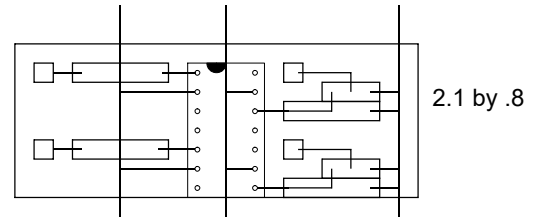
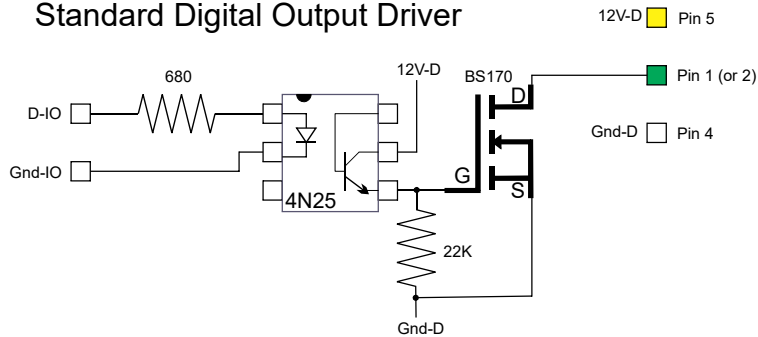
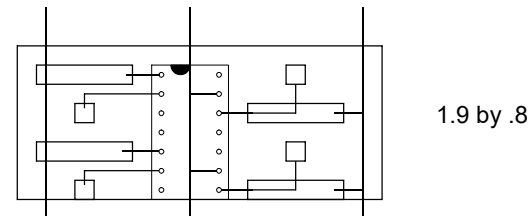
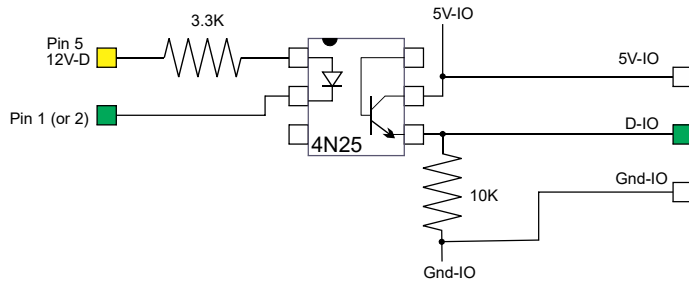


Standard Digital Output Driver

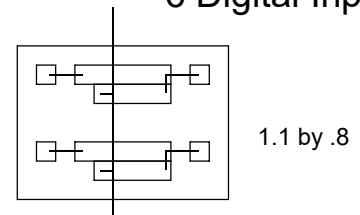
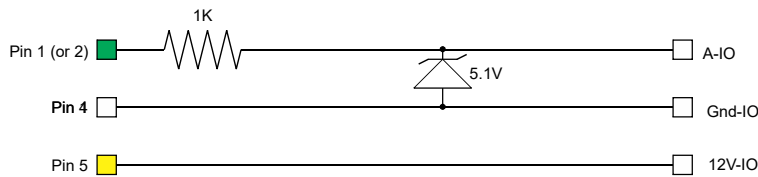


Standard Digital Input Driver

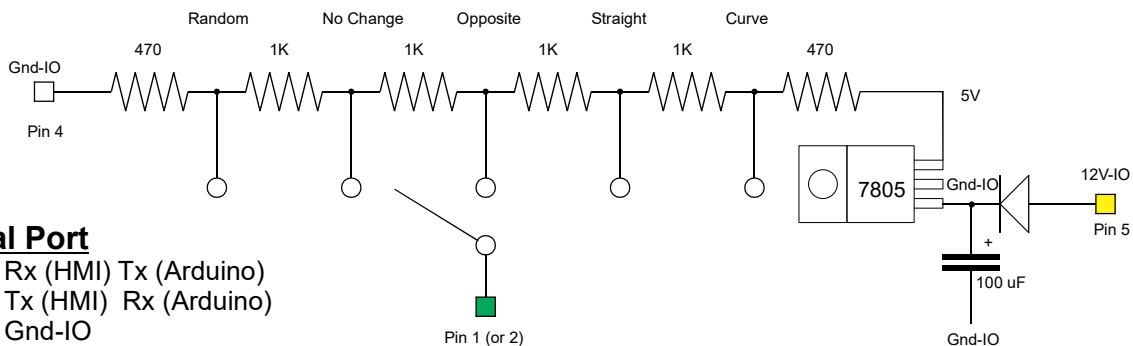


Need total:
12 Analog Input
16 Digital Output
6 Digital Input

Standard Analog Input



5 Position Switch



S-BX
Pin 1 = S-BF
Pin 2 = S-BR

S-CX
Pin 1 = S-CF
Pin 2 = S-CR

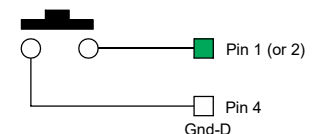
Serial Port

Pin 1: Rx (HMI) Tx (Arduino)
Pin 2: Tx (HMI) Rx (Arduino)
Pin 4: Gnd-IO
Pin 5: 12V-IO

Arduino Interface for Train

May 2015
Rev 1: June 2019
Rev 2: Dec 2019

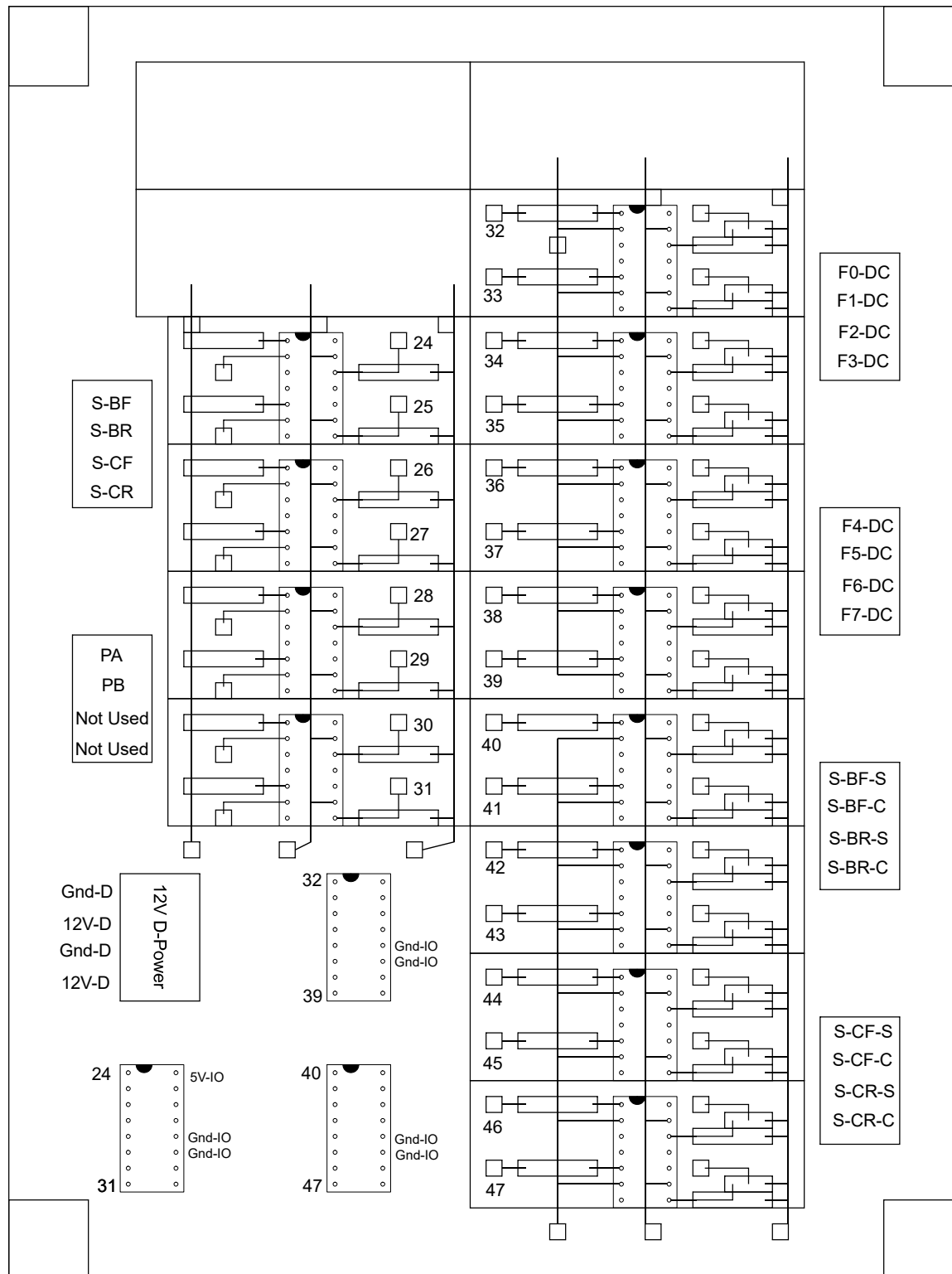
Pushbutton



Direction

Pin 1 = A
Pin 2 = B

Caboose Block Control
Pin 1 = Reset



Arduino Interface for Train- Digital IO Board

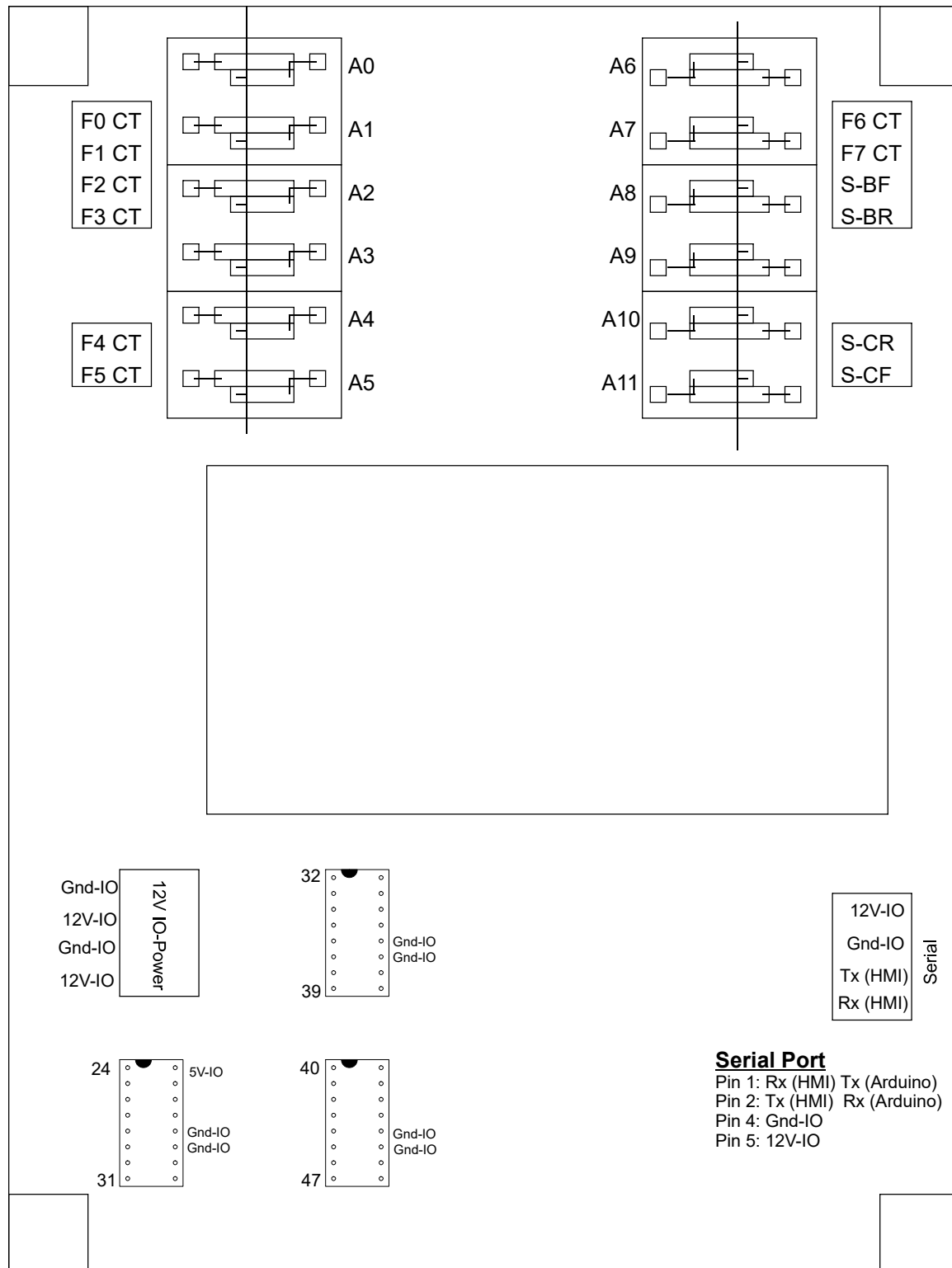
Norbert Doerry

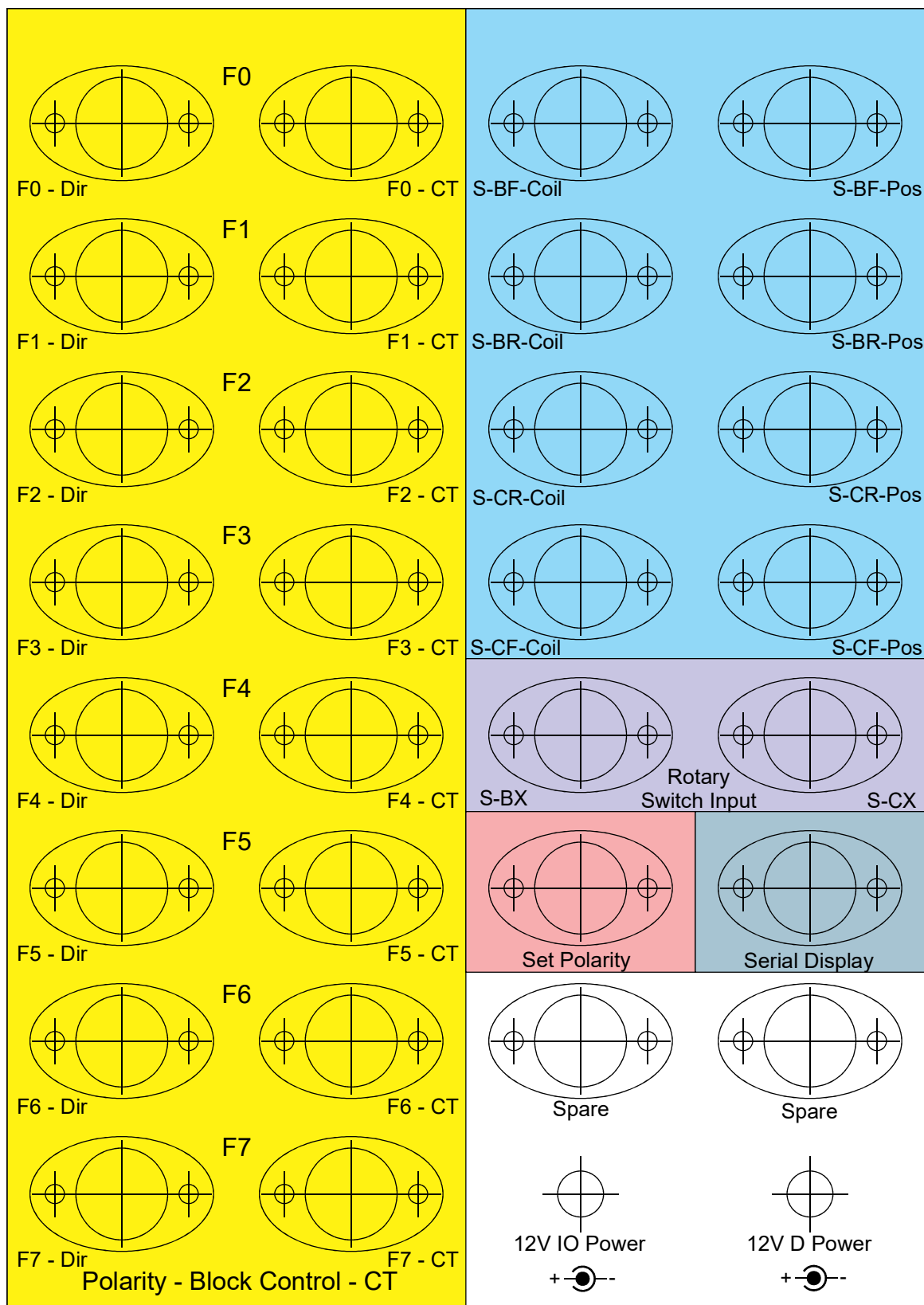
February 2015

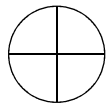
Rev Dec 2019



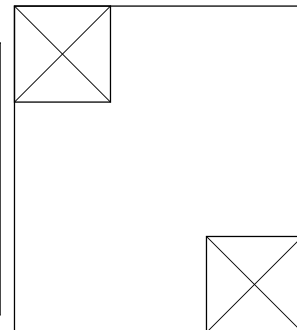
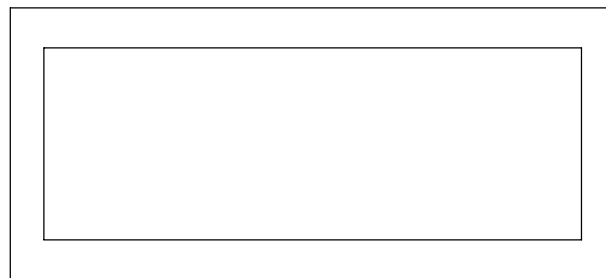
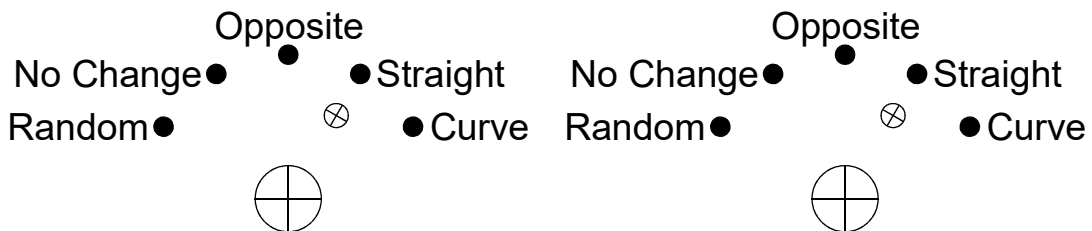
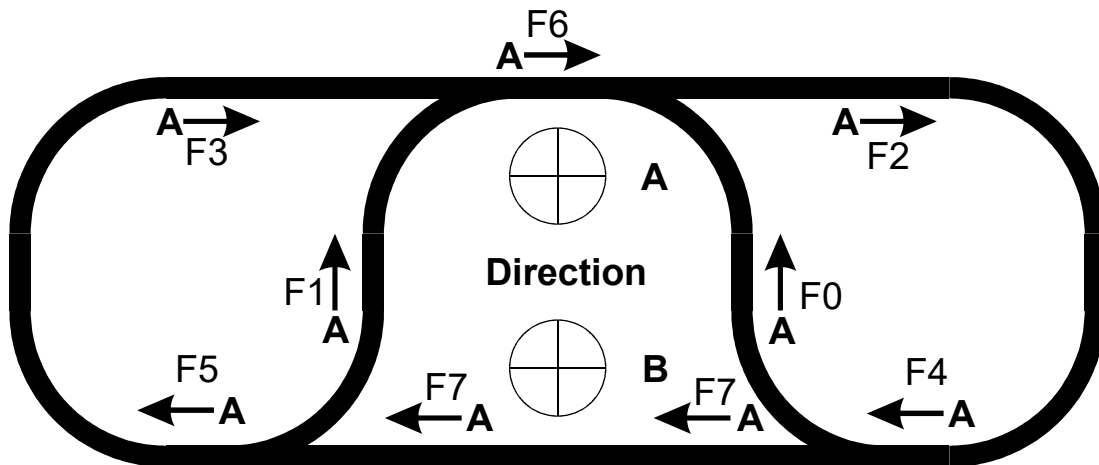
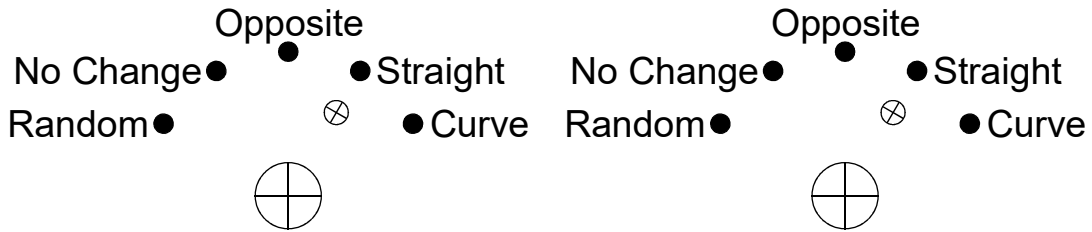
Vector Board is 6 by 8 inches

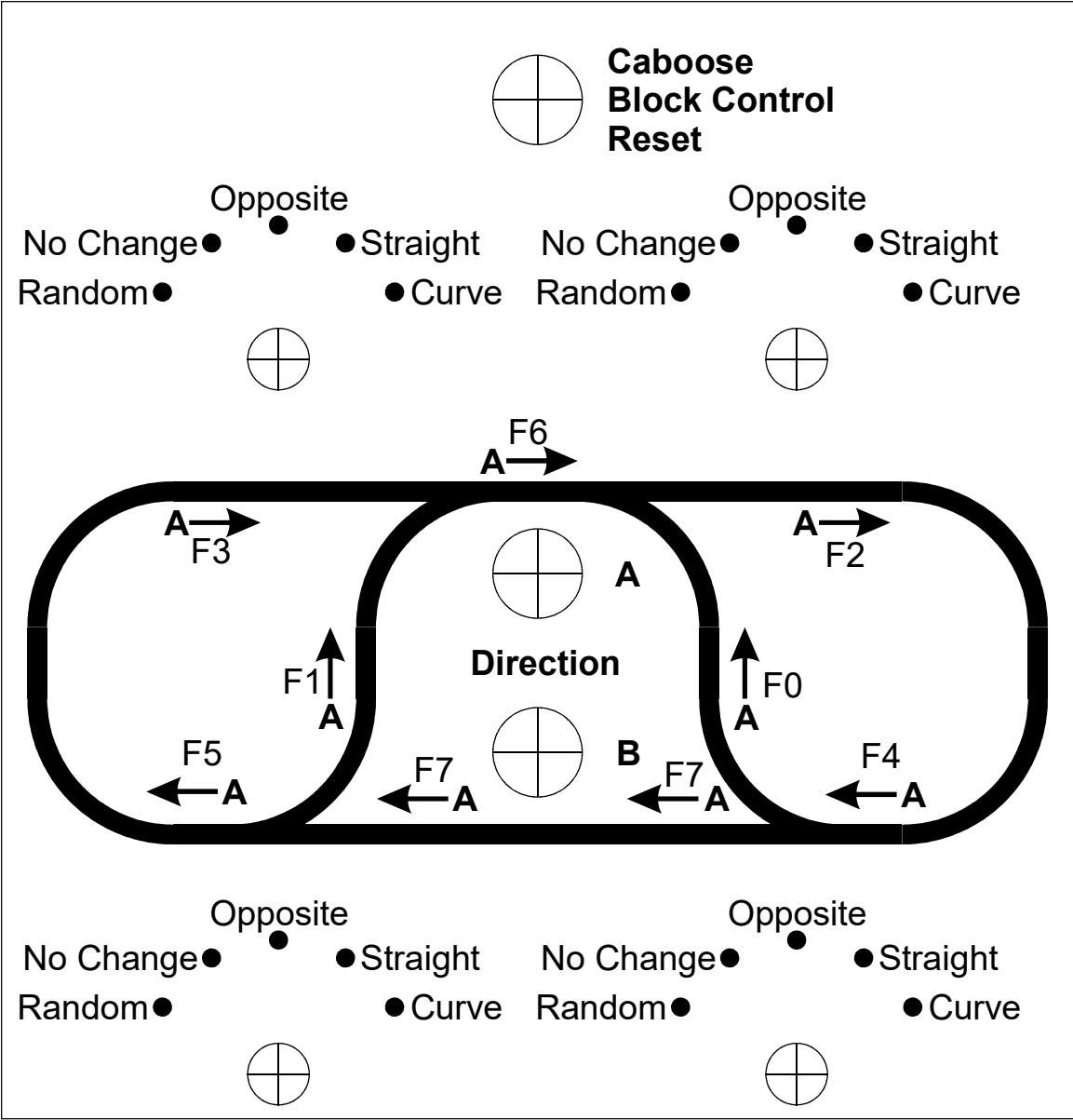




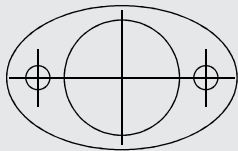
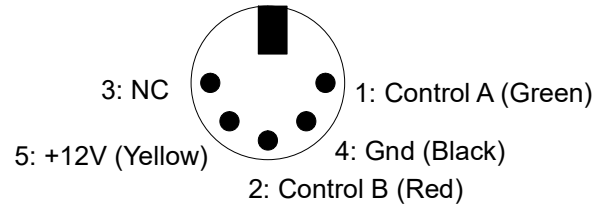


**Caboose
Block Control
Reset**

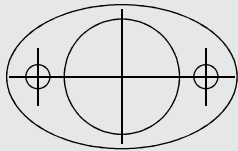




5 Pin DIN
Female Connector

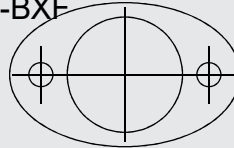


SPARE

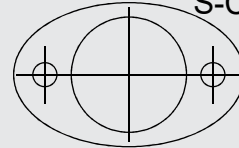


Caboose Block Control
Reset

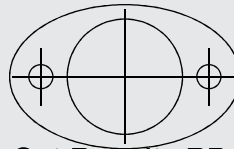
S-BXF



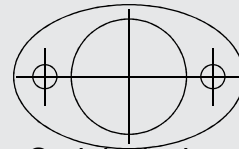
S-CX



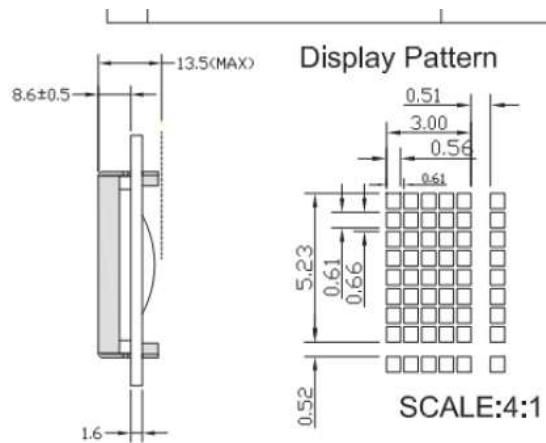
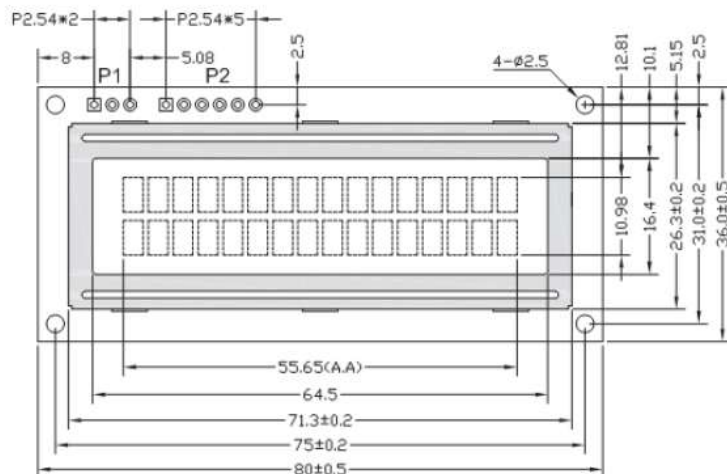
Rotary Switch Input



Set Polarity PB



Serial Display



PIN ASSIGNMENT

1	RX
2	VSS
3	VDD

1	SPISS
2	SDO
3	SCK/SCL
4	SDI/SDA
5	VSS
6	VDD

Specification:

- 1). Driving: Duty:1/16, Bias:1/5, VLCD:4.5V, VDD:5.0V
- 2). Viewing Direction: 6 O'clock
- 3). Display mode: STN / Blue / Negative / Transmissive
- 4). Operating temp.: -20°C~+70°C
Storage temp.: -30°C~+80°C
- 5). Driver : PIC16F690 MPU RS232/SPI/I2C Interface
- 6). Backlight: White

	Date	NEWHAVEN DISPLAY INTERNATIONAL
	10/01/12	
Gen. Tolerance	Unit	Model:

P1:

Pin No.	Symbol	External Connection	Function Description
1	RX	MPU	RS-232 (TTL) Serial input port
2	VSS	Power Supply	Ground
3	VDD	Power Supply	Power supply for logic (+5.0V)

P2:

Pin No.	Symbol	External Connection	Function Description
1	SPISS	MPU	SPI Slave Select (NC in I2C mode)
2	SDO	NC	No Connect
3	SCK/SCL	MPU	Serial Clock
4	SDI/SDA	MPU	Serial Data In (SPI) / Serial Data (I2C)
5	VSS	Power Supply	Ground
6	VDD	Power Supply	Power Supply for logic (+5.0V)