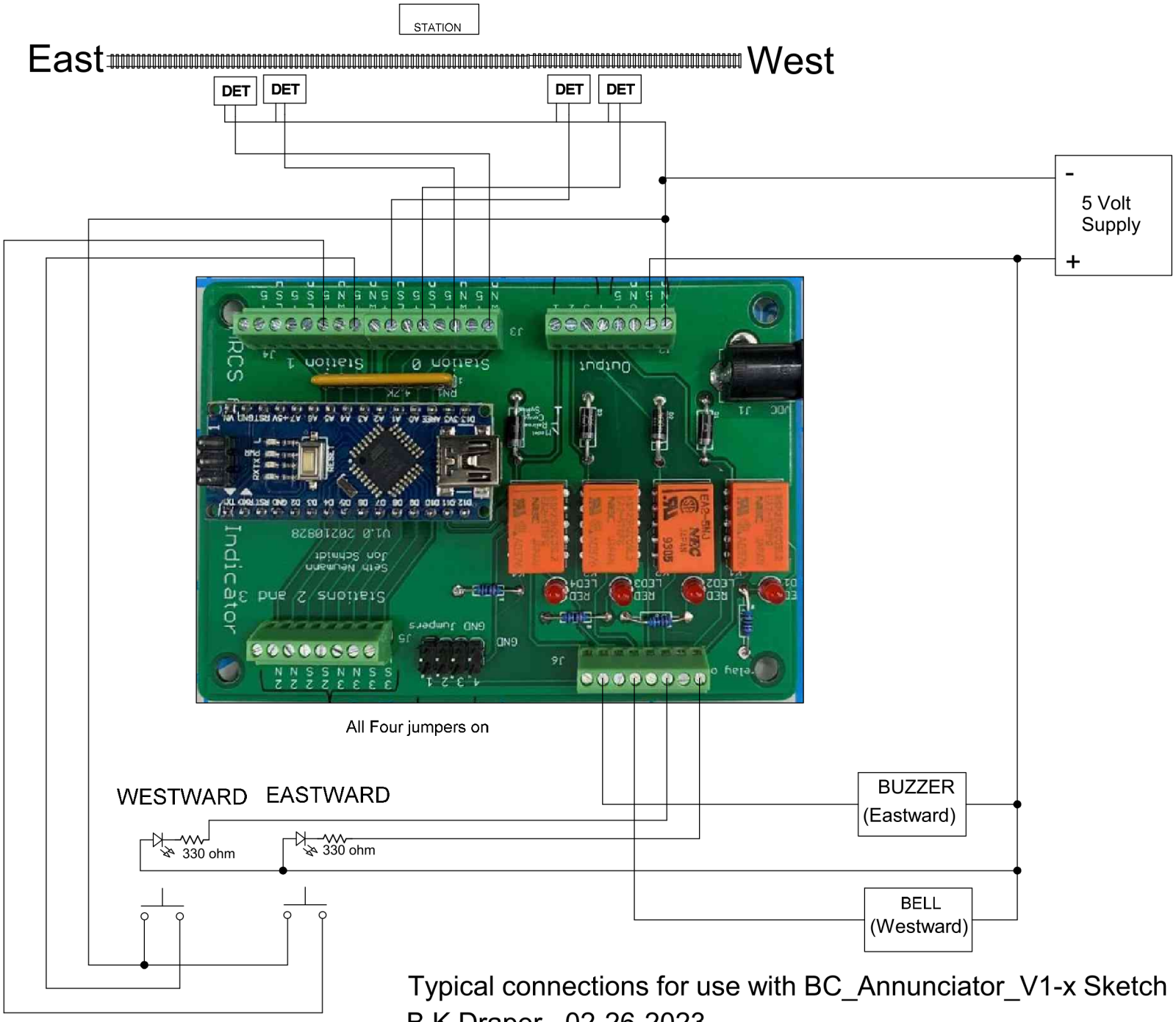
Detectors must have open collector outputs, but may be either current detectors detecting blocks, or optical detectors. If optical detectors are used they must be no more than 5 inches appart to avoid false detections.



Typical connections for use with BC_Annunciator_V1-x Sketch

B K Draper 02-26-2023

Instructions for BC_Annunciator Sketch

The BC_annunciator sketches are intended for use on the Model Railroad Control Systems Approach Indicator Controller. The V1-0 stetch gives a single 1.5 second ring, while the V1-1 gives two .5 second rings. Otherwise they are the same. The sketch requires a Home and Distant block in each direction. When a train is leaving the station it occupies the Home block first, which prevents the Distant block from triggering. When a train is approaching it enters the Distant block first which triggers both the lamp and bell. The lamp will stay on indefinitely until the Operator pushes the "Cancel" button. The bell gives a double ½ second ring, or a single 1.5 second ring, depending on the sketch version. I added a double ring because operators (including me) had trouble distinguishing between a Train Approaching and the Dispatcher Call bell. The double ring should solve this.

The separate bell and buzzer is based on evidence Ray Eiser has found that some Southern Pacific Coast Line stations were set up with a buzzer for Eastward and a bell for Westward. If you only want a bell the two outputs could be combined, but I feel keeping the lamp lit while silencing the bell is important. I made a short video of a Westward train approaching Woodford which is at https://www.youtube.com/watch?v=OgqReNtn0ew

The attached sample install schematic assumes 5 volt bell and buzzer, and LED indicator lamps. Since all four outputs are relay contacts, and voltage could be used by modifying the circuit.

Barry Draper

Annunciator Output Assignments Variables

Nano pin	Shield Funct	Use
A0	Station 0 ND	westward dist blk
A1	Station 0 NH	westward home blk
A2	Station 0 SD	eastward dist blk
A3	Station 0 SH	eastward home blk
A4	Station 1 ND	westward lamp cancel
A5	Station 1 NH	eastward lamp cancel
A6	Station 1 SD	
A7	Station 1 SH	
D2	Station E2D	- Eastward latch LED
D3	Station E2H	+ Red
D4	Station W2D	- Westward latch LED
D5	Station W2H	+ Red
D6	Station E3D	
D7	Station E3H	
D8	Station W3D	
D9	Station W3H	
D10	RLY 0	westward bell
D11	RLY 1	eastward buzzer
D12	RLY 2	westward lamp
D13	RLY 3	eastward lamp

Variables & Constants	Type	Description
debnc	const int	Debounce time
trpdly	const int	trip delay
releasdly	const int	release hold off
Wbeltim	const int	West bell ring time
Ebeltim	const int	East bell ring time
clrdly	const int	clear latch delay
WDdbnc	unsigned long	west dist debounce
WHdbnc	unsigned long	west home debounce
EDdbnc	unsigned long	east dist debounce
EHdbnc	unsigned long	east home debounce
Wtrpdly	unsigned long	west trip delay
Wreleasdly	unsigned long	west release hold off
Wbelltim	unsigned long	west ring time
Etrpdly	unsigned long	east trip delay
Ereleasdly	unsigned long	east release hold off
Ebelltim	unsigned long	east ring time
WDocc	bool	west dist clear
WHocc	bool	west home clear
EDocc	bool	east dist clear
EHocc	bool	east home clear
Wtrip	bool	west delayed trip
Wclr	bool	west delayed release
Etrip	bool	east delayed trip
Eclr	bool	east delayed release
Wappr	bool	dir latch approach
Wleav	bool	dir latch leaving
Eappr	bool	dir latch approach
Eleav	bool	dir latch leaving
Wlamp	bool	west lamp on
Wring	int = 3	west bell ringing
Elamp	bool	east lamp on
Ering	int = 3	east bell ringing
Woneshot	bool	W one shot latch
Eoneshot	bool	E one shot latch