BruControl Interface Wiring Map: Adafruit Grand Central M4 (Firmware v45E+)

	Connection ->		TCP (Network)		Serial	<- Connection
	Wiring Map ->		Default	Wi-Fi	Default	<- Wiring Map
	Firmware Prefix ->		BruControl.45E.GrandCentral.			<- Firmware Prefix
	Firmware Suffix ->					<- Firmware Suffix
Interface pin #	BruControl port #	UniShield UM-1 Terminal	E	W	S	User Description (record device type and device connected)
0	N/A	10-2 (VD)	N/C	N/C	N/C	
1	N/A	10-1 (VD)	N/C	N/C	N/C	
2	2	9-3 (VC)	D, C, O, P, R	D, C, O, P, R	D, C, O, P, R	
3	3	9-4 (VC)	D, C, O, P, R	D, C, O, P, R	D, C, O, P, R	
4	4	9-1 (VC)	D, O, P, R	D, O, P, R	D, O, P, R	
5	5	9-2 (VC)	D, O, P, R	N/C	D, O, P, R	
6	6	8-3 (VC)	D, O, P, R	D, O, P, R	D, O, P, R	
7	7	8-4 (VC)	D, O, P, R	N/C	D, O, P, R	
8	8	8-1 (VC)	D, O, P, R	D, O, P, R	D, O, P, R	
9	9	8-2 (VC)	D, O, P, R	D, O, P, R	D, O, P, R	
10	10	7-3 (VC)	N/C	N/C	D, O, P, R	
11	11	7-4 (VC)	D, O, P, R	D, O, P, R	D, O, P, R	
12	12	7-1 (VC)	D, O, R	D, O, R	D, O, R	
13	13	7-2 (VC)	D*, P, L	D*, P, L	D*, P, L	
14	14	11-3 (VD)	D, O, P, R	D, O, P, R	D, O, P, R	
15	15	11-4 (VD)	D, O, P, R	D, O, P, R	D, O, P, R	
16	16	11-1 (VD)	D, R	D, R	D, R	
17	17	11-2 (VD)	D, R	D, R	D, R	
18	18	10-3 (VD)	D, C, R	D, C, R	D, C, R	
19	19	10-4 (VD)	D, C, R	D, C, R	D, C, R	
20	N/A	N/A	N/C	N/C	N/C	
21	N/A	N/A	N/C	N/C	N/C	
22	22	12-1 (VD)	D, R	D, R	D, R	
23	23	12-2 (VD)	D, R	D, R	D, R	
24	24	12-3 (VD)	D, R	D, R	D, R	
25	25	12-4 (VD)	D, R	D, R	D, R	
26	26	6-4 (VB)	D, R	D, R	D, R	
27	27	6-3 (VB)	D, R	D, R	D, R	
28	28	6-2 (VB)	D, R	D, R	D, R	
29	29	6-1 (VB)	D, R	D, R	D, R	

Interface pin #	BruControl port #	UniShield UM-1 Terminal	E	W	S	User Description (record device type and device connected)
		Connection ->	TCP (Network)		Serial	<- Connection
		Wiring Map ->	Default	Wi-Fi	Default	<- Wiring Map
		Firmware Prefix ->	BruControl.45E.GrandCentral.			<- Firmware Prefix
		Firmware Suffix ->				<- Firmware Suffix
30	30	5-4 (VB)	D, R	D, R	D, R	
31	31	5-3 (VB)	D, R	D, R	D, R	
32	32	5-2 (VB)	D, R	D, R	D, R	
33	33	5-1 (VB)	D, R	D, R	D, R	
34	34	4-4 (VB)	D, R	D, R	D, R	
35	35	4-3 (VB)	D, R	D, R	D, R	
36	36	4-2 (VB)	D, R	D, R	D, R	
37	37	4-1 (VB)	D, R	D, R	D, R	
38	38	1-1 (VA)	D, R	D, R	D, R	
39	39	1-2 (VA)	D, R	D, R	D, R	
40	40	1-3 (VA)	D, R	D, R	D, R	
41	41	1-4 (VA)	D, R	D, R	D, R	
42	42	2-1 (VA)	D, R	D, R	D, R	
43	43	2-2 (VA)	D, R	D, R	D, R	
44	44	2-3 (VA)	D, R	D, R	D, R	
45	45	2-4 (VA)	D, P, R	D, P, R	D, P, R	
46	46	3-1 (VA)	D, R	D, R	D, R	
47	47	3-2 (VA)	D, R	D, R	D, R	
48	48	3-3 (VA)	D, P, R	D, P, R	D, P, R	
49	49	3-4 (VA)	D, R	D, R	D, R	
50	50	N/A	N/C	N/C	N/C	
51	51	N/A	N/C	N/C	N/C	
52	52	N/A	N/C	N/C	N/C	
53	53	N/A	N/C	N/C	N/C	
A0	100	N/A	A	A	A	
A1	101	N/A	A	A	A	
A2	102	N/A	A	A	A	
A3	103	N/A	A	A	A	
A4	104	N/A	A	A	A	

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Wiring Map ->			Default	Wi-Fi	Default	<- Wiring Map
Firmware Prefix ->			BruControl.45E.GrandCentral.			<- Firmware Prefix
Firmware Suffix ->						<- Firmware Suffix
Interface pin #	**BruControl port #**	**UniShield UM-1 Terminal**	**E**	**W**	**S**	**User Description** (record device type and device connected)
A5	105	N/A	A	A	A	
A6	106	N/A	A	A	A	
A7	107	N/A	A	A	A	
A8	108	N/A	A	A	A	
A9	109	N/A	A	A	A	
A10	110	N/A	A	A	A	
A11	111	N/A	A	A	A	
A12	112	N/A	A	A	A	
A13	113	N/A	A	A	A	
A14	114	N/A	A	A	A	
A15	115	N/A	A	A	A	

Notes / Key

Instructions: Select the column for firmware used. Wire each interface pin per possible input/outputs. Select device's corresponding port in BruControl.

Default Ethernet (E) shield/boards must be Wiznet 5500 based. Wi-Fi (W) shields/boards must be Atmel WINC1500 based.

Interface Wiring Map Codes:

D = Digital Input or Digital Output (Note: Input can be 3.3V active high or low, output is 3.3V). * indicates Digital Output only.

P = PWM Output (Note: Output is 3.3V peak. Frequency is ~500 or ~1000 Hz. Create Analog Output using RC filter or Analog Amplifier Board).

C = Counter Input (Note: trigger is falling edge. Sensor must pull up/down 3.3V, otherwise an external resistor is needed).

A = Analog Input (Note: range is compared to AREF, which is tied to 3.3V... also 3.3V is maximum input).

O = 1-Wire Input (Note: all 1-wire data pins must be tied to only one interface pin. All sensors are addressed by virtual ports 200 - 209 in BruControl).

R = RTD Input (via SPI board). Wire CS pin from each individual boards to these pins only. Other board pins wired in parallel - see RTD schematic.

L = Onboard LED (Note: connecting to "Active Low" or "Low Trigger" relay board may light LED when device is disabled in BruControl).

Duty Cycle and Hysteresis devices use a Digital Output (D).

PID and Deadband devices on pins with both Digital (D) and PWM Output (P) will use PWM Output.

For binary switches (e.g. SSR), select pin without PWM Output (P).

Analog Reference pin (AREF) should be tied to +3.3V or less to measure analog voltage inputs.

Maximum current (sink or source) per pin is 8mA. Recommend <5mA. Total current from all concurrent I/O max is 150 mA.