter is the same as the Depth 1 Counter above.

Setup of Line Tension

Programming may only be accomplished by activating the 'program enable' switch at the rear of the panel. Press the PAR (Parameters) key to enter program mode and select parameter groups. Use the F1 and F2 keys to change selections.

Set each of the program groups as follows:

1-INP Input Parameters

Display	Parameter	Setting
rAn6E	Input Range – 20MA	0.02A
dECPt	Display Resolution – Full Lbs.	0
round	Display Rounding Increment	1
FILtr	Filter Setting	2.0
bAnd	Filter Enable Band	10
PtS	Scaling Points – Use 2 of 16 possible	2
StYLE	Keyboard Entry or Calibration Applied	KEY or APLY
InP 1	Low Input reading in MA	*4.000
dSP 1	Low Display Value in Pounds/Kilos	*0
InP 2	High Input reading in MA	*20.000
dSP 2	High Display Value in Pounds/Kilos	*10000

*Typical values for a 4-20ma sensor and a 0-10000 lb. Calibration.

2-FNC External Input and Function Key Parameters

Display	Parameter	Setting
USr-1	User Input 1	PLOC
USr-2	User Input 2	nO
USr-3	User Input 3	nO
F1	Function Key 1	nO
F2	Function Key 2	nO
rSt	Reset Key	nO
Sc-F1	Secondary Function Key 1	nO
Sc-F2	Secondary Function Key 2	nO

3-LOC Parameter Lockouts

Display	Parameter	Setting
HI	Maximum Reading Display	LOC
LO	Minimum Reading Display	LOC
tOt	Total Reading Display	LOC
SP-1	Setpoint 1 – Entry Enabled	Ent
SP-2	Setpoint 2	LOC
SP-3	Setpoint 3	LOC
SP-4	Setpoint 4	LOC
CodE	Security Code	0

4-SEC Secondary Function Parameters

These parameters are not used at this time.

5-tOt Totalizer Parameters

These parameters are not used at this time.

6-SPt Setpoint Parameters

Display	Parameter	Setting
SPSEL	Select Setpoint	SP-1
ACt-1	Action for Setpoint – Absolute High	Ab-HI
SP-1	Setpoint Value – Alarm Limit	*1000
HYS-1	Setpoint Hysteresis	2
tOn	On Time Delay	0.0
tOF-1	Off Time Delay	0.0
out-1	Output Logic	nor
rSt-1	Reset Action	AUto
Stb-1	Standby Action	NO
Lit-1	Output Panel Light	nor

*Alarm limit value that can be changed from front panel after programming

7-SrL Serial Communications Parameters

Display	Parameter	Setting
bAUd	Baud Rate	2400
dAta	Word Length	7
PAr	Parity	Odd
Addr	Address	2
Abrv	Abbreviated	nO
OPt	Options	nO

8-Out Analog Output Parameters

Display	Parameter	Setting
tYPE	Analog Type	4-20
ASIn	Analog Assignment	InP
An-LO	Analog Low Scale Value	0.00
An-HI	Analog High Scale Value	10000
Udt	Update Time	0.0

9-FCS Factory Service Functions

Display	Parameter	Setting
Code	Service Access Code – Restore Factory Setup	*50

*Normally will show 50. To clear all settings to factory defaults enter code 66.

Depth Panel Operation

Depth entries and alarm setup points are entered from the key pads of each meter. Depth1 meter contains the alarm for minimum depth. If the depth counter becomes less than this minimum, it will activate the depth alarm. Depth2/Line Speed meter contains the alarm for maximum line speed. If the line speed becomes greater than this maximum, it will activate the overspeed alarm. Depth2 meter will display both a depth and the line speed, which can be selected by pressing the DISP-key. The line tension meter contains the alarm for maximum line tension. If the line tension becomes greater than this maximum, it will activate the over tension alarm. Any of the alarms will activate an audible alarm, front panel LED, and a rear panel external connector. The audio alarm can be silenced for the duration of the cause of that alarm by pressing the ALM DIS button. Once the alarm condition has passed, the audio alarm will be enable again for the next alarm.

To enter a new preset depth on either depth meter, press the P2-key of that meter. The last preset depth will be displayed. The key directly under each digit will change the value of that digit. After the desired changes have been made, press the E-Key to enter the value into preset depth memory. To update the depth to the preset value, press the R-key to reset the depth.

To enter new alarm values on either depth meter, press the P1-key of that meter. After changes have been made, press the E-key to enter the value into preset alarm memory. To enter a new alarm value on the line tension meter, press the PAR-key. The F1-key and F2-key can then be used to change the value. Press the PAR-key again to store the new alarm value.

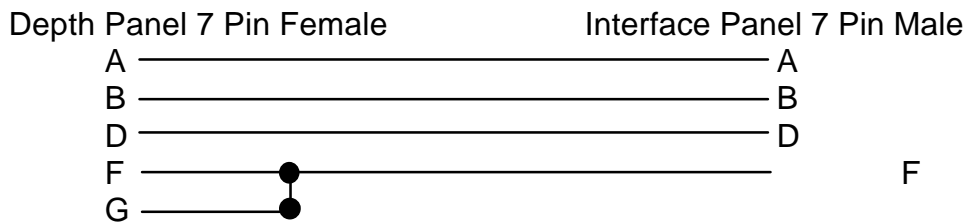
Depth Panel Circuit Description

Power from the battery is routed to the PC board and regulated to approximately 11.5 volts and 5 volts by Q1, D1 and U1 respectively. Encoder power may be selected from these two voltages by JP1 and JP2. **DO NOT JUMPER BOTH AT THE SAME TIME.** The encoder pulses are buffered by the line receiver IC2 and routed to the depth and line speed meters and to the rear panel connectors. The line tension sensor is powered by 18 volts from the line weight meter and the signal routed back to the meter. This signal is retransmitted to a connector on the rear panel.

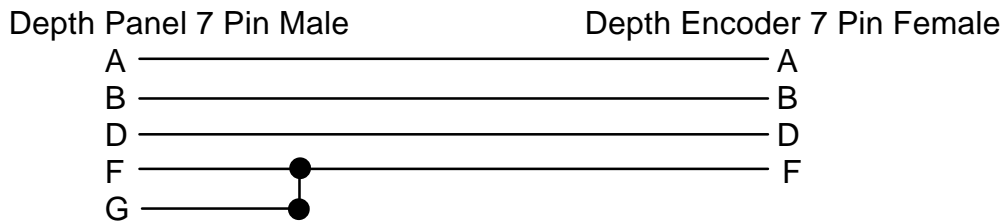
The process meters are connected so that they are fully programmable only when the switch S2 is held open. This is to prevent inadvertent `reprogramming' from the front panels of the meters.

Interconnection Cables

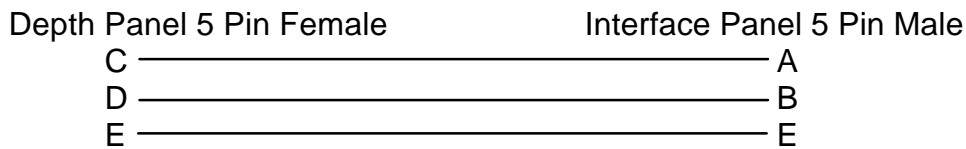
The cable to connect the depth panel buffered encoder output to the tool interface panel has the following connections:



The cable to connect the depth panel encoder input to the depth encoder has the following connections:



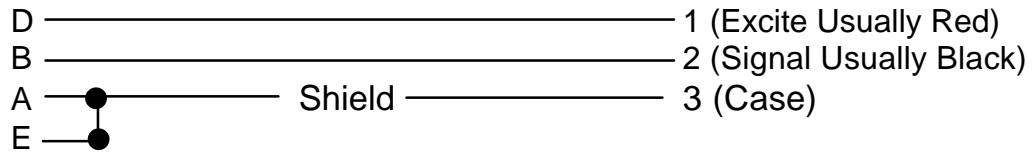
The cable for the retransmitted line tension from the depth panel to the system tool interface panel has the following connections:

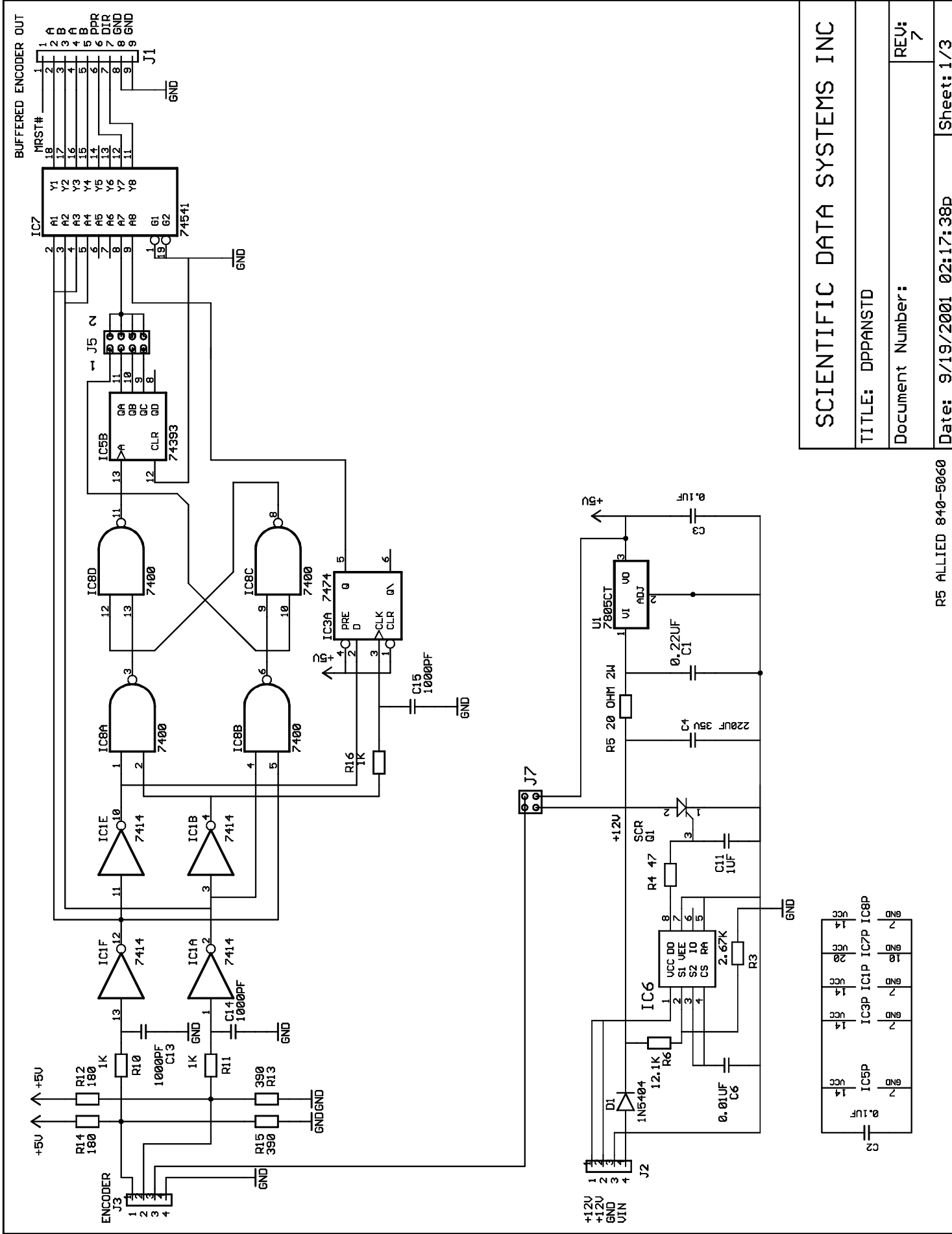


The cable for the depth panel line tension input to the pressure transducer has the following connections:

Depth Panel 5 Pin Male

Pressure Transducer



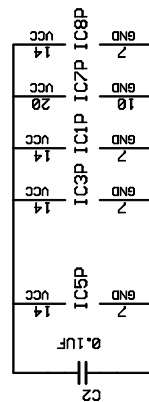


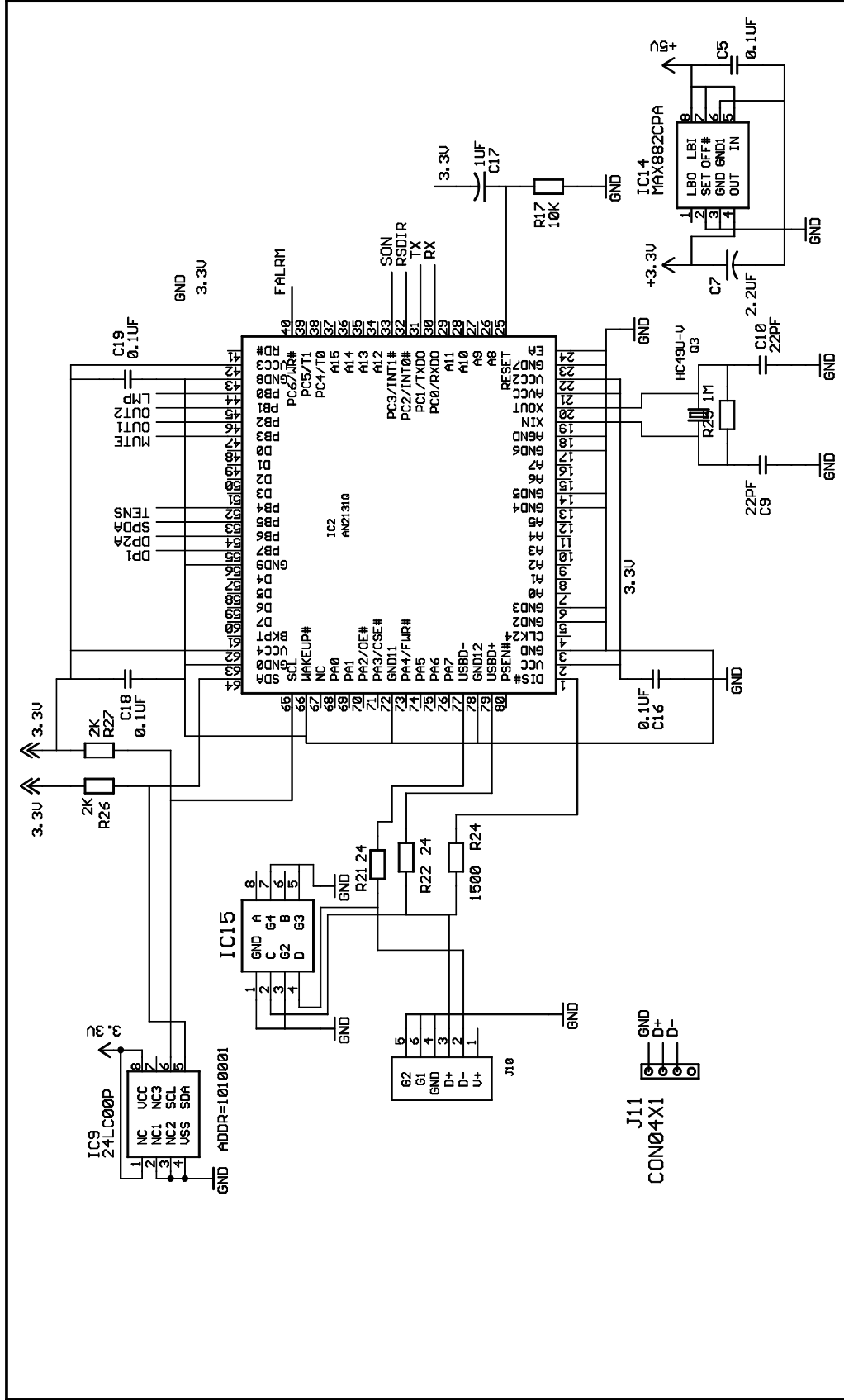
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J10	Front Panel Controls				
	J10-1	J1-A			+12V Battery
	J10-2	BZ+			Reg 12V - LED
	J10-3	PCB_J9-5			Mute Switch
	J10-4	PCB_J2-4			Switched 12 Volt
	J10-5	PCB_J8-2			Led Control
	J10-6	GND LUG			GND
P10	Front Panel Controls				
	P10-1	F1-2			+12V Battery
	P10-2	LED RED			Reg 12V - LED
	P10-3	SW4-2			Mute Switch
	P10-4	SW1-1			Switched 12 Volt
	P10-5	LED WHT			Led Control
	P10-6	SW4-1			GND
J11	Line Tension Meter				
	J11-1	PCB_J2-1			Reg 12 Volt
	J11-2	GND LUG			GND
	J11-3	J2-B			4-20ma Signal
	J11-4	J2-D			+12V Excite
	J11-5	SW2-3			PGM Mode
	J11-6	PCB_J4-1			DR+
	J11-7	PCB_J4-2			DR-
	J11-8	GND LUG			GND
	J11-9	J3-D			PAX Analog 18 +(0-20)Out
	J11-10	J3-C			PAX Analog 19 -(0-20)Out
	J11-11	GND LUG			GND
	J11-12	PCB_J9-4			TNS ALM
P11	Line Tension Meter				
	P11-1	PAX-1			Reg 12 Volt
	P11-2	PAX-2			GND
	P11-3	PAX-4			4-20ma Signal
	P11-4	PAX-6			+12V Excite
	P11-5	PAX-8			PGM Mode
	P11-6	PAX-12			DR+
	P11-7	PAX-13			DR-
	P11-8	PAX-14			GND
	P11-9	PAX-18			+(0-20)Out
	P11-10	PAX-19			-(0-20)Out
	P11-11	PAX-20			GND
	P11-12	PAX-21			TNS ALM
PAX	Line Tension Meter				
	PAX-1	P11-1			Reg 12 Volt
	PAX-2	PAX-7	P11-2		GND
	PAX-4	P11-3			4-20ma Signal
	PAX-6	P11-4			+12V Excite
	PAX-7	PAX-2			GND
	PAX-8	P11-5			PGM Mode
	PAX-12	P11-6			DR+
	PAX-13	P11-7			DR-
	PAX-14	P11-8			GND
	PAX-18	P11-9			+(0-20)Out
	PAX-19	P11-10			-(0-20)Out
	PAX-20	P11-11			GND
	PAX-21	P11-12			TNS ALM

Misc. Items					
F1	Fuse				
	F1-2	SW1-2			+12V Battery
	F1-2	P10-1			Fused +12V
SW1	Power on/off				
	SW1-1	P10-4			Switched 12 Volt
	SW1-2	F1-1			Fused +12V
SW2	Program Mode				
	SW2-2	SW2-5	J1-B		GND
	SW2-3	J11-5			PGM Mode
	SW2-5	SW2-2	J1-B		GND
	SW2-6	DP_TBA-7			PGM Mode
SW4	Mute Button				
	SW4-1	P10-6			GND
	SW4-2	P10-3			Mute Switch
LED	Alarm Indicator				
	RED	P10-2			Reg 12V - LED
	WHT	P10-5			Led Control
BUZZER					
	BZ+	J4-A	J10-2		Reg +12
	BZ-	PCB_J9-9			Buzz Control
GND LUG					
	PCB_J2-3	PCB_J1-9	J1-B	J7-F	
	J10-6	J11-2	J11-8	J11-11	