VERIS INDUSTRIES

H663/704 Modbus® Pointmap

50A versions

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

CHANNEL CURRENT

Reg #	R/W	NV	Description	Channel
1-42	R/W	NV	Current by Channel	ALL

Registers 1-42 represent the real-time current for each channel (circuit) expressed in milliamps (10000 = 10.000Amps)

Reg #	R/W	NV	Description	Channel
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

Reg #	R/W	NV	Current (mA)	Channel
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
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

LEGEND

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

GLOBAL WARNING/ALARM REGISTER

Reg #	R/W	NV	Description	Channel
43	R	NV	Global Warning/Alarm Register	N/A

This register provides a quick status of alarms for the unit. A bit in this register is set if any bit in the indicated register is set.

bit 0	Warning Register 1
bit 1	Warning Register 2
bit 2	Warning Register 3
bit 3	Alarm Register 1
bit 4	Alarm Register 2
bit 5	Alarm Register 3
bit 6	Error Register
bits 7-15	Always 0

WARNING REGISTERS

Reg #	R/W	NV	Description	Channel
44, 45, 46	R/W	NV	Warning Register 1, 2, 3	ALL

The following Warning Registers set a bit for every channel which 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 any alarm, read the register and then write the register with the desired alarm bit cleared.

44 R/W NV Warning Register 1

bit 0	Channel 1
bit 1	Channel 2
bit 2	Channel 3
bit 3	Channel 4
bit 4	Channel 5
bit 5	Channel 6
bit 6	Channel 7
bit 7	Channel 8
bit 8	Channel 9
bit 9	Channel 10
bit 10	Channel 11
bit 11	Channel 12
bit 12	Channel 13
bit 13	Channel 14
bit 14	Channel 15
bit 15	Channel 16

45 R/W NV Warning Register 2

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

46 R/W NV Warning Register 3

bit 0	Channel 33
bit 1	Channel 34
bit 2	Channel 35
bit 3	Channel 36
bit 4	Channel 37
bit 5	Channel 38
bit 6	Channel 39
bit 7	Channel 40
bit 8	Channel 41
bit 9	Channel 42
bits 10-15	Always 0

LEGEND

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

ALARM REGISTERS

Reg #	R/W	NV	Description	Channel
47, 48, 49	R/W	NV	Alarm Register 1, 2, 3	ALL

The following Alarm Registers set a bit for every channel which 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 any alarm, read the register and then write the register with the desired alarm bit cleared.

47 R/W NV Alarm Register 1

bit 0	Channel 1
bit 1	Channel 2
bit 2	Channel 3
bit 3	Channel 4
bit 4	Channel 5
bit 5	Channel 6
bit 6	Channel 7
bit 7	Channel 8
bit 8	Channel 9
bit 9	Channel 10
bit 10	Channel 11
bit 11	Channel 12
bit 12	Channel 13
bit 13	Channel 14
bit 14	Channel 15
bit 15	Channel 16

48 R/W NV Alarm Register 2

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

49 R/W NV Alarm Register 3

bit 0	Channel 33
bit 1	Channel 34
bit 2	Channel 35
bit 3	Channel 36
bit 4	Channel 37
bit 5	Channel 38
bit 6	Channel 39
bit 7	Channel 40
bit 8	Channel 41
bit 9	Channel 42
bits 10-15	Always 0

FIRMWARE VERSION

Reg #	R	NV	Description	Channel
50, 51	R	NV	Product Firmware Version and Revision Values	N/A

These two registers list the internal firmware manufacturing codes

Reg #	R/W	NV	Description
50	R	NV	Firmware Version Number
51	R	NV	Firmware Revision Level

LEGEND

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

BREAKER SIZE

Reg #	R	NV	Description	Channel
52-93	R/W	NV	Breaker Size for Each Channel	ALL

The following Breaker Size registers set the capacity of each breaker for the alarms. Units are in Amps (10 = 10Amps). Range = 10 to 50. All channels are defaulted to 20.

Reg #	R	NV	Description	Channel
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
71	R/W	NV	Breaker Size	20
72	R/W	NV	Breaker Size	21

Reg #	R	NV	Description	Channel
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

LEGEND

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

WARNING THRESHOLD

Reg #	R	NV	Description	Channel
94-135	R/W	NV	Warning Threshold for Each Channel	ALL

The Warning Threshold registers set the threshold levels for the Warning registers. A Warning will occur if the measured current is above the Warning Threshold but below the Alarm Threshold for at least the Warning Time Delay*. Units are percentages (e.g. 75 = 75%), based on the breaker size determined from registers 52-93. Range is 0-100. Default is 70%.
*Note that a Warning will not always be generated if the current instantaneously jumps from below the Warning Threshold to a level above the Alarm Threshold.

Reg #	R	NV	Description	Channel
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
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

Reg #	R	NV	Description	Channel
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

LEGEND

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

ALARM THRESHOLD

Reg #	R	NV	Description	Channel
136-177	R/W	NV	Alarm Threshold for Each Channel	ALL

The Alarm Threshold registers set the threshold levels for the Alarm registers. An Alarm will occur if the measured current is above the Alarm Threshold for at least the Alarm Time Delay. Units are percentages, based on the breaker size determined from registers 52-93 (e.g. 75 = 75%). Range is 0-100. Default is 80%.

Reg #	R	NV	Description	Channel
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
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

Reg #	R	NV	Description	Channel
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

LEGEND

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

WARNING TIME DELAY

Reg #	R	NV	Description	Channel
178-219	R/W	NV	Warning Time Delay for Each Channel (seconds)	ALL

Each of the following Warning Time Delay registers set the minimum time required for the current to exist above the Warning Threshold before the Warning alarm is set. Units are in seconds. Range is 0-65535. Default is all set to 0.

Reg #	R	NV	Description	Channel
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
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

Reg #	R	NV	Description	Channel
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

LEGEND

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

ALARM TIME DELAY

Reg #	R	NV	Description	Channel
220-261	R/W	NV	Alarm Time Delay for Each Channel (seconds)	ALL

Each of the Alarm Time Delay registers set the minimum time required for the current to remain above the Alarm Threshold before the Alarm is set. Units are in seconds. Range is 0-65535. Default is 10.

Reg #	R	NV	Description	Channel
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
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

Reg #	R	NV	Description	Channel
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

SERIAL NUMBER

Reg #	R	NV	Description	Channel
262-263	R	NV	Serial Number of the Product	N/A

Provides serial number information for the device.

Reg #	R	NV	Description
262	R	NV	Serial Number - Most Significant Word
263	R	NV	Serial Number - Least Significant Word

PRODUCTION TEST

Reg #	R	NV	Description	Channel
264-266	R	NV	RESERVED - Production Testing Use Only	N/A

GLOBAL ERROR

Reg #	R	NV	Description	Channel
267	R	NV	Internal Errors bit 0: NV Ram error bits 1-15: Reserved for future use.	N/A

This register reports internal errors detected by the microcontroller. The ALIVE LED will be steadily lit if any errors are detected.

GLOBAL BREAKER SIZE

Reg #	R	NV	Description	Channel
268	W		Set ALL Channels to Specified Breaker Size	ALL

Writing this register will set all the Breaker Size registers to the value written.

GLOBAL WARNING THRESHOLD

Reg #	R	NV	Description	Channel
269	W		Set ALL Channels to Specified Warning Threshold	ALL

Writing this register will set all the Warning Threshold registers to the value written.

GLOBAL ALARM THRESHOLD

Reg #	R	NV	Description	Channel
270	W		Set ALL Channels to Specified Alarm Threshold Value	ALL

Writing this register will set all the Alarm Threshold registers to the value written.

GLOBAL WARNING TIME DELAY

Reg #	R	NV	Description	Channel
271	W		Set ALL Channels to Specified Warning Time Delay	ALL

Writing this register will set all the Warning Time Delay registers to the value written.

GLOBAL ALARM TIME DELAY

Reg #	R	NV	Description	Channel
272	W		Set ALL Channels to Specified Alarm Time Delay	ALL

Writing this register will set all the Alarm Time Delay registers to the value written.

SMS DEVICE IDENTIFICATION

Reg #	R	NV	Description	Channel
273	R	NV	SMS Device ID Value (15026)	N/A

Read the ID value for the product.

UNIT IDENTIFIER

Reg #	R	NV	Description	Channel
273-274	R/W	NV	Four Character (two-word) Device Identification String	N/A

Read/Set the Unit Level Name.

Reg #	R/W	NV	Description
274	R/W	NV	First 2 Characters of Board Name (Default: 'BR')
275	R/W	NV	Next 2 Characters of Board Name (Default: 'D1')

SUPPORTED MODBUS COMMANDS

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