H663/H704 MODBUS POINT MAP
(100 AMP MODELS)

All Modbus variables are stored in 16-bit integer format.

Register	R/W	NV	Description	Channel
Channel Current (real time current for each channel, expressed in mA)				
1	R		Current (mA)	1
2	R		Current (mA)	2
3	R		Current (mA)	3
4	R		Current (mA)	4
5	R		Current (mA)	5
6	R		Current (mA)	6
7	R		Current (mA)	7
8	R		Current (mA)	8
9	R		Current (mA)	9
10	R		Current (mA)	10
11	R		Current (mA)	11
12	R		Current (mA)	12
13	R		Current (mA)	13
14	R		Current (mA)	14
15	R		Current (mA)	15
16	R		Current (mA)	16
17	R		Current (mA)	17
18	R		Current (mA)	18
19	R		Current (mA)	19
20	R		Current (mA)	20
21	R		Current (mA)	21
22	R		Current (mA)	22
23	R		Current (mA)	23
24	R		Current (mA)	24
25	R		Current (mA)	25
26	R		Current (mA)	26
27	R		Current (mA)	27
28	R		Current (mA)	28
29	R		Current (mA)	29
30	R		Current (mA)	30
31	R		Current (mA)	31
32	R		Current (mA)	32
33	R		Current (mA)	33
34	R		Current (mA)	34
35	R		Current (mA)	35

LEGEND
R/W: R = Read-Only   R/W = Read/Write   W = Write-Only
NV: Value is stored in non-volatile memory

Register	R/W	NV	Description	Channel
36	R		Current (mA)	36
37	R		Current (mA)	37
38	R		Current (mA)	38
39	R		Current (mA)	39
40	R		Current (mA)	40
41	R		Current (mA)	41
42	R		Current (mA)	42
Global Warning/Alarm Register: provides quick status of alarms for the unit. A bit in this register is set if any bit in the indicated register is set.				
43	R	NV	Global Warning/Alarm Register bit 0 = Warning register 1 bit 1 = Warning register 2 bit 2 = Warning register 3 bit 3 = Warning register 1 bit 4 = Warning register 2 bit 5 = Warning register 3 bit 6 = Error register bit 7-15 = Always set to 0	N/A
Warning Registers: set a bit for every channel that reads a current above the Warning Threshold but below the Alarm Threshold for at least the Warning Time-Delay. All alarms are latching and must be reset by the controller. To reset, read the register and write with the desired bit cleared.				
44	R/W	NV	Warning Register 1 bit 0 = Channel 1 bit 6 = Channel 7 bit 12 = Channel 13 bit 1 = Channel 2 bit 7 = Channel 8 bit 13 = Channel 14 bit 2 = Channel 3 bit 8 = Channel 9 bit 14 = Channel 15 bit 3 = Channel 4 bit 9 = Channel 10 bit 15 = Channel 16 bit 4 = Channel 5 bit 10 = Channel 11 bit 5 = Channel 6 bit 11 = Channel 12	All
45	R/W	NV	Warning Register 2 bit 0 = Channel 17 bit 6 = Channel 23 bit 12 = Channel 29 bit 1 = Channel 18 bit 7 = Channel 24 bit 13 = Channel 30 bit 2 = Channel 19 bit 8 = Channel 25 bit 14 = Channel 31 bit 3 = Channel 20 bit 9 = Channel 26 bit 15 = Channel 32 bit 4 = Channel 21 bit 10 = Channel 27 bit 5 = Channel 22 bit 11 = Channel 28	All
46	R/W	NV	Warning Register 3 bit 0 = Channel 33 bit 6 = Channel 39 bit 1 = Channel 34 bit 7 = Channel 40 bit 2 = Channel 35 bit 8 = Channel 41 bit 3 = Channel 36 bit 9 = Channel 42 bit 4 = Channel 37 bit 10-15 = Always set to 0 bit 5 = Channel 38	All

Register	R/W	NV	Description	Channel
			Alarm Registers: set a bit for every channel that reads a current above the Alarm Threshold for at least the Alarm Time-Delay. All alarms are latching and must be reset by the controller. To reset, read the register and write with the desired bit cleared.	
47	R/W	NV	Alarm Register 1 bit 0 = Channel 1 bit 6 = Channel 7 bit 12 = Channel 13 bit 1 = Channel 2 bit 7 = Channel 8 bit 13 = Channel 14 bit 2 = Channel 3 bit 8 = Channel 9 bit 14 = Channel 15 bit 3 = Channel 4 bit 9 = Channel 10 bit 15 = Channel 16 bit 4 = Channel 5 bit 10 = Channel 11 bit 5 = Channel 6 bit 11 = Channel 12	All
48	R/W	NV	Alarm Register 2 bit 0 = Channel 17 bit 6 = Channel 23 bit 12 = Channel 29 bit 1 = Channel 18 bit 7 = Channel 24 bit 13 = Channel 30 bit 2 = Channel 19 bit 8 = Channel 25 bit 14 = Channel 31 bit 3 = Channel 20 bit 9 = Channel 26 bit 15 = Channel 32 bit 4 = Channel 21 bit 10 = Channel 27 bit 5 = Channel 22 bit 11 = Channel 28	All
49	R/W	NV	Warning Register 3 bit 0 = Channel 33 bit 6 = Channel 39 bit 1 = Channel 34 bit 7 = Channel 40 bit 2 = Channel 35 bit 8 = Channel 41 bit 3 = Channel 36 bit 9 = Channel 42 bit 4 = Channel 37 bit 10-15 = Always set to 0 bit 5 = Channel 38	All
			Firmware Version: internal firmware manufacturing codes.	
50	R	NV	Firmware Version Number	N/A
51	R	NV	Firmware Revision Level	N/A
			Breaker Size: set the capacity of each breaker for the alarms. Expressed in Amps. Range = 10 to 100 Amp; default = 20 Amp	
52	R/W	NV	Breaker Size	1
53	R/W	NV	Breaker Size	2
54	R/W	NV	Breaker Size	3
55	R/W	NV	Breaker Size	4
56	R/W	NV	Breaker Size	5
57	R/W	NV	Breaker Size	6
58	R/W	NV	Breaker Size	7
59	R/W	NV	Breaker Size	8
60	R/W	NV	Breaker Size	9
61	R/W	NV	Breaker Size	10
62	R/W	NV	Breaker Size	11
63	R/W	NV	Breaker Size	12
64	R/W	NV	Breaker Size	13
65	R/W	NV	Breaker Size	14
66	R/W	NV	Breaker Size	15
67	R/W	NV	Breaker Size	16
68	R/W	NV	Breaker Size	17
69	R/W	NV	Breaker Size	18
70	R/W	NV	Breaker Size	19

LEGEND
R/W: R = Read-Only   R/W = Read/Write   W = Write-Only
NV: Value is stored in non-volatile memory

Register	R/W	NV	Description	Channel
71	R/W	NV	Breaker Size	20
72	R/W	NV	Breaker Size	21
73	R/W	NV	Breaker Size	22
74	R/W	NV	Breaker Size	23
75	R/W	NV	Breaker Size	24
76	R/W	NV	Breaker Size	25
77	R/W	NV	Breaker Size	26
78	R/W	NV	Breaker Size	27
79	R/W	NV	Breaker Size	28
80	R/W	NV	Breaker Size	29
81	R/W	NV	Breaker Size	30
82	R/W	NV	Breaker Size	31
83	R/W	NV	Breaker Size	32
84	R/W	NV	Breaker Size	33
85	R/W	NV	Breaker Size	34
86	R/W	NV	Breaker Size	35
87	R/W	NV	Breaker Size	36
88	R/W	NV	Breaker Size	37
89	R/W	NV	Breaker Size	38
90	R/W	NV	Breaker Size	39
91	R/W	NV	Breaker Size	40
92	R/W	NV	Breaker Size	41
93	R/W	NV	Breaker Size	42
Warning Threshold: set the threshold levels for the Warning registers. A Warning occurs when the measured current is greater than the Warning Threshold but less than the Alarm Threshold for at least the Warning Time Delay. Note that a warning is not always generated if the current instantaneously jumps from below the Warning Threshold to a level above the Alarm Threshold. Expressed in % (e.g. 75 = 75%) based on the breaker size (registers 52-93). Range = 0-100; default = 70.				
94	R/W	NV	Warning Threshold	1
95	R/W	NV	Warning Threshold	2
96	R/W	NV	Warning Threshold	3
97	R/W	NV	Warning Threshold	4
98	R/W	NV	Warning Threshold	5
99	R/W	NV	Warning Threshold	6
100	R/W	NV	Warning Threshold	7
101	R/W	NV	Warning Threshold	8
102	R/W	NV	Warning Threshold	9
103	R/W	NV	Warning Threshold	10
104	R/W	NV	Warning Threshold	11
105	R/W	NV	Warning Threshold	12
106	R/W	NV	Warning Threshold	13
107	R/W	NV	Warning Threshold	14
108	R/W	NV	Warning Threshold	15

LEGEND
R/W: R = Read-Only   R/W = Read/Write   W = Write-Only
NV: Value is stored in non-volatile memory

Register	R/W	NV	Description	Channel
109	R/W	NV	Warning Threshold	16
110	R/W	NV	Warning Threshold	17
111	R/W	NV	Warning Threshold	18
112	R/W	NV	Warning Threshold	19
113	R/W	NV	Warning Threshold	20
114	R/W	NV	Warning Threshold	21
115	R/W	NV	Warning Threshold	22
116	R/W	NV	Warning Threshold	23
117	R/W	NV	Warning Threshold	24
118	R/W	NV	Warning Threshold	25
119	R/W	NV	Warning Threshold	26
120	R/W	NV	Warning Threshold	27
121	R/W	NV	Warning Threshold	28
122	R/W	NV	Warning Threshold	29
123	R/W	NV	Warning Threshold	30
124	R/W	NV	Warning Threshold	31
125	R/W	NV	Warning Threshold	32
126	R/W	NV	Warning Threshold	33
127	R/W	NV	Warning Threshold	34
128	R/W	NV	Warning Threshold	35
129	R/W	NV	Warning Threshold	36
130	R/W	NV	Warning Threshold	37
131	R/W	NV	Warning Threshold	38
132	R/W	NV	Warning Threshold	39
133	R/W	NV	Warning Threshold	40
134	R/W	NV	Warning Threshold	41
135	R/W	NV	Warning Threshold	42
Alarm Threshold: set the threshold levels for the Alarm registers. An Alarm occurs when the measured current is greater than the Alarm Threshold for at least the Alarm Time Delay. Expressed in % (e.g. 75 = 75%) based on the breaker size (registers 52-93). Range = 0-100; default = 80.				
136	R/W	NV	Alarm Threshold (%)	1
137	R/W	NV	Alarm Threshold (%)	2
138	R/W	NV	Alarm Threshold (%)	3
139	R/W	NV	Alarm Threshold (%)	4
140	R/W	NV	Alarm Threshold (%)	5
141	R/W	NV	Alarm Threshold (%)	6
142	R/W	NV	Alarm Threshold (%)	7
143	R/W	NV	Alarm Threshold (%)	8
144	R/W	NV	Alarm Threshold (%)	9
145	R/W	NV	Alarm Threshold (%)	10
146	R/W	NV	Alarm Threshold (%)	11
147	R/W	NV	Alarm Threshold (%)	12

LEGEND
R/W: R = Read-Only   R/W = Read/Write   W = Write-Only
NV: Value is stored in non-volatile memory

Register	R/W	NV	Description	Channel
148	R/W	NV	Alarm Threshold (%)	13
149	R/W	NV	Alarm Threshold (%)	14
150	R/W	NV	Alarm Threshold (%)	15
151	R/W	NV	Alarm Threshold (%)	16
152	R/W	NV	Alarm Threshold (%)	17
153	R/W	NV	Alarm Threshold (%)	18
154	R/W	NV	Alarm Threshold (%)	19
155	R/W	NV	Alarm Threshold (%)	20
156	R/W	NV	Alarm Threshold (%)	21
157	R/W	NV	Alarm Threshold (%)	22
158	R/W	NV	Alarm Threshold (%)	23
159	R/W	NV	Alarm Threshold (%)	24
160	R/W	NV	Alarm Threshold (%)	25
161	R/W	NV	Alarm Threshold (%)	26
162	R/W	NV	Alarm Threshold (%)	27
163	R/W	NV	Alarm Threshold (%)	28
164	R/W	NV	Alarm Threshold (%)	29
165	R/W	NV	Alarm Threshold (%)	30
166	R/W	NV	Alarm Threshold (%)	31
167	R/W	NV	Alarm Threshold (%)	32
168	R/W	NV	Alarm Threshold (%)	33
169	R/W	NV	Alarm Threshold (%)	34
170	R/W	NV	Alarm Threshold (%)	35
171	R/W	NV	Alarm Threshold (%)	36
172	R/W	NV	Alarm Threshold (%)	37
173	R/W	NV	Alarm Threshold (%)	38
174	R/W	NV	Alarm Threshold (%)	39
175	R/W	NV	Alarm Threshold (%)	40
176	R/W	NV	Alarm Threshold (%)	41
177	R/W	NV	Alarm Threshold (%)	42
Warning Time Delay: set the minimum time required for the current to remain above the Warning Threshold before the Warning Alarm is set. Expressed in seconds; range = 0 to 65535; default = 0				
178	R/W	NV	Warning Time Delay	1
179	R/W	NV	Warning Time Delay	2
180	R/W	NV	Warning Time Delay	3
181	R/W	NV	Warning Time Delay	4
182	R/W	NV	Warning Time Delay	5
183	R/W	NV	Warning Time Delay	6
184	R/W	NV	Warning Time Delay	7
185	R/W	NV	Warning Time Delay	8
186	R/W	NV	Warning Time Delay	9

LEGEND
R/W: R = Read-Only   R/W = Read/Write   W = Write-Only
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Register	R/W	NV	Description	Channel
187	R/W	NV	Warning Time Delay	10
188	R/W	NV	Warning Time Delay	11
189	R/W	NV	Warning Time Delay	12
190	R/W	NV	Warning Time Delay	13
191	R/W	NV	Warning Time Delay	14
192	R/W	NV	Warning Time Delay	15
193	R/W	NV	Warning Time Delay	16
194	R/W	NV	Warning Time Delay	17
195	R/W	NV	Warning Time Delay	18
196	R/W	NV	Warning Time Delay	19
197	R/W	NV	Warning Time Delay	20
198	R/W	NV	Warning Time Delay	21
199	R/W	NV	Warning Time Delay	22
200	R/W	NV	Warning Time Delay	23
201	R/W	NV	Warning Time Delay	24
202	R/W	NV	Warning Time Delay	25
203	R/W	NV	Warning Time Delay	26
204	R/W	NV	Warning Time Delay	27
205	R/W	NV	Warning Time Delay	28
206	R/W	NV	Warning Time Delay	29
207	R/W	NV	Warning Time Delay	30
208	R/W	NV	Warning Time Delay	31
209	R/W	NV	Warning Time Delay	32
210	R/W	NV	Warning Time Delay	33
211	R/W	NV	Warning Time Delay	34
212	R/W	NV	Warning Time Delay	35
213	R/W	NV	Warning Time Delay	36
214	R/W	NV	Warning Time Delay	37
215	R/W	NV	Warning Time Delay	38
216	R/W	NV	Warning Time Delay	39
217	R/W	NV	Warning Time Delay	40
218	R/W	NV	Warning Time Delay	41
219	R/W	NV	Warning Time Delay	42
Alarm Time Delay: set the minimum time required for the current to remain above the Alarm Threshold before the Alarm is set. Expressed in seconds; range = 0 to 65535; default = 10				
220	R/W	NV	Alarm Time Delay (seconds)	1
221	R/W	NV	Alarm Time Delay (seconds)	2
222	R/W	NV	Alarm Time Delay (seconds)	3
223	R/W	NV	Alarm Time Delay (seconds)	4
224	R/W	NV	Alarm Time Delay (seconds)	5
225	R/W	NV	Alarm Time Delay (seconds)	6
226	R/W	NV	Alarm Time Delay (seconds)	7

LEGEND
R/W: R = Read-Only   R/W = Read/Write   W = Write-Only
NV: Value is stored in non-volatile memory

Register	R/W	NV	Description	Channel
227	R/W	NV	Alarm Time Delay (seconds)	8
228	R/W	NV	Alarm Time Delay (seconds)	9
229	R/W	NV	Alarm Time Delay (seconds)	10
230	R/W	NV	Alarm Time Delay (seconds)	11
231	R/W	NV	Alarm Time Delay (seconds)	12
232	R/W	NV	Alarm Time Delay (seconds)	13
233	R/W	NV	Alarm Time Delay (seconds)	14
234	R/W	NV	Alarm Time Delay (seconds)	15
235	R/W	NV	Alarm Time Delay (seconds)	16
236	R/W	NV	Alarm Time Delay (seconds)	17
237	R/W	NV	Alarm Time Delay (seconds)	18
238	R/W	NV	Alarm Time Delay (seconds)	19
239	R/W	NV	Alarm Time Delay (seconds)	20
240	R/W	NV	Alarm Time Delay (seconds)	21
241	R/W	NV	Alarm Time Delay (seconds)	22
242	R/W	NV	Alarm Time Delay (seconds)	23
243	R/W	NV	Alarm Time Delay (seconds)	24
244	R/W	NV	Alarm Time Delay (seconds)	25
245	R/W	NV	Alarm Time Delay (seconds)	26
246	R/W	NV	Alarm Time Delay (seconds)	27
247	R/W	NV	Alarm Time Delay (seconds)	28
248	R/W	NV	Alarm Time Delay (seconds)	29
249	R/W	NV	Alarm Time Delay (seconds)	30
250	R/W	NV	Alarm Time Delay (seconds)	31
251	R/W	NV	Alarm Time Delay (seconds)	32
252	R/W	NV	Alarm Time Delay (seconds)	33
253	R/W	NV	Alarm Time Delay (seconds)	34
254	R/W	NV	Alarm Time Delay (seconds)	35
255	R/W	NV	Alarm Time Delay (seconds)	36
256	R/W	NV	Alarm Time Delay (seconds)	37
257	R/W	NV	Alarm Time Delay (seconds)	38
258	R/W	NV	Alarm Time Delay (seconds)	39
259	R/W	NV	Alarm Time Delay (seconds)	40
260	R/W	NV	Alarm Time Delay (seconds)	41
261	R/W	NV	Alarm Time Delay (seconds)	42

LEGEND
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Register	R/W	NV	Description	Channel
Other Registers				
262	R	NV	Serial Number - Most Significant Word	N/A
263	R	NV	Serial Number - Least Significant Word	N/A
264	R	NV	RESERVED - Production Testing Use Only	N/A
265	R	NV	RESERVED - Production Testing Use Only	N/A
266	R	NV	RESERVED - Production Testing Use Only	N/A
267	R	NV	Internal Errors bit 0: NV Ram error bits 1-15: Reserved for future use. This register reports internal errors detected by the microcontroller. The ALIVE LED is steadily lit (not blinking) if any errors are detected.	N/A
268	W		Global Breaker Size: Set ALL Channels to Specified Breaker Size	ALL
269	W		Global Warning Threshold: Set ALL Channels to Specified Warning Threshold	ALL
270	W		Global Alarm Threshold: Set ALL Channels to Specified Alarm Threshold Value	ALL
271	W		Global Warning Time Delay: Set ALL Channels to Specified Warning Time Delay	ALL
272	W		Global Alarm Time Delay: Set ALL Channels to Specified Alarm Time Delay	ALL
273	R	NV	SMS Device ID Value (15026)	N/A
274	R/W	NV	Unit Identifier: First 2 Characters of Board Name (Default: 'BR')	N/A
275	R/W	NV	Unit Identifier: Next 2 Characters of Board Name (Default: 'D1')	N/A

Supported Modbus Commands

Read Holding register (03h), Preset Single register (06h), Report Slave ID (11h)