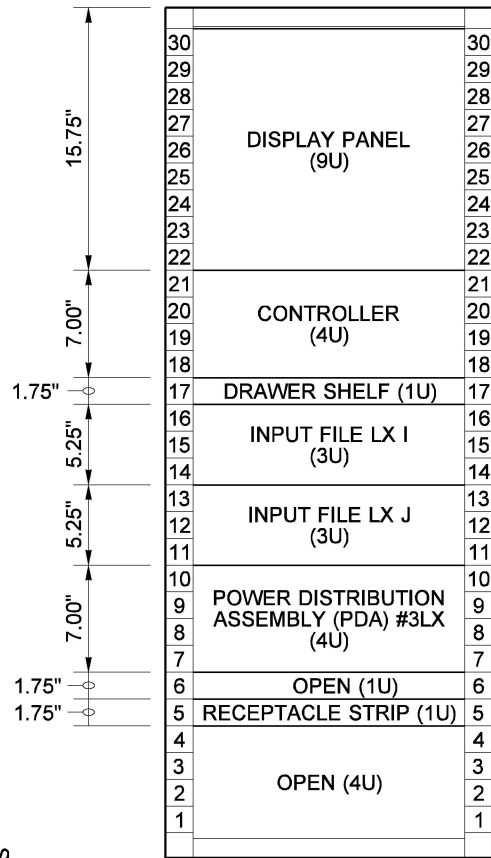
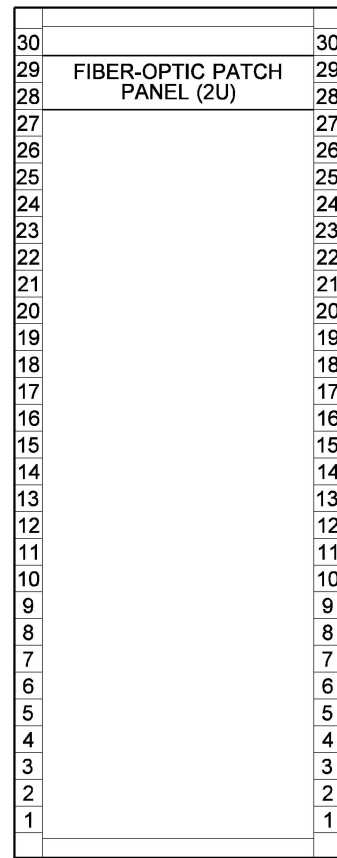


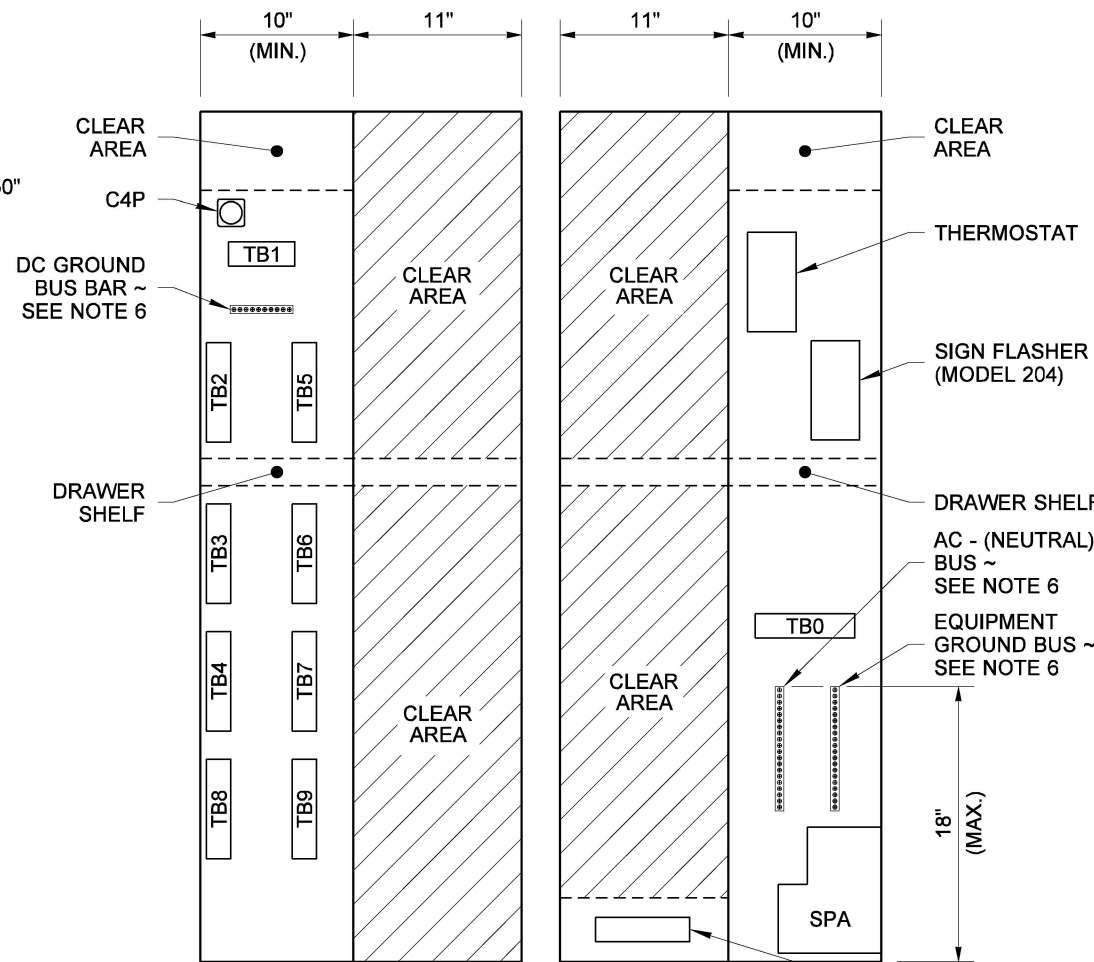
DRAWN BY: BILL BERENS



FRONT VIEW



REAR VIEW



INPUT PANEL #1D LAYOUT
(SEE NOTE 4)

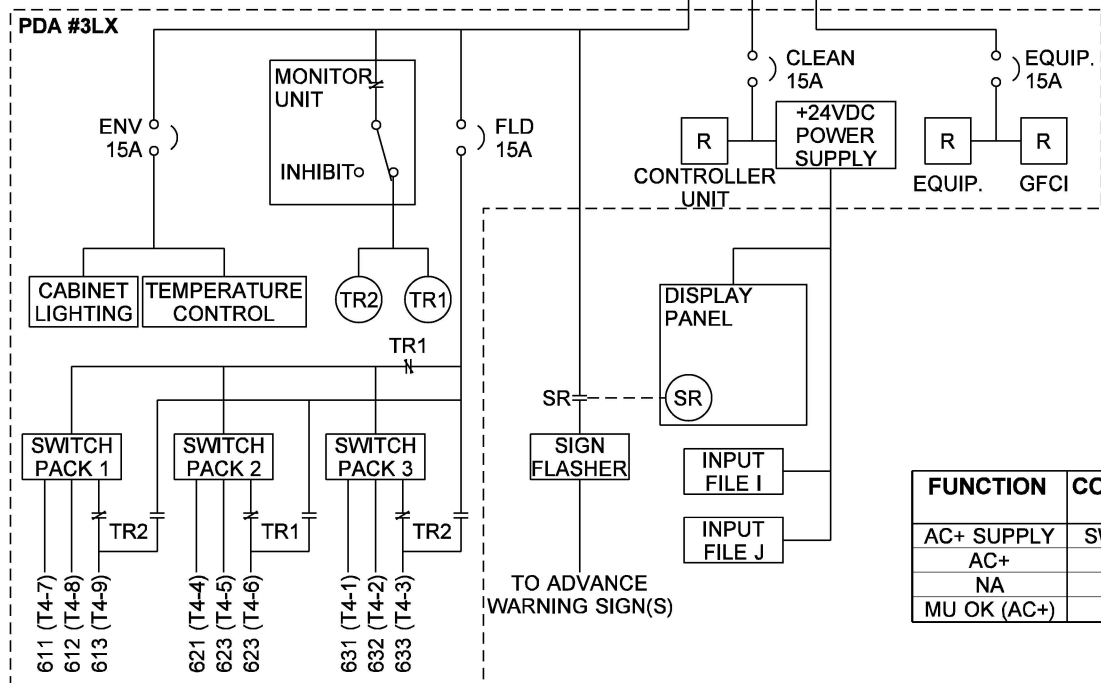
SERVICE PANEL #1D LAYOUT
(SEE NOTE 5)

NOTES

- Equipment shall meet the requirements of and be constructed in accordance with the **California Department of Transportation (CalTrans) Transportation Electrical Equipment Specifications (TEES)** as currently published, including all errata, with modifications as shown here and described in **Standard Specification Section 9-29.13(10)**. Pre-Terminated Fiber-optic Patch Panel field installed separately.
- The following Input File Terminal Blocks shall be wired in parallel:
- I15 to J15
- I16 to J16
- Power Distribution Assembly (PDA) #3LX shall be modified as follows:
 - The C6P connector shall be included and wired as referenced in TEES Drawing A6-15, Note 9.
 - A second Model 430 Transfer Relay (TR2) shall be installed on the rear of the PDA and wired as shown.
 - The following terminals shall be wired together as follows:

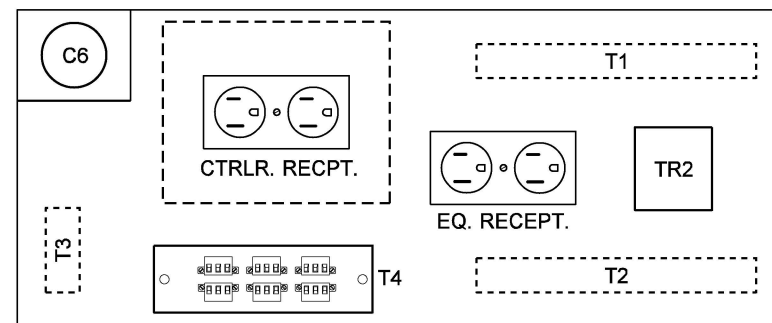
From	To	Function
T2-8	T4-6	TR1 Output to Field Green 2
T2-6	MU-3	Energizes TR1 and TR2 when MU is normal
T1-1, T1-2	SR-3	Field Output - Sign On
T1-3, T1-4	SR-4	Field Output - Sign Off
 - Field terminal panel shall be as shown in **Standard Plan J-81.12**.
- Input Panel #1D shall meet the requirements of Input Panel #1 in the TEES, with the modifications shown here. Do Not include ground bus bars between terminal blocks TB2 through TB9. Relabel the C5 connector as C4P. The C4 connector cable shall be 4 feet in length.
- Service Panel #1D shall meet the requirements of Service Panel #1 in the TEES, with the modifications shown here. The model 204 flasher shall include a socket and retaining strap, providing a snug fit and allowing the flasher to be removed, without tools, by pulling upwards.
- Bus Bars shall be capable of being used without installing lugs on field wires.
- The Sign Switch shall be a 3-position, stationary type toggle switch with a 10 amp contact rating.
- The Police Control Switch shall be a 2-position, stationary type toggle switch with a 10 amp contact rating.

POWER DISTRIBUTION BLOCK DIAGRAM

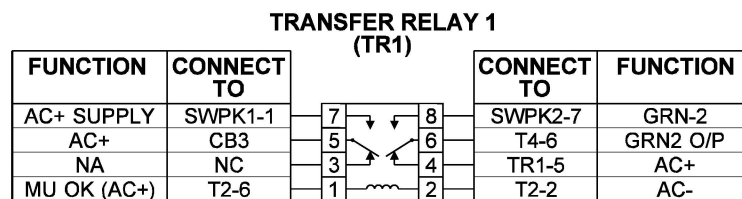


NOTE: DIMENSIONS NOT SHOWN SHALL BE IN ACCORDANCE WITH THE TEES

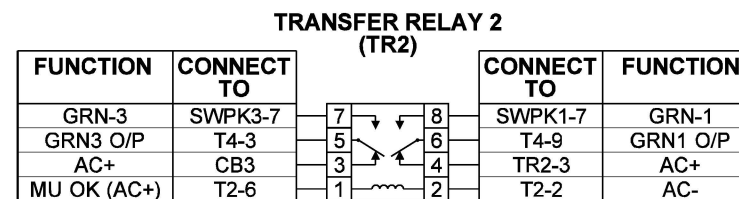
- R DUPLEX RECEPTACLE
- ? RELAY COIL
- ? N RELAY CONTACT - NORMALLY CLOSED
- ? = RELAY CONTACT - NORMALLY OPEN



PDA #3LX REAR VIEW
(SEE NOTE 3)



SHOWN DE-ENERGIZED



SHOWN DE-ENERGIZED

TRANSFER RELAY DETAILS



Aug 18, 2021

TYPE 334 RAMP METER/ DATA STATION CABINET
STANDARD PLAN J-81.10-02

SHEET 1 OF 3 SHEETS

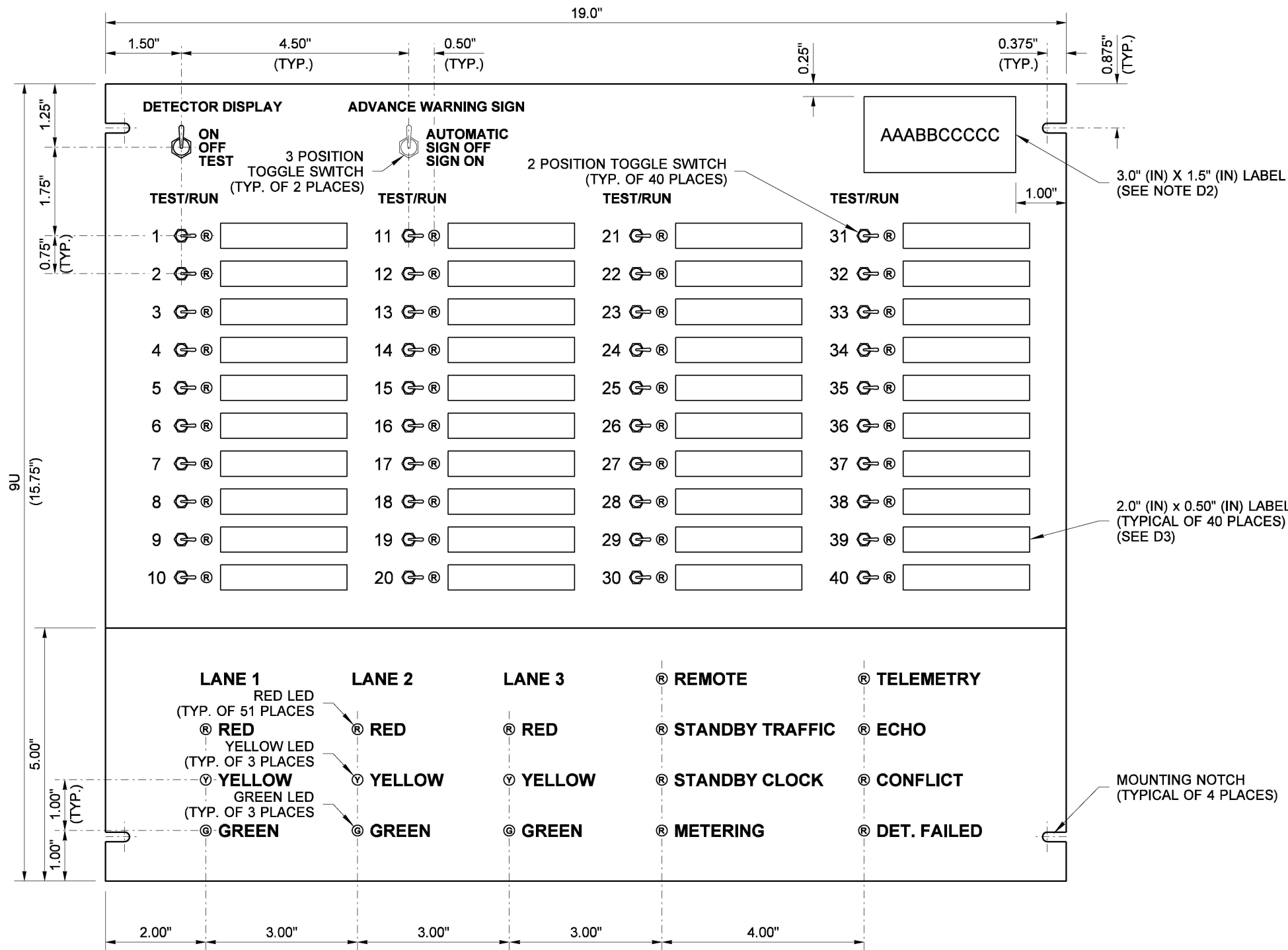
APPROVED FOR PUBLICATION

Aug 18, 2021

STATE DESIGN ENGINEER



DRAWN BY: BILL BERENS



DISPLAY PANEL DETAIL

DISPLAY PANEL NOTES

- D1. The Display Panel shall be 0.125" (in) thick aluminum with a brushed finish. All text on the Display Panel shall be a minimum of 0.25" (in).
- D2. The Cabinet Name Plate shall be a phenolic label, with white minimum 0.375" (in) text on a black background, permanently affixed to the panel. See Contract Plans for cabinet identification number.
- D3. The Detector Labels shall have 0.5" (in) black text on a white background. The labels may either be phenolic or industrial grade outdoor vinyl, and shall be permanently affixed to the panel.
- D4. All other text shall be black and screened directly onto the panel.
- D5. The Sign Relay socket and connectors P1P, P2S, and C5P shall be installed on the back of the panel. Connectors P1P/S and P2P/S are Type DD50 D-Sub connectors with pin assignments as shown on sheet 3. The suffix "S" indicates a socket (female connector) and the suffix "P" indicates a plug (male connector).
- D6. The Sign Relay shall be DPDT, wired as shown, with a contact rating not less than 10 amps continuous duty. The relay shall operate on ground output from the controller, and draw less than 75 milliamps when energized. AC wiring between the relay and the PDA shall be #14 AWG.
- D7. See **Standard Specification Section 9-29.13(11)** for additional requirements.

FUNCTION	CONNECT TO	SIGN RELAY (SR)		CONNECT TO	FUNCTION
SIGN CTRL	SS-2	7	6	NC	NA
NA	NC	8	5	NC	NA
AC+	T2-7	1	4	T1-3	SIGN OFF
+24 VDC	C5 - 24	2	3	T1-1	SIGN ON

SHOWN DE-ENERGIZED (NOT METERING)

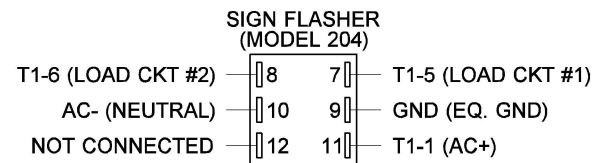
SIGN RELAY DETAIL (SEE NOTE D6)



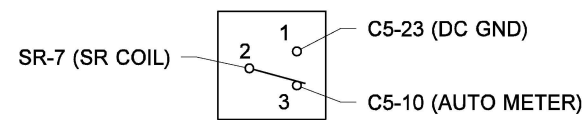
Aug 18, 2021

**TYPE 334
RAMP METER/
DATA STATION CABINET
STANDARD PLAN J-81.10-02**

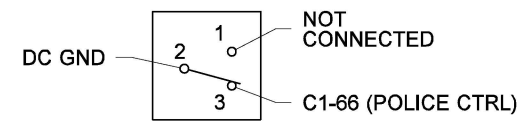
SHEET 2 OF 3 SHEETS



SIGN FLASHER DETAIL (SEE NOTE 5)



SHOWN IN AUTOMATIC MODE
SIGN SWITCH (SS) DETAIL (SEE NOTE 7)



SHOWN IN POLICE CONTROL MODE (ON)
POLICE CONTROL (PC) SWITCH DETAIL (SEE NOTE 8)

APPROVED FOR PUBLICATION

[Signature] Aug 18, 2021

STATE DESIGN ENGINEER

Washington State Department of Transportation

C1 CONNECTOR PIN ASSIGNMENTS

PIN	CONNECT TO	FUNCTION	PIN	CONNECT TO	FUNCTION	PIN	CONNECT TO	FUNCTION	PIN	CONNECT TO	FUNCTION
1	DC GND	DC GND	27	NC	NA	53	P2-15	DET. 15	79	P2-37/C4-6	DET. 37/CM1-G
2	C6-1	SWPK 1 RED	28	NC	NA	54	P2-16	DET. 16	80	P2-38/C4-7	DET. 38/CM3-R
3	C6-2	SWPK 1 GRN	29	NC	NA	55	P2-17	DET. 17	81	P2-39/C4-8	DET. 39/CM3-Y
4	C6-3	SWPK 2 RED	30	NC	NA	56	P2-18	DET. 18	82	P2-40/C4-9	DET. 40/CM3-G
5	C6-4	SWPK 2 YEL	31	NC	NA	57	P2-19	DET. 19	83	C5-1	DP REMOTE
6	C6-5	SWPK 2 GRN	32	NC	NA	58	P2-20	DET. 20	84	C5-2	NA
7	C6-6	SWPK 3 RED	33	NC	NA	59	P2-21	DET. 21	85	C5-3	DP TRAFFIC
8	C6-7	SWPK 3 YEL	34	NC	NA	60	P2-22	DET. 22	86	C5-4	DP CLOCK
9	C6-8	SWPK 3 GRN	35	NC	NA	61	P2-23	DET. 23	87	C5-5	DP TELEMETRY
10	NC	NA	36	NC	NA	62	P2-24	DET. 24	88	C5-6	DP ECHO
11	NC	NA	37	C6-9	SWPK 1 YEL	63	C4-1	CM2-RED	89	C5-7	DP CONFLICT
12	NC	NA	38	NC	NA	64	C4-2	CM2-YEL	90	C5-8	DP DET FAILED
13	NC	NA	39	P2-1	DET. 1	65	C4-3	CM2-GRN	91	C5-9	DP RED L1
14	IFI-15-4	INPUT GND	40	P2-2	DET. 2	66	PC-3/ J13F/W	POLICE CTRL/ EVP	92	DC GND	OUTPUT GND
15	NC	NA	41	P2-3	DET. 3	67	P2-25	DET. 25	93	C5-10	SIGN-AUTO/DP METER
16	NC	NA	42	P2-4	DET. 4	68	P2-26	DET. 26	94	C5-11	DP RED L2
17	NC	NA	43	P2-5	DET. 5	69	P2-27	DET. 27	95	C5-12	DP YEL L2
18	NC	NA	44	P2-6	DET. 6	70	P2-28	DET. 28	96	C5-13	DP GRN L2
19	NC	NA	45	P2-7	DET. 7	71	P2-29	DET. 29	97	C5-14	DP YEL L1
20	NC	NA	46	P2-8	DET. 8	72	P2-30	DET. 30	98	C5-15	DP GRN L1
21	NC	NA	47	P2-9	DET. 9	73	P2-31	DET. 31	99	C5-16	DP RED L3
22	NC	NA	48	P2-10	DET. 10	74	P2-32	DET. 32	100	C5-17	DP YEL L3
23	NC	NA	49	P2-11	DET. 11	75	P2-33	DET. 33	101	C5-18	DP GRN L3
24	NC	NA	50	P2-12	DET. 12	76	P2-34	DET. 34	102	IFI-15-3	DET RESET
25	NC	NA	51	P2-13	DET. 13	77	P2-35/C4-4	DET. 35/CM1-R	103	C6-10	WATCHDOG
26	NC	NA	52	P2-14	DET. 14	78	P2-36/C4-5	DET. 36/CM1-Y	104	DC GND	INPUT GND

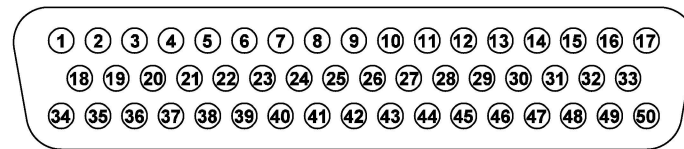
C4, C5, AND C6 CONNECTOR PIN ASSIGNMENTS

C4 CONNECTOR PINS (TO CURRENT MONITOR)			C5 CONNECTOR PINS (TO DISPLAY PANEL)			C6 CONNECTOR PINS (TO PDA #3LX)		
PIN	CONNECT TO	FUNCTION	PIN	CONNECT TO	FUNCTION	PIN	CONNECT TO	FUNCTION
1	C1-63	CM2-RED	1	C1-83	DP-REMOTE	1	C1-2	SWPK1-RED
2	C1-64	CM2-YEL	2	C1-84	DP-NA	2	C1-3	SWPK1-GRN
3	C1-65	CM2-GRN	3	C1-85	DP-STANDBY TRAFFIC	3	C1-4	SWPK2-RED
4	C1-77	CM1-RED	4	C1-86	DP-STANDBY CLOCK	4	C1-5	SWPK2-YEL
5	C1-78	CM1-YEL	5	C1-87	DP-TELEMETRY	5	C1-6	SWPK2-GRN
6	C1-79	CM1-GRN	6	C1-88	DP-ECHO	6	C1-7	SWPK3-RED
7	C1-80	CM3-RED	7	C1-89	DP-CONFLICT	7	C1-8	SWPK3-YEL
8	C1-81	CM3-YEL	8	C1-90	DP-DET. FAILED	8	C1-9	SWPK3-GRN
9	C1-82	CM3-GRN	9	C1-91	DP-RED LANE 1	9	C1-37	SWPK1-YEL
10	C1-36	NA	10	C1-93	DP-METERING, SS-3	10	C1-103	WATCHDOG MU
11	NC	NA	11	C1-94	DP-RED LANE 2	11	NC	
12	NC	NA	12	C1-95	DP-YELLOW LANE 2	12	NC	
13	NC	NA	13	C1-96	DP-GREEN LANE 2	13	NC	
14	NC	NA	14	C1-97	DP-YELLOW LANE 1	14	NC	
15	NC	NA	15	C1-98	DP-GREEN LANE 1	15	NC	
16	NC	NA	16	C1-99	DP-RED LANE 3	16	NC	
17	C1-70	NA	17	C1-100	DP-YELLOW LANE 3	17	NC	
18	C1-71	NA	18	C1-101	DP-GREEN LANE 3	18	NC	
19	C1-72	NA	19	NC	NA	19	NC	
20	NC	NA	20	NC	NA	20	NC	
21	C5-19	NA	21	NC	NA	21	NC	
22	C5-20	NA	22	NC	NA	22	NC	
23	DC GND	DC GND	23	DC GND	DC GND TO SS-1	23	DC GND	DC GND
24	TB1-1B	+24 VDC	24	TB1-2B	+24 VDC	24	TB1-3B	+24 VDC

LEGEND

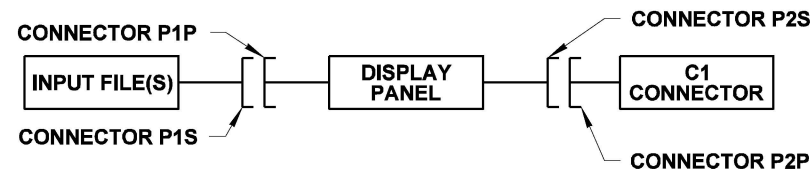
- C1 : C1 Connector
- C4 : C4 Connector
- C5 : C5 Connector
- C6 : C6 Connector
- CM : Current Monitor
- DET : Detector
- DP : Display Panel
- IFI : Input File I
- IFJ : Input File J
- L# : Lane (#)
- MU : Monitor Unit
- NA : Not Assigned
- NC : Not Connected
- P2 : P2 Connector
- PC : Police Control Switch
- SS : Sign Switch
- SWPK : Switch Pack
- TR : Transfer Relay

DRAWN BY: BILL BERENS



DD50 D-SUB CONNECTOR PINS
PLUG (MALE) CONNECTOR SHOWN ~
MIRROR FOR SOCKET (FEMALE) CONNECTOR ~

**DISPLAY PANEL INPUTS
FUNCTIONAL BLOCK DIAGRAM**



NOTE: CONNECTORS P1P AND P2S SHALL BE MOUNTED TO THE BACK OF THE DISPLAY PANEL, AND SHALL BE SECURED USING A SPRING LATCH (BAIL) TYPE CONNECTION.

P1 AND P2 CONNECTOR PIN ASSIGNMENTS

CONNECTOR P1S			CONNECTOR P1P			CONNECTOR P2S			CONNECTOR P2P		
PIN	CONNECT TO	FUNCTION	PIN	CONNECT TO	FUNCTION	PIN	CONNECT TO	FUNCTION	PIN	CONNECT TO	FUNCTION
1	I-1F	DET. 1	26	I-13W	DET. 26	1	DP1	DET. 1-IN	26	DP66	DET. 26-OUT
2	I-1W	DET. 2	27	I-14F	DET. 27	2	DP2	DET. 2-IN	27	DP67	DET. 27-OUT
3	I-2F	DET. 3	28	I-14W	DET. 28	3	DP3	DET. 3-IN	28	DP68	DET. 28-OUT
4	I-2W	DET. 4	29	J-1F	DET. 29	4	DP4	DET. 4-IN	29	DP69	DET. 29-OUT
5	I-3F	DET. 5	30	J-1W	DET. 30	5	DP5	DET. 5-IN	30	DP70	DET. 30-OUT
6	I-3W	DET. 6	31	J-2F	DET. 31	6	DP6	DET. 6-IN	31	DP71	DET. 31-OUT
7	I-4F	DET. 7	32	J-2W	DET. 32	7	DP7	DET. 7-IN	32	DP72	DET. 32-OUT
8	I-4W	DET. 8	33	J-3F	DET. 33	8	DP8	DET. 8-IN	33	DP73	DET. 33-OUT
9	I-5F	DET. 9	34	J-3W	DET. 34	9	DP9	DET. 9-IN	34	DP74	DET. 34-OUT
10	I-5W	DET. 10	35	J-4F	DET. 35	10	DP10	DET. 10-IN	35	DP75	DET. 35-OUT
11	I-6F	DET. 11	36	J-4W	DET. 36	11	DP11	DET. 11-IN	36	DP76	DET. 36-OUT
12	I-6W	DET. 12	37	J-5F	DET. 37	12	DP12	DET. 12-IN	37	DP77	DET. 37-OUT
13	I-7F	DET. 13	38	J-5W	DET. 38	13	DP13	DET. 13-IN	38	DP78	DET. 38-OUT
14	I-7W	DET. 14	39	J-6F	DET. 39	14	DP14	DET. 14-IN	39	DP79	DET. 39-OUT
15	I-8F	DET. 15	40	J-6W	DET. 40	15	DP15	DET. 15-IN	40	DP80	DET. 40-OUT
16	I-8W	DET. 16	41	NC	NA	16	DP16	DET. 16-IN	41	NC	NA
17	I-9F	DET. 17	42	NC	NA	17	DP17	DET. 17-IN	42	NC	NA
18	I-9W	DET. 18	43	NC	NA	18	DP18	DET. 18-IN	43	NC	NA
19	I-10F	DET. 19	44	NC	NA	19	DP19	DET. 19-IN	44	NC	NA
20	I-10W	DET. 20	45	NC	NA	20	DP20	DET. 20-IN	45	NC	NA
21	I-11F	DET. 21	46	NC	NA	21	DP21	DET. 21-IN	46	NC	NA
22	I-11W	DET. 22	47	NC	NA	22	DP22	DET. 22-IN	47	NC	NA
23	I-12F	DET. 23	48	NC	NA	23	DP23	DET. 23-IN	48	NC	NA
24	I-12W	DET. 24	49	I-15-1	POWER	24	DP24	DET. 24-IN	49	NC	NA
25	I-13F	DET. 25	50	I-15-2	GROUND	25	DP25	DET. 25-IN	50	LOGIC GND	GROUND

PIN TABLE EXAMPLES:

- J-1F: Input File J, Slot 1, Terminal F
- DP: Display Panel
- DET. 7-IN: Display Panel, Detector 7 Position Input Terminal
- C1 - 58: C1 Connector, Pin 58



Aug 18, 2021

**TYPE 334
RAMP METER/
DATA STATION CABINET
STANDARD PLAN J-81.10-02**

SHEET 3 OF 3 SHEETS

APPROVED FOR PUBLICATION

Aug 18, 2021

STATE DESIGN ENGINEER

Washington State Department of Transportation