P/N: 5700-9002
Revision 0
October 2012

BACnet® Protocol Converter Kit for Use with Bacharach GDA-1600 Controller

Installation Manual

1. Scope

The FieldServer™ ProtoNode is a BACnet protocol converter accessory for use with Bacharach's GDA-1600 gas monitors. This manual explains the installation procedure and outlines the MODBUS registers that are supported by the ProtoNode configuration files.

Figure 1. FieldServer™ ProtoNode

2. Items Required

- Small flat head screwdriver
- FieldServer ProtoNode Protocol Converter
- Mounting hardware and tools
- Appropriate power, network, and ground wires

WARNING: Failure to comply with these instructions may void the warranty.

3. Mounting the ProtoNode

Mount the ProtoNode near the GDA-1600 enclosure.

NOTE: You must supply all necessary mounting hardware for the ProtoNode.

4. Connecting the Power Supply

The ProtoNode can be powered by 9-30 VDC or 12-24 VAC. The power cable is inserted into the terminal block connector on the ProtoNode. A green cable should be used for grounding. Connections are illustrated in the photo and chart below.

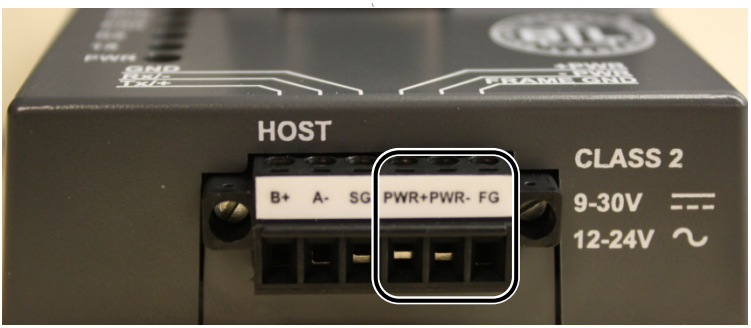

Figure 2. Power Connections

Pin No	Silkscreen	Connector Labels
Pin 4	+ PWR	PWR +
Pin 5	- PWR	PWR -
Pin 6	FRAME GND	FG

NOTE: You must supply all necessary wiring, an appropriate power supply, and a grounding point for wiring the ProtoNode.

5. RS-485 Network Wiring

The RS-485 bus should be wired in accordance with the practices described in the GDA-1600 manual and FieldServer's ProtoNode documentation. Connections are illustrated in the photo and chart below. Network wiring is not supplied in this kit.

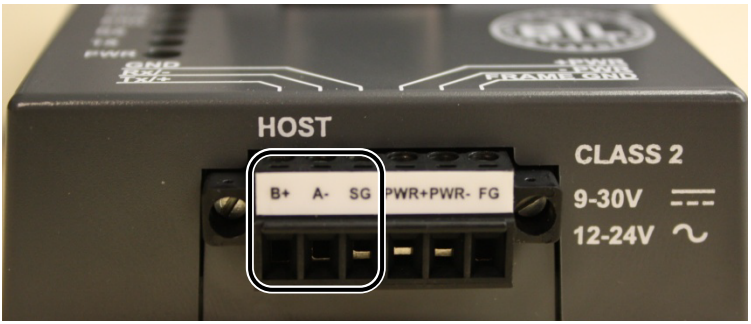

Figure 3. RS-485 Network Connections

Pin No	Silkscreen	Connector Labels
Pin 1	Tx/+	B+
Pin 2	Rx/-	A–
Pin 3	GND	SG

6. Network Configuration

The ProtoNode is factory-configured with the following defaults.

- Default IP Address 192.168.1.24
- Default Subnet Mask 255.255.255.0

If a different IP address or subnet mask is desired, or for other configuration settings, please refer to the appropriate FieldServer™ documentation.

7. Supported MODBUS Registers

The following is a list of the GDA-1600's MODBUS registers that are supported by the current revision of our ProtoNode configuration files.

Obj ID	Map Descriptor Name (MODBUS Register Desc)	BACnet Object Type	Access (R=Read, W=Write)	Source MODBUS Register Number
1	Channel Tag [1]	AI	R	0x9DD1
2		AI	R	0x9DD2
3		AI	R	0x9DD3
4		AI	R	0x9DD4
5		AI	R	0x9DD5
6		AI	R	0x9DD6
7		AI	R	0x9DD7
8		AI	R	0x9DD8
9	Channel Tag [2]	AI	R	0x9DD9
10		AI	R	0x9DDA
11		AI	R	0x9DDB
12		AI	R	0x9DDC
13		AI	R	0x9DDD
14		AI	R	0x9DDE
15		AI	R	0x9DDF
16		AI	R	0x9DE0
17	Channel Tag [3]	AI	R	0x9DE1
18		AI	R	0x9DE2
19		AI	R	0x9DE3
20		AI	R	0x9DE4
21		AI	R	0x9DE5
22		AI	R	0x9DE6
23		AI	R	0x9DE7
24		AI	R	0x9DE8

Obj ID	Map Descriptor Name (MODBUS Register Desc)	BACnet Object Type	Access (R=Read, W=Write)	Source MODBUS Register Number
25	Channel Tag [4]	AI	R	0x9DE9
26		AI	R	0x9DEA
27		AI	R	0x9DEB
28		AI	R	0x9DEC
29		AI	R	0x9DED
30		AI	R	0x9DEE
31		AI	R	0x9DEF
32		AI	R	0x9DF0
33	Channel Tag [5]	AI	R	0x9DF1
34		AI	R	0x9DF2
35		AI	R	0x9DF3
36		AI	R	0x9DF4
37		AI	R	0x9DF5
38		AI	R	0x9DF6
39		AI	R	0x9DF7
40		AI	R	0x9DF8
41	Channel Tag [6]	AI	R	0x9DF9
42		AI	R	0x9DFA
43		AI	R	0x9DFB
44		AI	R	0x9DFC
45		AI	R	0x9DFD
46		AI	R	0x9DFE
47		AI	R	0x9DFF
48		AI	R	0x9E00
49	Channel Tag [7]	AI	R	0x9E01
50		AI	R	0x9E02
51		AI	R	0x9E03
52		AI	R	0x9E04
53		AI	R	0x9E05
54		AI	R	0x9E06
55		AI	R	0x9E07
56		AI	R	0x9E08
57	Channel Tag [8]	AI	R	0x9E09
58		AI	R	0x9E0A
59		AI	R	0x9E0B
60		AI	R	0x9E0C
61		AI	R	0x9E0D
62		AI	R	0x9E0E
63		AI	R	0x9E0F
64		AI	R	0x9E10

Obj ID	Map Descriptor Name (MODBUS Register Desc)	BACnet Object Type	Access (R=Read, W=Write)	Source MODBUS Register Number
65	Channel Tag [9]	AI	R	0x9E11
66		AI	R	0x9E12
67		AI	R	0x9E13
68		AI	R	0x9E14
69		AI	R	0x9E15
70		AI	R	0x9E16
71		AI	R	0x9E17
72		AI	R	0x9E18
73	Channel Tag [10]	AI	R	0x9E19
74		AI	R	0x9E1A
75		AI	R	0x9E1B
76		AI	R	0x9E1C
77		AI	R	0x9E1D
78		AI	R	0x9E1E
79		AI	R	0x9E1F
80		AI	R	0x9E20
81	Channel Tag [11]	AI	R	0x9E21
82		AI	R	0x9E22
83		AI	R	0x9E23
84		AI	R	0x9E24
85		AI	R	0x9E25
86		AI	R	0x9E26
87		AI	R	0x9E27
88		AI	R	0x9E28
89	Channel Tag [12]	AI	R	0x9E29
90		AI	R	0x9E2A
91		AI	R	0x9E2B
92		AI	R	0x9E2C
93		AI	R	0x9E2D
94		AI	R	0x9E2E
95		AI	R	0x9E2F
96		AI	R	0x9E30
97	Channel Tag [13]	AI	R	0x9E31
98		AI	R	0x9E32
99		AI	R	0x9E33
100		AI	R	0x9E34
101		AI	R	0x9E35
102		AI	R	0x9E36
103		AI	R	0x9E37
104		AI	R	0x9E38

Obj ID	Map Descriptor Name (MODBUS Register Desc)	BACnet Object Type	Access (R=Read, W=Write)	Source MODBUS Register Number
105	Channel Tag [14]	AI	R	0x9E39
106		AI	R	0x9E3A
107		AI	R	0x9E3B
108		AI	R	0x9E3C
109		AI	R	0x9E3D
110		AI	R	0x9E3E
111		AI	R	0x9E3F
112		AI	R	0x9E40
113	Channel Tag [15]	AI	R	0x9E41
114		AI	R	0x9E42
115		AI	R	0x9E43
116		AI	R	0x9E44
117		AI	R	0x9E45
118		AI	R	0x9E46
119		AI	R	0x9E47
120		AI	R	0x9E48
121	Channel Tag [16]	AI	R	0x9E49
122		AI	R	0x9E4A
123		AI	R	0x9E4B
124		AI	R	0x9E4C
125		AI	R	0x9E4D
126		AI	R	0x9E4E
127		AI	R	0x9E4F
128		AI	R	0x9E50
129	EUNITS [1]	AI	R	0x9E51
130		AI	R	0x9E52
131		AI	R	0x9E53
132	EUNITS [2]	AI	R	0x9E54
133		AI	R	0x9E55
134		AI	R	0x9E56
135	EUNITS [3]	AI	R	0x9E57
136		AI	R	0x9E58
137		AI	R	0x9E59
138	EUNITS [4]	AI	R	0x9E5A
139		AI	R	0x9E5B
140		AI	R	0x9E5C
141	EUNITS [5]	AI	R	0x9E5D
142		AI	R	0x9E5E
143		AI	R	0x9E5F
144	EUNITS [6]	AI	R	0x9E60
145		AI	R	0x9E61
146		AI	R	0x9E62

Obj ID	Map Descriptor Name (MODBUS Register Desc)	BACnet Object Type	Access (R=Read, W=Write)	Source MODBUS Register Number
147	EUNITS [7]	AI	R	0x9E63
148		AI	R	0x9E64
149		AI	R	0x9E65
150	EUNITS [8]	AI	R	0x9E66
151		AI	R	0x9E67
152		AI	R	0x9E68
153	EUNITS [9]	AI	R	0x9E69
154		AI	R	0x9E6A
155		AI	R	0x9E6B
156	EUNITS [10]	AI	R	0x9E6C
157		AI	R	0x9E6D
158		AI	R	0x9E6E
159	EUNITS [11]	AI	R	0x9E6F
160		AI	R	0x9E70
161		AI	R	0x9E71
162	EUNITS [12]	AI	R	0x9E72
163		AI	R	0x9E73
164		AI	R	0x9E74
165	EUNITS [13]	AI	R	0x9E75
166		AI	R	0x9E76
167		AI	R	0x9E77
168	EUNITS [14]	AI	R	0x9E78
169		AI	R	0x9E79
170		AI	R	0x9E7A
171	EUNITS [15]	AI	R	0x9E7B
172		AI	R	0x9E7C
173		AI	R	0x9E7D
174	EUNITS [16]	AI	R	0x9E7E
175		AI	R	0x9E7F
176		AI	R	0x9E80
177	ASCII Value [1]	AI	R	0x9E81
178		AI	R	0x9E82
179		AI	R	0x9E83
180	ASCII Value [2]	AI	R	0x9E84
181		AI	R	0x9E85
182		AI	R	0x9E86
183	ASCII Value [3]	AI	R	0x9E87
184		AI	R	0x9E88
185		AI	R	0x9E89
186	ASCII Value [4]	AI	R	0x9E8A
187		AI	R	0x9E8B
188		AI	R	0x9E8C

Obj ID	Map Descriptor Name (MODBUS Register Desc)	BACnet Object Type	Access (R=Read, W=Write)	Source MODBUS Register Number
189	ASCII Value [5]	AI	R	0x9E8D
190		AI	R	0x9E8E
191		AI	R	0x9E8F
192	ASCII Value [6]	AI	R	0x9E90
193		AI	R	0x9E91
194		AI	R	0x9E92
195	ASCII Value [7]	AI	R	0x9E93
196		AI	R	0x9E94
197		AI	R	0x9E95
198	ASCII Value [8]	AI	R	0x9E96
199		AI	R	0x9E97
200		AI	R	0x9E98
201	ASCII Value [9]	AI	R	0x9E99
202		AI	R	0x9E9A
203		AI	R	0x9E9B
204	ASCII Value [10]	AI	R	0x9E9C
205		AI	R	0x9E9D
206		AI	R	0x9E9E
207	ASCII Value [11]	AI	R	0x9E9F
208		AI	R	0x9EA0
209		AI	R	0x9EA1
210	ASCII Value [12]	AI	R	0x9EA2
211		AI	R	0x9EA3
212		AI	R	0x9EA4
213	ASCII Value [13]	AI	R	0x9EA5
214		AI	R	0x9EA6
215		AI	R	0x9EA7
216	ASCII Value [14]	AI	R	0x9EA8
217		AI	R	0x9EA9
218		AI	R	0x9EAA
219	ASCII Value [15]	AI	R	0x9EAB
220		AI	R	0x9EAC
221		AI	R	0x9EAD
222	ASCII Value [16]	AI	R	0x9EAE
223		AI	R	0x9EAF
224		AI	R	0x9EB0
225	Channel Value 01	AI	R	0x80E9
226	Channel Value 02	AI	R	0x80EA
227	Channel Value 03	AI	R	0x80EB
228	Channel Value 04	AI	R	0x80EC
229	Channel Value 05	AI	R	0x80ED
230	Channel Value 06	AI	R	0x80EE
231	Channel Value 07	AI	R	0x80EF
232	Channel Value 08	AI	R	0x80F0

Obj ID	Map Descriptor Name (MODBUS Register Desc)	BACnet Object Type	Access (R=Read, W=Write)	Source MODBUS Register Number
233	Channel Value 09	AI	R	0x80F1
234	Channel Value 10	AI	R	0x80F2
235	Channel Value 11	AI	R	0x80F3
236	Channel Value 12	AI	R	0x80F4
237	Channel Value 13	AI	R	0x80F5
238	Channel Value 14	AI	R	0x80F6
239	Channel Value 15	AI	R	0x80F7
240	Channel Value 16	AI	R	0x80F8
241	Channel Reading 01	AI	R	0x7919
242	Channel Reading 02	AI	R	0x791A
243	Channel Reading 03	AI	R	0x791B
244	Channel Reading 04	AI	R	0x791C
245	Channel Reading 05	AI	R	0x791D
246	Channel Reading 06	AI	R	0x791E
247	Channel Reading 07	AI	R	0x791F
248	Channel Reading 08	AI	R	0x7920
249	Channel Reading 09	AI	R	0x7921
250	Channel Reading 10	AI	R	0x7922
251	Channel Reading 11	AI	R	0x7923
252	Channel Reading 12	AI	R	0x7924
253	Channel Reading 13	AI	R	0x7925
254	Channel Reading 14	AI	R	0x7926
255	Channel Reading 15	AI	R	0x7927
256	Channel Reading 16	AI	R	0x7928
257	Channel Status 01	AI	R	0x7929
258	Channel Status 02	AI	R	0x792A
259	Channel Status 03	AI	R	0x792B
260	Channel Status 04	AI	R	0x792C
261	Channel Status 05	AI	R	0x792D
262	Channel Status 06	AI	R	0x792E
263	Channel Status 07	AI	R	0x792F
264	Channel Status 08	AI	R	0x7930
265	Channel Status 09	AI	R	0x7931
266	Channel Status 10	AI	R	0x7932
267	Channel Status 11	AI	R	0x7933
268	Channel Status 12	AI	R	0x7934
269	Channel Status 13	AI	R	0x7935
270	Channel Status 14	AI	R	0x7936
271	Channel Status 15	AI	R	0x7937
272	Channel Status 16	AI	R	0x7938
273	Channel Alarm 1 Status 1-16	AI	R	0x7939
274	Channel Alarm 2 Status 1-16	AI	R	0x793A
275	Channel Alarm 3 Status 1-16	AI	R	0x793B
276	Relay Status	AI	R	0x793C

Obj ID	Map Descriptor Name (MODBUS Register Desc)	BACnet Object Type	Access (R=Read, W=Write)	Source MODBUS Register Number
277	Channel Call Status 1-16	AI	R	0x793D
278	Channel Trend Interval Timer 1-16	AI	R	0x793E
279	Channel Fault Status 1-16	AI	R	0x793F
280	Channel Alarm LED 1 Status 1-16	AI	R	0x7949
281	Channel Alarm LED 2 Status 1-16	AI	R	0x794A
282	Channel Alarm LED 3 Status 1-16	AI	R	0x794B
283	Channel Common LED Status 1-16	AI	R	0x794C
284	LCD Screen	AI	R	0x794D
285	Channel Sensor Life 01	AI	R	0x7959
286	Channel Sensor Life 02	AI	R	0x795A
287	Channel Sensor Life 03	AI	R	0x795B
288	Channel Sensor Life 04	AI	R	0x795C
289	Channel Sensor Life 05	AI	R	0x795D
290	Channel Sensor Life 06	AI	R	0x795E
291	Channel Sensor Life 07	AI	R	0x795F
292	Channel Sensor Life 08	AI	R	0x7960
293	Channel Sensor Life 09	AI	R	0x7961
294	Channel Sensor Life 10	AI	R	0x7962
295	Channel Sensor Life 11	AI	R	0x7963
296	Channel Sensor Life 12	AI	R	0x7964
297	Channel Sensor Life 13	AI	R	0x7965
298	Channel Sensor Life 14	AI	R	0x7966
299	Channel Sensor Life 15	AI	R	0x7967
300	Channel Sensor Life 16	AI	R	0x7968

8. Additional Information

For additional information on the ProtoNode, refer to the FieldServer documentation and the FieldServer website at www.fieldserver.com.

For additional information on Bacharach's GDA-1600 controller, refer to Instruction Manual P/N 5700-9001 provided with your controller. You may also access the latest GDA-1600 instruction manual at the Bacharach website www.MyBacharach.com.

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