





Important Information for the Relay Map:

. There are a total of 32 test leads to program 2. Each of the 32 test leads have 3 states they can be in, hot, on, off

3. Hot is represented by all the boxes **not** outlined in

On is represented by all the boxes outlined in pink hus eight test leads are represented by 16 total puts, that is why the boxes are colored to rentiate which 8 test leads are being programmed

hey are also labeled with numbers to identify which wo inputs go to each test lead 6. When nothing is selected all values are 0 as seen to

the right. There are eight values to represent all 64

7. Each 0 thus represents 8 total inputs, and the 0's are in groups of two to represent one test lead

Below is an example of how to use the inputs and translate it into code

НОТ	ON	НОТ	ON	HOT	ON	НОТ	ON
1,	254,	0,	3,	0,	0,	0,	0,
1		9	×	17		25	
2	×	10	×	18		26	
3	×	11		19		27	
4	×	12		20		28	
5	×	13		21		29	
6	×	14		22		30	
7	×	15		23		31	
8	×	16		24		32	

	0,	0,	0,	0,		0,	0,		0,	0,
1			9		1	.7		2	25	
2			10		1	.8		2	26	
3			11		1	.9		2	27	
4			12		2	20		2	28	
5			13		2	21		2	29	
6			14		2	22			30	
7			15		2	23		3	31	
8			16		2	24		3	32	

HOT ON HOT ON HOT ON HOT ON

All SWITCH tests that are to be programmed follow the logic below:

. There is only one test lead that is HOT per step . The number of test leads that are ON is the # of conductors +1 (if there is a ground/drain) -2B. The HOT rotates through all of the test leads unt

every lead has been made HOT 1. The ground/drain never is HOT it's only ON

view the example to the left, in this example there i a cable with 9 conductors and 1 drain, the first step wil be outlined to the left

		нот	ON	НОТ	ON	нот	ON	нот	0
		2,	253,	0,	3,	0,	0,	0,	0
- Position 1 is 2^0 = 1	1		×	9	×	17		25	
- Position 2 is 2^1 = 2	2	×		10	╳	18		26	
- Position 3 is 2^2 = 4	3		×	11		19		27	
- Position 4 is 2^3 = 8	4		×	12		20		28	
- Position 5 is 2^4 = 16	5		×	13		21		29	
- Position 6 is 2^5 = 32	6		×	14		22		30	
- Position 7 is 2^6 = 64	7		×	15		23		31	
- Position 8 is 2^7 = 128	8		×	16		24		32	

Add all of the values that are to be selected for the step and then inpu into the integer representing that column and it will select all of thos rows



NO





The formula for number of "steps" is (# of conductors)*2 v is an example of a part number that has 9 conductors, that i test and <u>does not have</u> a drain wire: TCH (Relay 1 is hot, Relay 2-9 are on, Relays 10-32 are off) TCH (Relay 2 is hot, Relay 1 and 3-9 are on, Relays 10-32 are off /ITCH (Relay 3 is hot, Relay 1-2 and 4-9 are on, Relays 10-32 are off TCH (Relay 4 is hot, Relay 1-3 and 5-9 are on, Relays 10-32 are off TCH (Relay 5 is hot, Relay 1-4 and 6-9 are on, Relays 10-32 are of TCH (Relay 6 is hot, Relay 1-5 and 7-9 are on, Relays 10-32 are of CH (Relay 7 is hot, Relay 1-6 and 8-9 are on, Relays 10-32 are off TCH (Relay 8 is hot, Relay 1-7 and 9 are on, Relays 10-32 are off TCH (Relay 9 is hot, Relay 1-8 on, Relays 10-32 are off)

SWITCH,0.05,0.25,1,254,0,1,0,0,0,0, (15 sets of 8 0's afte 2. SWITCH,0.05,0.25,2,253,0,1,0,0,0,0, (15 sets of 8 0's afte 3. SWITCH,0.05,0.25,4,251,0,1,0,0,0,0, (15 sets of 8 0's afte 4. SWITCH,0.05,0.25,8,247,0,1,0,0,0,0, (15 sets of 8 0's afte 5. SWITCH,0.05,0.25,16,239,0,1,0,0,0,0, (15 sets of 8 0's afte 6. SWITCH, 0.05, 0.25, 32, 223, 0, 1, 0, 0, 0, 0, (15 sets of 8 0's af . SWITCH,0.05,0.25,64,191,0,1,0,0,0,0, (15 sets of 8 0's af SWITCH,0.05,0.25,128,127,0,1,0,0,0,0, (15 sets of 8 0's a 9. SWITCH,0.05,0.25,0,255,1,0,0,0,0,0, (15 sets of 8 0's afte REFER TO qt_950_sequence_csv_file_format FOR PROPER DRMATTING AND FOR INFORMATION ON WHAT EACH V MEANS

The formula for number of "steps" is (# of conductors)*2 is an example of a part number that has 9 conductors, that is test and has a drain wire:

CH (Relay 1 is hot, Relay 2-10 are on, Relays 11-32 are off) H (Relay 2 is hot, Relay 1 and 3-10 are on, Relays 11-32 are off CH (Relay 3 is hot, Relay 1-2 and 4-10 are on, Relays 11-32 are o CH (Relay 4 is hot, Relay 1-3 and 5-10 are on, Relays 11-32 are o CH (Relay 5 is hot, Relay 1-4 and 6-10 are on, Relays 11-32 are H (Relay 6 is hot, Relay 1-5 and 7-10 are on, Relays 11-32 are c H (Relay 7 is hot, Relay 1-6 and 8-10 are on, Relays 11-32 are CH (Relay 8 is hot, Relay 1-7 and 9-10 are on, Relays 11-32 are off CH (Relay 9 is hot, Relay 1-8 and 10 are on, Relays 11-32 are off

SWITCH,0.05,0.25,1,254,0,3,0,0,0,0, (15 sets of 8 0's aft . SWITCH, 0.05, 0.25, 2, 253, 0, 3, 0, 0, 0, 0, (15 sets of 8 0's afte . SWITCH,0.05,0.25,4,251,0,3,0,0,0,0, (15 sets of 8 0's afte 4. SWITCH,0.05,0.25,8,247,0,3,0,0,0,0, (15 sets of 8 0's after . SWITCH,0.05,0.25,16,239,0,3,0,0,0,0, (15 sets of 8 0's after . SWITCH,0.05,0.25,32,223,0,3,0,0,0,0, (15 sets of 8 0's after . SWITCH,0.05,0.25,64,191,0,3,0,0,0,0, (15 sets of 8 0's after SWITCH,0.05,0.25,128,127,0,3,0,0,0,0, (15 sets of 8 0's a . SWITCH,0.05,0.25,0,255,1,2,0,0,0,0, (15 sets of 8 0's after REFER TO qt_950_sequence_csv_file_format FOR PROPER RMATTING AND FOR INFORMATION ON WHAT EACH VA MEANS



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⁻CH (Relay 3 is hot, Relay 1-2 and 4-9 are on, Relays 10-32 are off

CH (Relay 4 is hot, Relay 1-3 and 5-9 are on, Relays 10-32 are off

-CH (Relay 5 is hot, Relay 1-4 and 6-9 are on, Relays 10-32 are off

CH (Relay 6 is hot, Relay 1-5 and 7-9 are on, Relays 10-32 are off

⁻CH (Relay 7 is hot, Relay 1-6 and 8-9 are on, Relays 10-32 are off

CH (Relay 8 is hot, Relay 1-7 and 9 are on, Relays 10-32 are off

CH (Relay 9 is hot, Relay 1-8 on, Relays 10-32 are off)

SWITCH,0.05,0.25,16,239,0,1,0,0,0,0, (15 sets of 8 0's af

SWITCH,0.05,0.25,32,223,0,1,0,0,0,0, (15 sets of 8 0's af

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CH (Relay 1 is hot, Relay 2-9 are on, Relays 10-32 are off)

The formula for number of "steps" is (# of conductors)*. an example of a part number that has 9 conductors, that i test and has a drain wire:

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TCH,0.05,0.25,1,254,0,3,0,0,0,0, (15 sets of 8 0's af SWITCH,0.05,0.25,2,253,0,3,0,0,0,0, (15 sets of 8 0's aft SWITCH,0.05,0.25,4,251,0,3,0,0,0,0, (15 sets of 8 0's after . SWITCH,0.05,0.25,8,247,0,3,0,0,0,0, (15 sets of 8 0's aft SWITCH,0.05,0.25,16,239,0,3,0,0,0,0, (15 sets of 8 0's aft SWITCH,0.05,0.25,32,223,0,3,0,0,0,0, (15 sets of 8 0's a SWITCH,0.05,0.25,64,191,0,3,0,0,0,0, (15 sets of 8 0's afte SWITCH,0.05,0.25,128,127,0,3,0,0,0,0, (15 sets of 8 0's af . SWITCH,0.05,0.25,0,255,1,2,0,0,0,0, (15 sets of 8 0's aft

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ext is to build the DCW steps that go in between each SW

DCW, Voltage Found in Input Excel File,



🗹 1	9	17	25
2	✓ 10	18	26
3	☑ 11	19	27
_ 4	✓ 12	20	28
<u> </u>	✓ 13	21	29
6	🗹 14	22	30
7	✓ 15	23	31
8	V 16	24	32

SWITCH STEP 1 RESULT

Bank #0-	T PBank #1-		7 Bank
1	9	17	25
2	10	18	26
🔲 З	11	19	27
☑ 4	12	20	28
5	13	21	29
6	14	22	30
7	15	23	31
8	16	24	32

SWITCH STEP 4 RESULT

-Bank #0—		ן - Bank #2	Bank #	
1	9	17	25	
2	10	18	26	
3	11	19	27	
4	✓ 12	20	28	
5	13	21	29	
6	14	22	30	
7	15	23	31	
8	1 6	24	32	
SWITCH STEP 7 RESULT				

VITCH,0.05,0.25,1,254,0,1,0,0,0,0, (15 sets of 8 0's after SWITCH,0.05,0.25,2,253,0,1,0,0,0,0, (15 sets of 8 0's aft Next is to build the DCW steps that go in between each SWITCH step SWITCH,0.05,0.25,4,251,0,1,0,0,0,0, (15 sets of 8 0's afte WITCH,0.05,0.25,8,247,0,1,0,0,0,0, (15 sets of 8 0's afte



the voltage greater than 3000 V DC?

Next is to build the ACW steps that go in between each SWITCH step

e voltage greater th 3000 V AC?

he voltage greater tha 5500 V AC?

ACW, Voltage Found in Input Excel File, 60, N, 100, Time Found in Input Excel File, FAST, 50, Y, RMS, 0.01, 50, -3, N, 0.01, 50, -3, N, 10, 4, Y, N

Next is to build the ACW steps that go in between each SWITCH step ACW, Voltage Found in Input Excel File, 60, Y, 60, Time Found in Input Excel File, FAST, 50, Y, RMS, 0.01, 50, -3, N, 0.01, 50, -3, N, 10, 4, Y, N,

Next is to build the ACW steps that go in between each SWITCH step

CW, Voltage Found in Input Excel File, 60, Y, 60, Time Found in Input Excel File, FAST, 50, Y, RMS, 0.01, 38, -3, N, 0.01, 38, -3, N, 10, 4, Y, N,

D"Voltage Found in Input"

ADD a "D" after "C" if there is a drain wire

X = # of conductors

Name the CSV file "XCDYYYYVDC"

Y = Voltage in inputs

Name the file

D"Voltage Found in Input

13 21 29 6 14 22 30 7 🗹 15 📃 23 🛄 31 8 🗹 16 🔛 24 🔛 32 SWITCH STEP 9 RESULT

4	12	20	28		
5	13	21	29		
6	14	22	30		
7	15	23	31		
8	16	24	32		
SWITCH STEP 5 RESULT					

18

🗹 15 🛄 23 🛄 31

16 24 32

SWITCH STEP 8 RESULT

Next is to build the DCW steps that go in between each SWITCH step

V, Voltage Found in Input Excel File, Y, 60, Time Found in Input Excel File, 0, FAST, 38, Y, 0.01, 38, -3, N, 10, 4, Y, N, 0, N,

11 📕 19

12 📃 20

13 21

M 14 🛄 22

28

2

30

27

1 🗹 10

10 18

🗹 11 🔲 19 📉

17 🗸

Bank #0	n – Bank #1–		Bank #
1	9	17	25
2	10	18	26
🔲 З	11	19	27
4	12	20	28
5	13	21	29
6	14	22	30
7	15	23	31
8	1 6	24	32

SWITCH STEP 6 RESULT

- Bank #1----- - Bank #2--

9 9 17 29

🗹 10 🚺 18 🚺 🗹 26

11 19 2

12 20 21

8	 ✓ 15 ✓ 16 	23	31			
6	14	22	30			

9 17

4 ☑ 12 🔲 20 🔲 2

5 🗹 13 🗌 21 🚺 2

3

4

6

7

10 18 2

🗹 11 🚺 19 🚺 2

Bank #0-	-Bank #1 -		
1	9	17	25
2	✓ 10	18	26
3	11	19	27
4	12	20	28
5	✓ 13	21	29
6	☑ 14	22	30
7	✓ 15	23	31
8	16	24	32

SWITCH STEP 3 RESULT