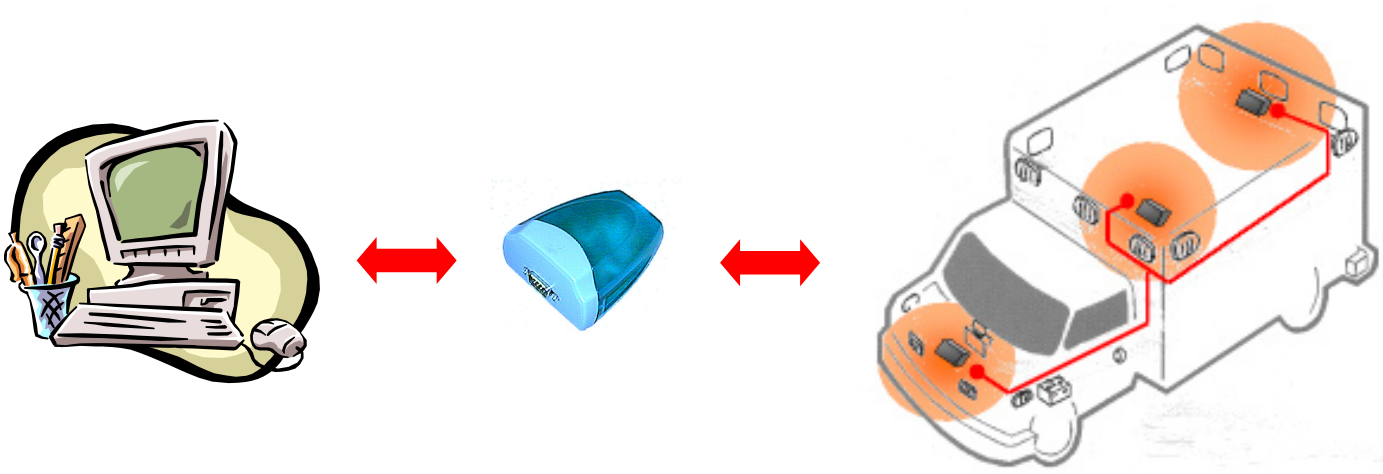
WELDON
A DIVISION OF AKRON BRASS



V-MUX® Input/Output
Relationships Report

V-MUX System Report Documents -- Inputs and Outputs

The entire V-MUX electrical design as created by the vehicle OEM can be put into document form for reference. The Microsoft Excel® spreadsheet program is used to create these documents. Two main reference documents will be created for you to use:

1) **The Input/Output Nodal Specification**
2) **The Nodal Relationships Specification**

Document 2, the **Relationships** Spec, is the more useful of the two for troubleshooting Command Logic.

For each V-MUX node in the vehicle there is an Inputs listing page and an Outputs listing page.

"Inputs": Digital (switches = ON/OFF) and Analog (sensors 0-5VDC range) are listed.

"Node" -- For the page: The live node number associated with this page is shown.

"Location": Indicates where in the vehicle the node is located.

Digital Inputs			Node 1		Location: Right-Mid	
Ch #	Pin #	OEM Wire	Command	Qty	Type	Comments
1	3		E Emergency Master		Latching N/O	
2	2		E Primary		Latching N/O	
3	10		E Secondary		Latching N/O	
4	4		Turn Signal Right		Latching N/O	

Analog Inputs						
Ch #	Pin #	OEM Wire	Command	Value Range		Comments
1	N/A		Unassigned	0	188	
2	1		Unassigned	0	255	

Inputs page of Relationships Specification

"Ch#": The Weldon V-MUX channel number. (This is useful for the electrical designers)

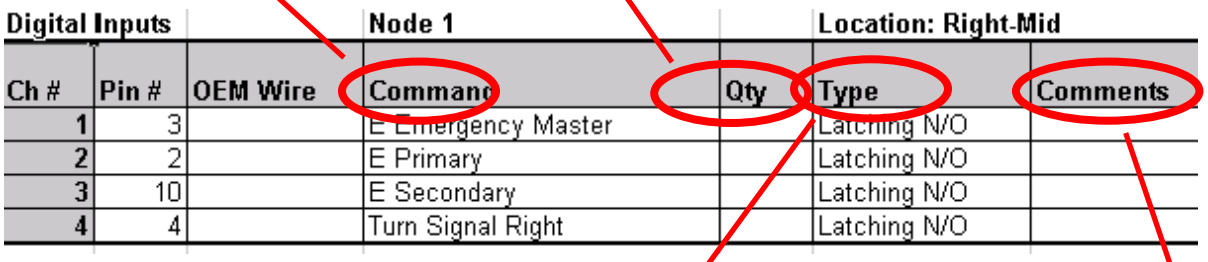
"Pin #": The harness pin assignment on the terminating Deutsch end connector. (This is far more useful to the service technician than the above "Ch#".)

"OEM Wire": The vehicle manufacturers installed harness wire identifier. This is usually a combination of a color and a number. (example: BL56 may mean Blue #56)

Digital Inputs			Node 1		Location: Right-Mid	
Ch #	Pin #	OEM Wire	Command	Qty	Type	Comments
1	3		E Emergency Master		Latching N/O	
2	2	BL56	E Primary		Latching N/O	
3	10		E Secondary		Latching N/O	
4	4		Turn Signal Right		Latching N/O	

Command: The V-MUX message command that will be issued by the node when the switch is thrown.

Qty: "Quantity" -- NOT CURRENTLY USED. Will always be blank.



Digital Inputs			Node 1		Location: Right-Mid	
Ch #	Pin #	OEM Wire	Command	Qty	Type	Comments
1	3		E Emergency Master		Latching N/O	
2	2		E Primary		Latching N/O	
3	10		E Secondary		Latching N/O	
4	4		Turn Signal Right		Latching N/O	

Type: Switch type; momentary or latching, with switch normally open (N/O) or normally closed (N/C).

Comments: Anything of importance the OEM designer wants to add.

Outputs listing page of Relationship Specification--

"Outputs": Hercules node ("High capacity" = +12 VDC, 10.5 Amp/channel, channels 1-16
"Low capacity" = +12 VDC, 2 Amp/channel, channels 14-24
"Ground Outputs" = GND , 2 Amp/channel, channels 25, 26)

Mini4x12 node (Medium capacity = +12 VDC, 7.5 Amp/channel)

Priority Shedding: Indicates the voltage level this output channel will Load Manage OFF at.

High Capacity Outputs			Node 1		Location: Center-Front
CH #	Pin #	OEM Wire	Name	Priority Shedding	Relationships
1	R		Output 1	No Shed	(None)
2	S		Output 2	No Shed	(None)
3	F	LHF/SP380	HIGH IDLE	No Shed	<ON> Auto Throttle <AND> Park Brake <AND> Ignition <AND> <NOT> PTO Switch (Hot Shift) <AND> <NOT> Service Brake
4	T	LHT	L SIDE DC SCENE	2 (12.1 V)	<ON> Ignition <AND> Scene Left <AND> Park Brake
5	G	LHG	R SIDE DC SCENE	2 (12.1 V)	<ON> Ignition <AND> Park Brake <AND> Scene Right
6	U		Output 6	No Shed	(None)
7	H	LHH/WT118	PTO REQUEST	No Shed	<ON> PTO Switch (Hot Shift) <AND> Ignition <AND> Park Brake <AND> Park/Neutral
8	V	LHV	WARN FRONT ROCKEF	No Shed	<ON> E Emergency Master
9	L	LHL/SP323/SP	L LT BAR RED RELAY	No Shed	<ON> E Emergency Master <AND> E Front Lightbar Red
10	B	LHB/SP324/SF	R LT BAR RED RELAY	No Shed	<ON> E Emergency Master <AND> E Front Lightbar Red
11	M	LHM/SP325/SI	PTO ENGAGE SOLENC	No Shed	<ON> PTO Switch (Hot Shift) <AND> Park Brake <AND> Park/Neutral <AND> Ignition
12	C	LHC/SP326/SF	REAR DIRECTIONAL LT	2 (12.1 V)	<ON> E Emergency Master <AND> Park Brake
13	N	LHN/SP327/SF	LT BAR CLEAR RELAY	No Shed	<ON> E Emergency Master <AND> E Front Lightbar Red <AND> <NOT> Park Brake
14	D	LHD/SP328/SF	MARS LIGHTS RELAY	0 (No Load	<ON> E Grill Lights <AND> <NOT> Park Brake
15	O		Output 15	No Shed	(None)
16	P		Output 16	No Shed	<ON> E Emergency Master <AND> E Strobes Low

Low Capacity Outputs					
CH #	Pin #	OEM Wire	Name	Priority Shedding	Relationships
17	Q	LHO/SP329/SF	OPTICOM RELAY	No Shed	<ON> E Emergency Master <AND> E Front Lightbar Red <AND> <NOT> Park Brake
18	E	LHP/SP330/SF	WW STROBE SUPPLY	No Shed	<ON> E Emergency Master <AND> E Strobes Low
19	A	LLA	AC LOAD MGT RELAY	1 (12.5 V)	<ON> Ignition
20	J		Output 20	No Shed	(None)
21	W		Output 21	No Shed	(None)
22	X		Output 20	No Shed	(None)
23	K		Output 23	No Shed	(None)
24	7		Output 24	No Shed	(None)

Ground Outputs							
CH #	Pin #	OEM Wire	Name	Amps	Max Amps	Priority Shedding	Comments
25	14	SP195	Jake Relay to Sw	0.25	2	No Shed	Ground Output
26	11	EN524	Throttle Inhibit	0.25	2	No Shed	Ground Output

Outputs listing page of Relationship specification--

“Relationships”: Indicates which V-MUX input commands will turn the associated output channel ON/OFF.

Some Relationship Commands use the OFF state of an input, listed as “NOT”.. In the example below note that Ch#21 will turn on only when the Turn Signal Right is OFF (“NOT”) and the Marker Lamps Command is ON.

CH #	Pin #	OEM Wire	Name	Priority Shedding	Relationships
17	Q	BL 17	Aux Power Relay	No Shed	<ON> Ignition
18	E	GR 19	Map Lt	No Shed	<ON> Ignition
19	A		Output 19	No Shed	(None)
20	J	OR 02	Back-up Alarm	No Shed	<ON> Reverse
21	W	RD 12	Rt Bumper Light	No Shed	<NOT> Turn Signal Right <AND> Marker Lamps
22	X	BL 01	Ignition(Air Dump)	No Shed	<ON> Ignition
23	K	GR 7	Lt Bumper Light	No Shed	<NOT> Turn Signal Left <AND> Marker Lamps
24	7	BR 3	Intercom	No Shed	<ON> Ignition