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TecNote 6005 - Setting up a Type 170 Cabinet Detector Rack with Naztec Video Detection

VU COM



VU1 and VU2 Vehicle Presence and Data Detector



The purpose of this TecNote is to explain to the set up of an existing Type 170 (Model 330, 332 or 336) Cabinet Detector Rack with various Naztec Video Detector Modules by Traficon.

Traficon Modules

Naztec has partnered with Traficon to develop video modules which will easily interface with TS2 and 2070 controllers.

VU2 VIDEO DETECTOR MODULES

The VU2 modules can emulate traditional double or single loop detectors. In addition to the traffic data, it provides pulses similar to those provided by inductive loops. The VU2 modules can also provide all relevant traffic data such as volume, speed, gap time, headway, occupancy, concentration and classification. The VU2 can even store data on board in non-volatile memory. It automatically distinguishes five types of traffic flow (levels of service) based on flow speed and zone occupancy. Within seconds it detects wrong-way drivers or sudden speed variations.

VU COM FUNCTIONALITY

By establishing communication between the PC software on the central computer and the Video Image Processor (VU) detectors, the VU COM board performs all primary functions for communication and transmission of traffic data and alarm events issued by the VU detectors. VU COM also stores video sequences (with pre-and post incident information). The VUCOM also allows remote administration using an internet browser. By using a standard Internet browser, the VU COM board can easily be managed over

the TCP/IP (Ethernet) network, thereby facilitating remote administration. For both diagnostics and administration, the dynamic HTML pages provide access to a number of functionalities such as streaming video, real-time traffic data reports and set-up of the VU COM and VIP boards. In addition to these primary functions, the VU COM board also performs the digitization and compression of images, provides remote monitoring and has the ability to change the configurations of all VIP boards. Users can execute a complete set-up, modify detection zones and check the result on the screen, right from their desk. All of these features make VU COM stand out as a perfect tool for traffic analysis.

Type 170 Cabinet Hardware considerations

Type 170 cabinets were developed by Caltrans (Model 332 and Model 336) and NYSDOT (Model 330) as a standard in the 1970's. Many agencies have purchased these cabinets which contain a standardized detector rack. This rack accepts various modules such as Model 222 loop detectors, Model 242 DC isolation modules and both the VUCOM and VU2 video modules. The edge connector on all modules that interface with the detector must adhere to the following specifications as defined in the NYSDOT Transportation Management Equipment Specifications:

7. Board Edge Connector Pin Assignment

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PIN	FUNCTION	PIN	FUNCTION	PIN	FUNCTION
A	DC Ground	J	Loop #2 Input	S	Loop #3 Output (C)
B	+24 VDC	K	Loop #2 Input	T	Loop #3 Output (E)
C	Detector Reset	L	Chassis Ground	U	Loop #4 Input
D	Loop #1 Input	M	AC-	V	Loop #4 Input
E	Loop #1 Input	N	AC+	W	Loop #2 Output (C)
F	Loop #1 Output (C)	P	Loop #3 Input	X	Loop #2 Output (E)
H	Loop #1 Output (E)	R	Loop #3 Input	Y	Loop #4 Output (C)
Z	Loop #4 Output (E)				
	= Slotted for Keying				
(C)	= Collector				
(E)	= Emitter				

Video Module considerations

The VU2 module and the VUCOM modules (as seen from the backplane) are set up as follows to interface with a standardized 170 type detector rack:

	VU2	T4	T3	T2	T1
1	SP				
2	F(S)			Det 1 Out	Det 3 Out
3	W(Y)			Det 2 Out	Det 4 Out
4	D(P)			Video In 1 +	Video In 2 +
5	E(R)			Video In 1 -	Video In 2 -
6	J(U)			Video Out +	RS485 +
7	K(V)			Video Out -	RS485 -
8	L	Equipm Gnd	Equipm Gnd	Equipm Gnd	Equipm Gnd
	VU Com	T4	T3	T2	T1
1	SP				
2	F(S)			AUX 1	AUX 3
3	W(Y)			AUX 2	AUX 4
4	D(P)			Video In 1 +	Video In 2 +
5	E(R)			Video In 1 -	Video In 2 -
6	J(U)				RS485 +
7	K(V)			Logic GND	RS485 -
8	L	Equipm Gnd	Equipm Gnd	Equipm Gnd	Equipm Gnd

Wiring a Standard 170 Detector Rack for Communications with Naztec Video Detector Modules

The user should jump (tie) together the following on the back of the Type 170 detector rack:

Create RS485 communications by wiring:

All Pin U's for each card

All Pin V's for each card

The user should also jump (tie) together the camera connections to each VU2 card:

Video input 1 from Camera 1:

Pin's D for all VU2 cards

Pin's E for all VU2 cards

Video input 2 from Camera 2:

Pin's P for all VU2 cards

Pin's R for all VU2 cards

The following should be also be done as you add VU2 modules to the detector rack:

For the first 2 cameras using first VU2 unit:

Pin J of VU2 to Pin D of VU Com

Pin K of VU2 to Pin E of VU Com

For cameras 3 and 4 using a second VU2 unit:

Pin J of VU2 to Pin P of VU Com

Pin K of VU2 to Pin R of VU Com

For cameras 5 and 6 using a third VU2 unit:

Pin J of VU2 to Pin F of VU Com (AUX1)

Pin K of VU2 to Pin H of VU Com

For cameras 7 and 8 using a fourth VU2 unit:

Pin J of VU2 to Pin W of VU Com (AUX2)

Pin K of VU2 to Pin X of VU Com

For cameras 9 and 10 using a fifth VU2 unit:

Pin J of VU2 to Pin S of VU Com (AUX3)

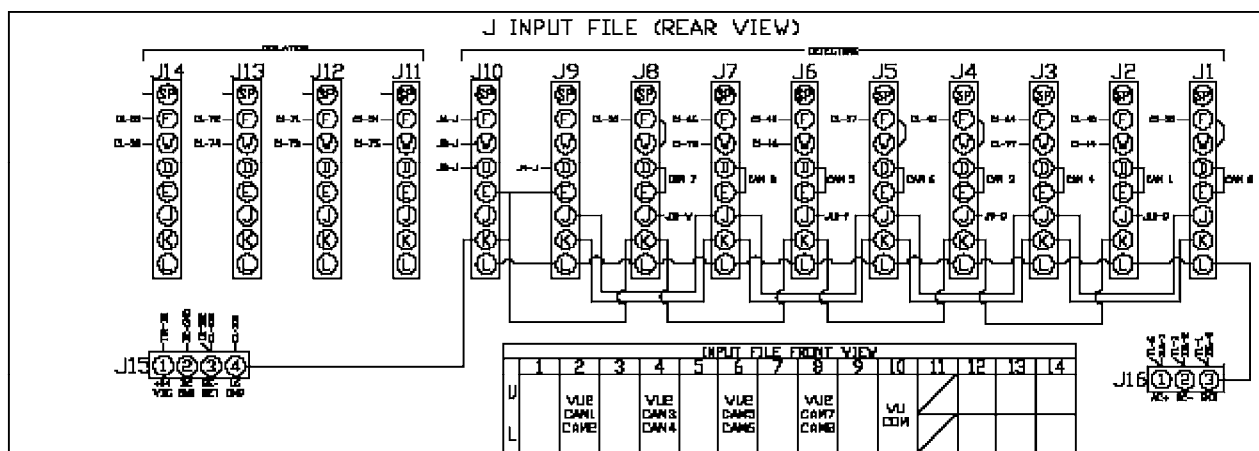
Pin K of VU2 to Pin T of VU Com

For cameras 11 and 12 using a sixth VU2 unit:

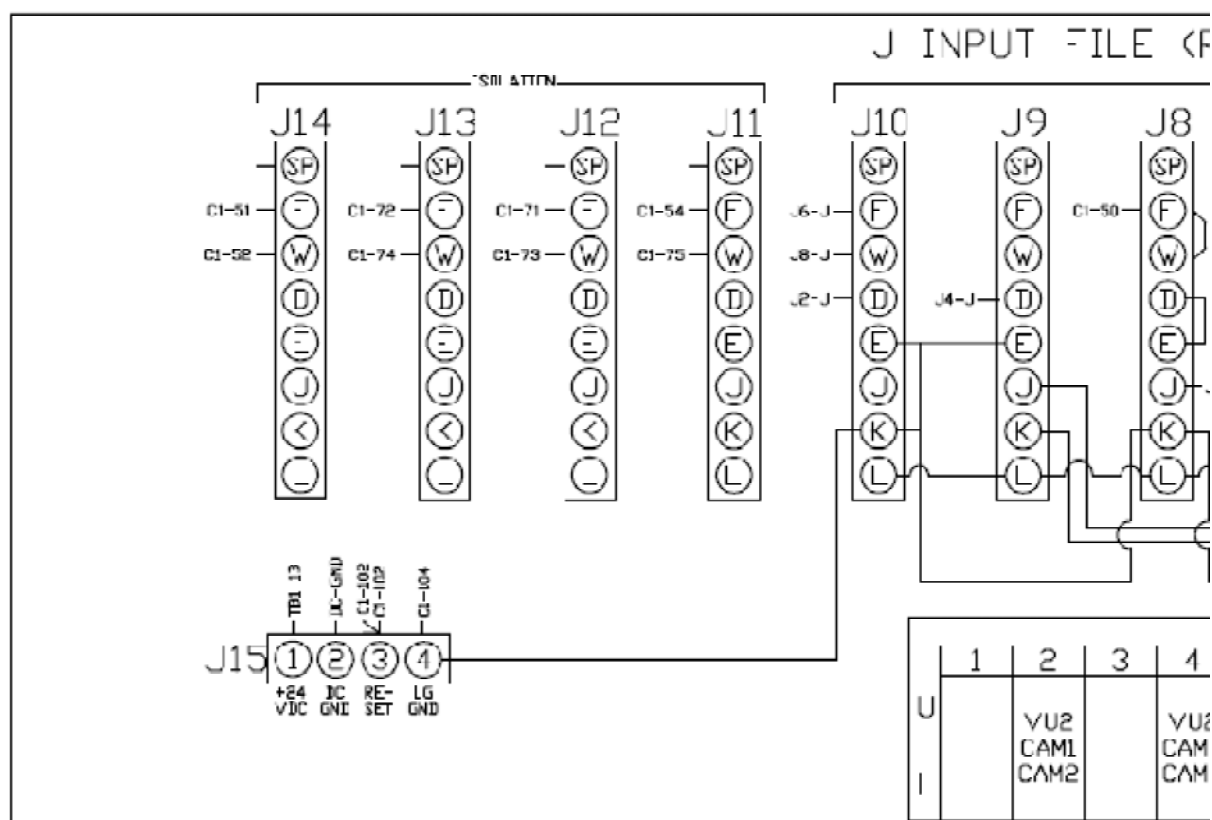
Pin J of VU2 to Pin Y of VU Com (AUX4)

Pin K of VU2 to Pin Z of VU Com

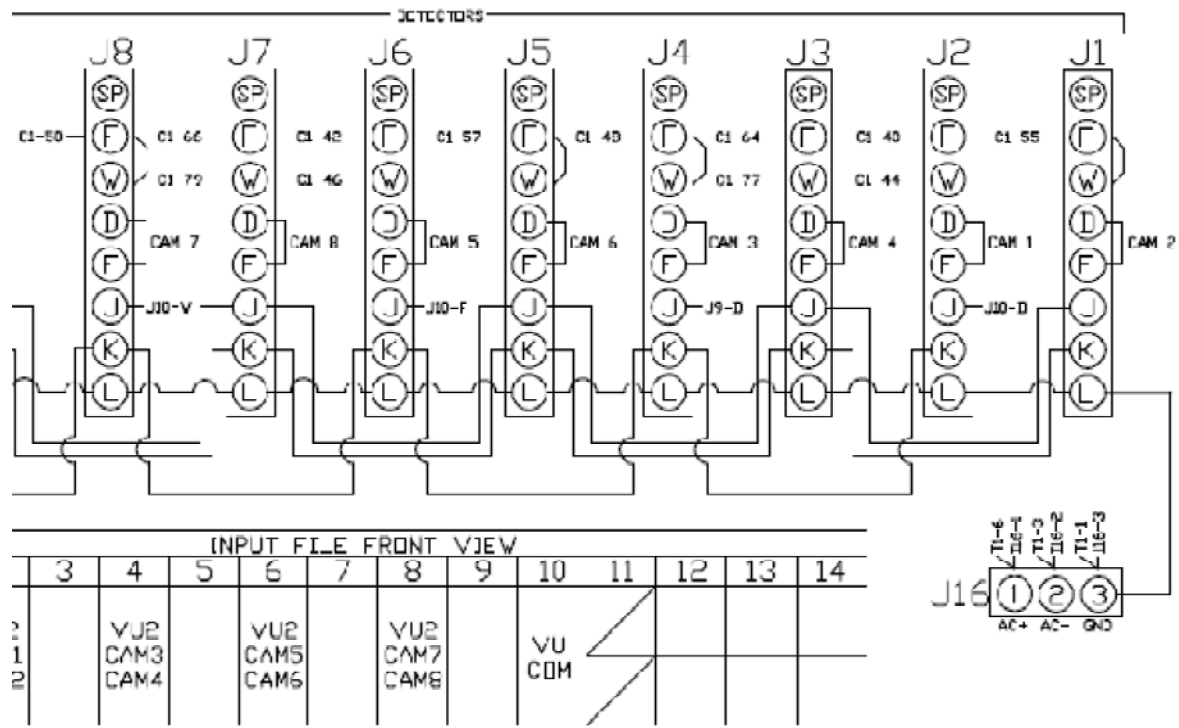
The user can reference the following diagrams taken from a 332 detector rack setup. Please note the Input File front view diagram. The VUCom card resides in slot 10 of the rack and the VU2 cards reside in slot 2 (cameras 1 & 2) ,slot 4 (cameras 3 & 4) ,slot 6(cameras 5 & 6), and slot 8(cameras 7 & 8).



This diagram has been zoomed into two diagrams as shown below:



FILE (REAR VIEW)



Summary

An agency can use its existing cabinet with simple wiring changes to interface with Naztec Video Modules by Traficon.. If an agency doesn't want to make changes to its existing detector rack, Naztec also can supply a replacement Detector rack for your Type 170 cabinet which interfaces to the video modules.