6 Chapter 6: Appendix

Troubleshooting

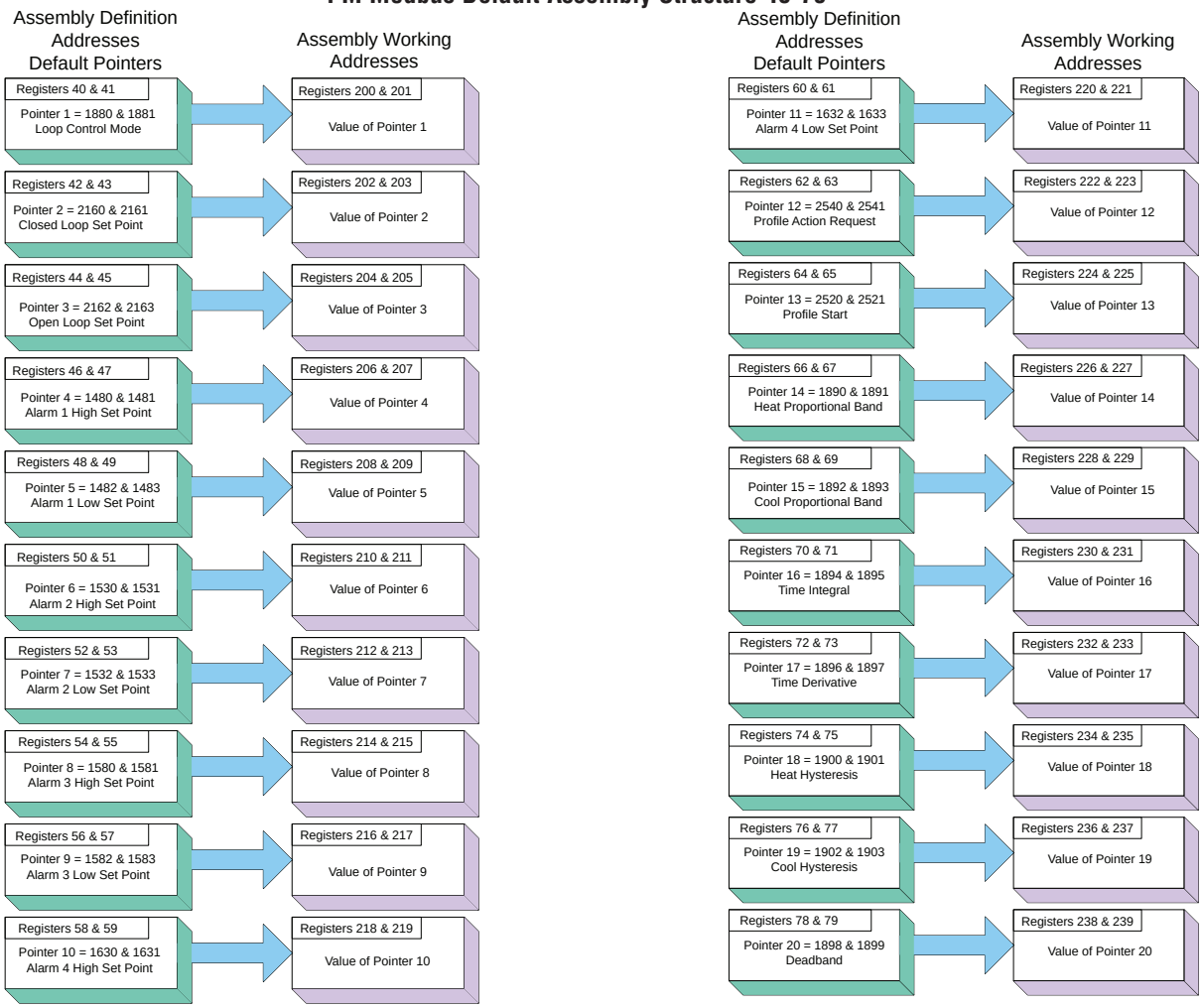
Indication	Description	Possible Cause(s)	Corrective Action
No Display	No display indication or LED illumination	• Power to RUI (Remote User Interface) is off • Fuse open • Breaker tripped • Safety interlock switch open • Separate system limit controller activated • Wiring error • Incorrect voltage to controller	• Turn on power. • Replace fuse. • Reset breaker. • Close interlock switch. • Reset limit. • Correct wiring issue. • Apply correct voltage.
EZ-Key doesn't work	EZ-Key does not activate required function	• Keypad malfunction	• Replace or repair the RUI.
no upper display dEv lower display	The RUI (Remote User Interface) will not communicate with the controller at the selected zone.	• Communications wired incorrectly • Communications wires routed with power wires • Zone address set out of range • RUI or controller defective	• Check and correct wiring. • Check and correct wiring. • Check zone range and address. • Replace or repair RUI or controller.
uAL.h	Value is too large to be displayed (≥ 1000.0).	• Scaling is out of range	• Check scaling. • Call technical support.
uAL.L	Value is too small to be displayed (≤ -2000.0).	• Scaling is out of range	• Check scaling. • Call technical support.

Modbus - Programmable Memory Blocks

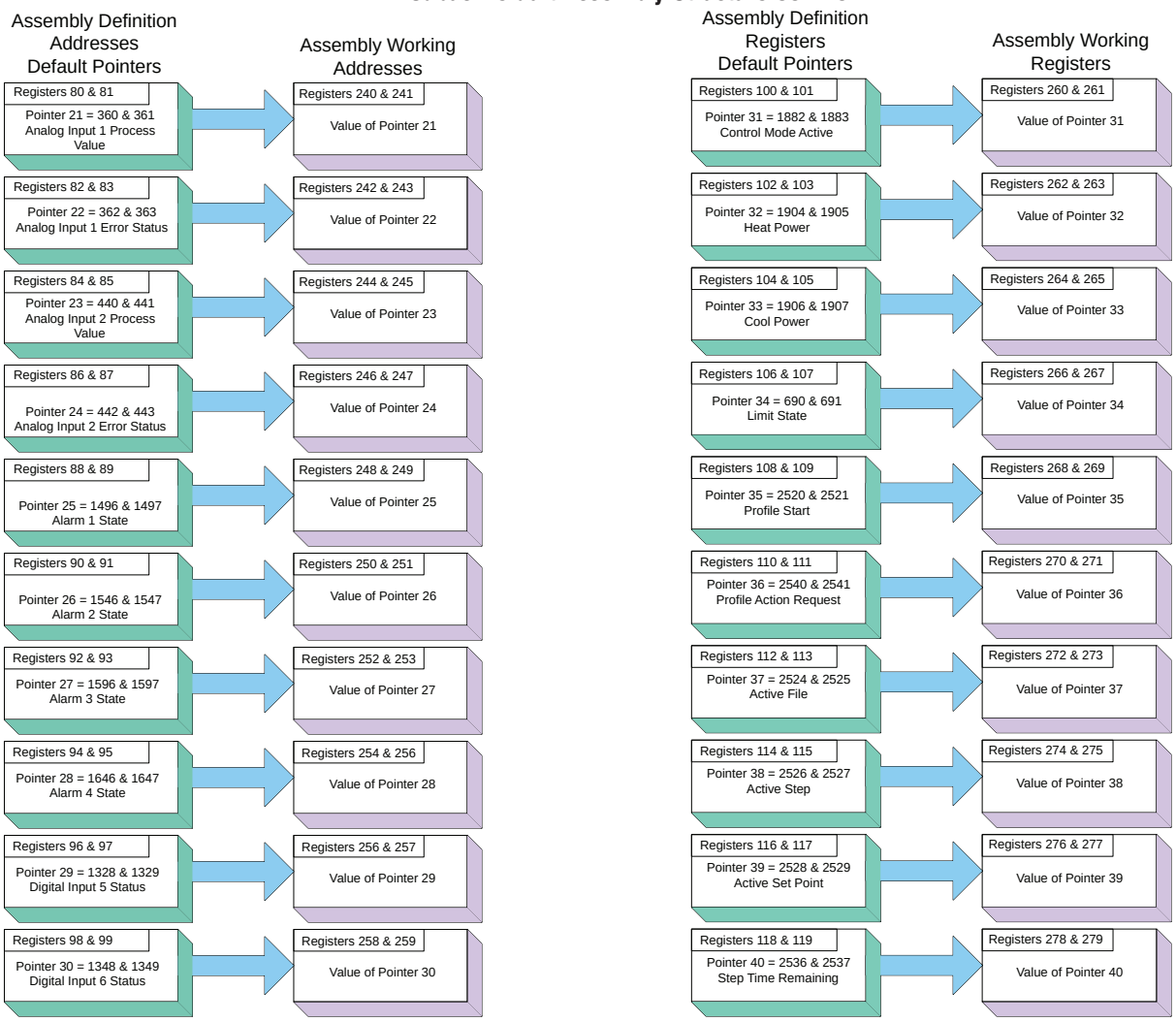
PM Modbus Assembly Definition

Assembly Definition Addresses	Assembly Working Addresses	Assembly Definition Addresses	Assembly Working Addresses
40 & 41	200 & 201	80 & 81	240 & 241
42 & 43	202 & 203	82 & 83	242 & 243
44 & 45	204 & 205	84 & 85	244 & 245
46 & 47	206 & 207	86 & 87	246 & 247
48 & 49	208 & 209	88 & 89	248 & 249
50 & 51	210 & 211	90 & 91	250 & 251
52 & 53	212 & 213	92 & 93	252 & 253
54 & 55	214 & 215	94 & 95	254 & 255
56 & 57	216 & 217	96 & 97	256 & 257
58 & 59	218 & 219	98 & 99	256 & 259
60 & 61	220 & 221	100 & 101	260 & 261
62 & 63	222 & 223	102 & 103	262 & 263
64 & 65	224 & 225	104 & 105	264 & 265
66 & 67	226 & 227	106 & 107	266 & 267
68 & 69	228 & 229	108 & 109	268 & 269
70 & 71	230 & 231	110 & 111	270 & 271
72 & 73	232 & 233	112 & 113	272 & 273
74 & 75	234 & 235	114 & 115	274 & 275
76 & 77	236 & 237	116 & 117	276 & 277
78 & 79	238 & 239	118 & 119	278 & 279

PM Modbus Default Assembly Structure 40-79



PM Modbus Default Assembly Structure 80-119



RM Modbus Assembly Definition

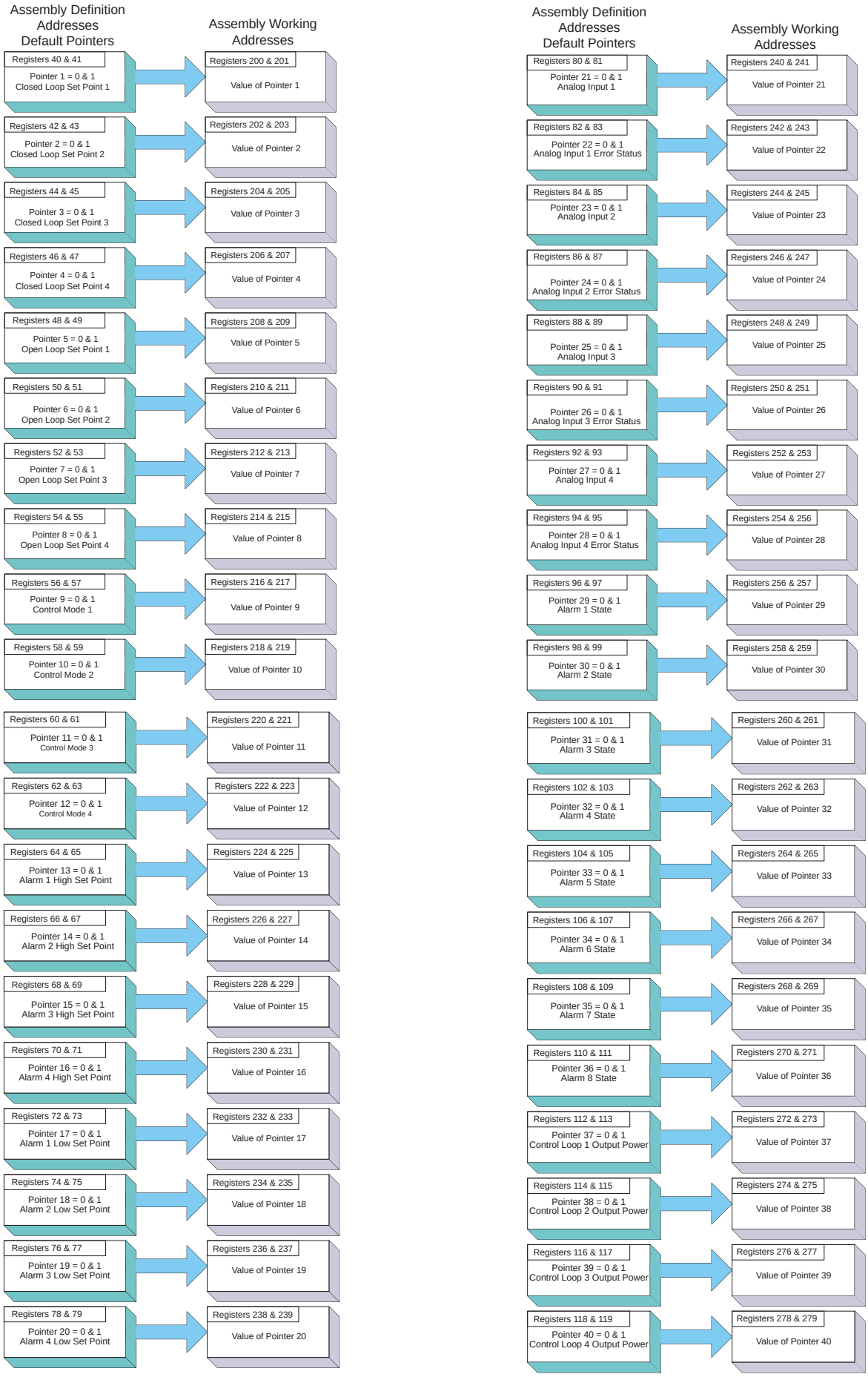
Assembly Definition Address and Assembly Working Addresses

Definition Addresses	Working Addresses	Definition Addresses	Working Addresses
40 & 41	200 & 201	120 & 121	280 & 281
42 & 43	202 & 203	122 & 123	282 & 283
44 & 45	204 & 205	124 & 125	284 & 285
46 & 47	206 & 207	126 & 127	286 & 287
48 & 49	208 & 209	128 & 129	288 & 289
50 & 51	210 & 211	130 & 131	290 & 291
52 & 53	212 & 213	132 & 133	292 & 293
54 & 55	214 & 215	134 & 135	294 & 295
56 & 57	216 & 217	136 & 137	296 & 297
58 & 59	218 & 219	138 & 139	296 & 299
60 & 61	220 & 221	140 & 141	300 & 301
62 & 63	222 & 223	142 & 143	302 & 303
64 & 65	224 & 225	144 & 145	304 & 305
66 & 67	226 & 227	146 & 147	306 & 307
68 & 69	228 & 229	148 & 149	308 & 309
70 & 71	230 & 231	150 & 151	310 & 311
72 & 73	232 & 233	152 & 153	312 & 313
74 & 75	234 & 235	154 & 155	314 & 315
76 & 77	236 & 237	156 & 157	316 & 317
78 & 79	238 & 239	158 & 159	318 & 319
80 & 81	240 & 241	160 & 161	320 & 321
82 & 83	242 & 243	162 & 163	322 & 323
84 & 85	244 & 245	164 & 165	324 & 325
86 & 87	246 & 247	166 & 167	326 & 327
88 & 89	248 & 249	168 & 169	328 & 329
90 & 91	250 & 251	170 & 171	330 & 331
92 & 93	252 & 253	172 & 173	332 & 333
94 & 95	254 & 255	174 & 175	334 & 335
96 & 97	256 & 257	176 & 177	336 & 337
98 & 99	256 & 259	178 & 179	338 & 339
100 & 101	260 & 261	180 & 181	340 & 341
102 & 103	262 & 263	182 & 183	342 & 343
104 & 105	264 & 265	184 & 185	344 & 345
106 & 107	266 & 267	186 & 187	346 & 347
108 & 109	268 & 269	188 & 189	348 & 349
110 & 111	270 & 271	190 & 191	350 & 351
112 & 113	272 & 273	192 & 193	352 & 353
114 & 115	274 & 275	194 & 195	354 & 355
116 & 117	276 & 277	196 & 197	356 & 357
118 & 119	278 & 279	198 & 199	358 & 359

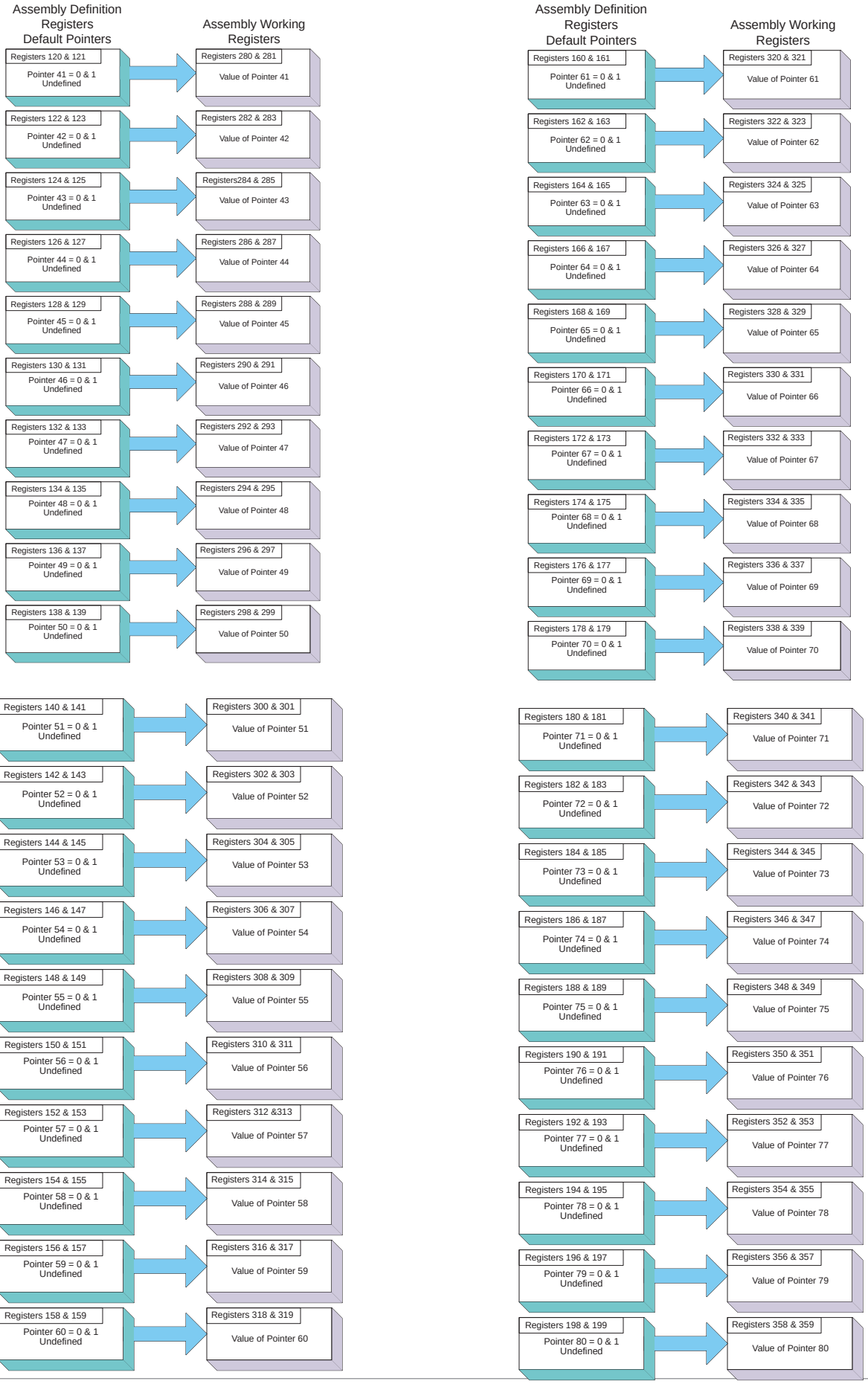
Note:

Notice that in the Modbus tables that follow the first 40 members have predefined definitions from the factory. These members reflect the assembly of the RMC module only. All other RM module assemblies are undefined as delivered from the factory; if the undefined members are to be used, they must be configured by the user

RM Modbus Default Assembly Structure 40-119



RM Modbus Default Assembly Structure 120 - 199



CIP Implicit Assemblies

ST CIP Implicit Assemblies

CIP Implicit Assembly Originator (Master) to Target (ST)					
Assembly Members	**Assembly Class, Instance, Attritbute**	**ST Data Type**	**Parameter**	**Parameter Class, Instance, Attritbute**	**PLC Data Type**
1	0x77, 0x01, 0x01	DINT	Control Loop 1, User Control Mode	0x97, 0x01, 0x01	DINT
2	0x77, 0x01, 0x02	DINT	Closed Loop Set Point	0x6B, 0x01, 0x01	REAL
3	0x77, 0x01, 0x03	DINT	Open Loop Set Point	0x6B, 0x01, 0x02	REAL
4	0x77, 0x01, 0x04	DINT	Alarm 1 - Alarm High Set Point	0x6D, 0x01, 0x01	REAL
5	0x77, 0x01, 0x05	DINT	Alarm 1 - Alarm Low Set Point	0x6D, 0x01, 0x02	REAL
6	0x77, 0x01, 0x06	DINT	Alarm 2 - Alarm High Set Point	0x6D, 0x01, 0x01	REAL
7	0x77, 0x01, 0x07	DINT	Alarm 2 - Alarm Low Set Point	0x6D, 0x02, 0x02	REAL
8	0x77, 0x01, 0x08	DINT	Alarm 3 - Alarm High Set Point	0x6D, 0x03, 0x01	REAL
9	0x77, 0x01, 0x09	DINT	Alarm 3 - Alarm Low Set Point	0x6D, 0x03, 0x02	REAL
10	0x77, 0x01, 0x0A	DINT	Alarm 4 - Alarm High Set Point	0x6D, 0x04, 0x01	REAL
11	0x77, 0x01, 0x0B	DINT	Alarm 4 - Alarm Low Set Point	0x6D, 0x04, 0x02	REAL
12	0x77, 0x01, 0x0C	DINT	Profile Action Request	0x7A, 0x01, 0x0B	DINT
13	0x77, 0x01, 0x0D	DINT	Profile Start	0x7A, 0x01, 0x01	DINT
14	0x77, 0x01, 0x0E	DINT	Heat Proportional Band	0x97, 0x01, 0x06	REAL
15	0x77, 0x01, 0x0F	DINT	Cool Proportional Band	0x97, 0x01, 0x07	REAL
16	0x77, 0x01, 0x10	DINT	Time Integral	0x97, 0x01, 0x08	REAL
17	0x77, 0x01, 0x11	DINT	Time Derivative	0x97, 0x01, 0x09	REAL
18	0x77, 0x01, 0x12	DINT	Heat Hysteresis	0x97, 0x01, 0x0B	REAL
19	0x77, 0x01, 0x13	DINT	Cool Hysteresis	0x97, 0x01, 0x0C	REAL
20	0x77, 0x01, 0x14	DINT	Dead Band	0x97, 0x01, 0x0A	REAL

CIP Implicit Assembly Target (ST) to Originator (Master)					
Assembly Members	**Assembly Class, Instance, Attritbute**	**ST Data Type**	**Parameter**	**Parameter Class, Instance, Attritbute**	**PLC Data Type**
0	Cannot be changed	Binary	Device Status	none	BIN
1	0x77, 0x02, 0x01	DINT	Analog Input 1, Analog Input Value	0x68, 0x01, 0x01	REAL
2	0x77, 0x02, 0x02	DINT	Analog Input 1, Input Error	0x68, 0x01. 0x02	REAL
3	0x77, 0x02, 0x03	DINT	Analog Input 2, Analog Input Value	0x68, 0x02, 0x01	REAL
4	0x77, 0x02, 0x04	DINT	Analog Input 2, Input Error	0x68, 0x02, 0x02	REAL
5	0x77, 0x02, 0x05	DINT	Alarm 1, Alarm State	0x6D, 0x01, 0x09	DINT
6	0x77, 0x02, 0x06	DINT	Alarm 2, Alarm State	0x6D, 0x02, 0x09	DINT
7	0x77, 0x02, 0x07	DINT	Alarm 3, Alarm State	0x6D, 0x03, 0x09	DINT
8	0x77, 0x02, 0x08	DINT	Alarm 4, Alarm State	0x6D, 0x04, 0x09	DINT
9	0x77, 0x02, 0x09	DINT	Event Status	0x6E, 0x01, 0x05	DINT
10	0x77, 0x02, 0x0A	DINT	Event Status	0x6E, 0x02, 0x05	DINT
11	0x77, 0x02, 0x0B	DINT	Control Mode Active	0x97, 0x01, 0x02	DINT
12	0x77, 0x02, 0x0C	DINT	Heat Power	0x97, 0x01, 0x0D	REAL
13	0x77, 0x02, 0x0D	DINT	Cool Power	0x97, 0x01, 0x0E	REAL
14	0x77, 0x02, 0x0E	DINT	Limit State	0x70, 0x01, 0x06	DINT
15	0x77, 0x02, 0x0F	DINT	Profile Start	0x74, 0x01, 0x01	DINT
16	0x77, 0x02, 0x10	DINT	Profile Action Request	0x74, 0x01, 0x0B	DINT
17	0x77, 0x02, 0x11	DINT	Current Profile	0x74, 0x01, 0x03	DINT
18	0x77, 0x02, 0x12	DINT	Current Step	0x74, 0x01, 0x04	DINT
19	0x77, 0x02, 0x13	DINT	Active Set Point	0x74, 0x01, 0x05	REAL
20	0x77, 0x02, 0x14	DINT	Step Time Remaining	0x74, 0x01, 0x09	DINT

Note:

When configuring the gateway T to O assembly size, the maximum size is 20. The graphic above shows 21 members where the first member (0 - Device Status) is implied. When configuring the Master assembly size, Device Status cannot be omitted.

PM CIP Implicit Assemblies

CIP Implicit Assembly Originator (Master) to Target (PM)					
Assembly Members	**Assembly Class, Instance, Attritbute**	**PM Data Type**	**Parameter**	**Parameter Class, Instance, Attritbute**	**PLC Data Type**
1	0x77, 0x01, 0x01	DINT	Control Loop 1, User Control Mode	0x97, 0x01, 0x01	DINT
2	0x77, 0x01, 0x02	DINT	Closed Loop Set Point	0x6B, 0x01, 0x01	REAL
3	0x77, 0x01, 0x03	DINT	Open Loop Set Point	0x6B, 0x01, 0x02	REAL
4	0x77, 0x01, 0x04	DINT	Alarm 1 - Alarm High Set Point	0x6D, 0x01, 0x01	REAL
5	0x77, 0x01, 0x05	DINT	Alarm 1 - Alarm Low Set Point	0x6D, 0x01, 0x02	REAL
6	0x77, 0x01, 0x06	DINT	Alarm 2 - Alarm High Set Point	0x6D, 0x02, 0x01	REAL
7	0x77, 0x01, 0x07	DINT	Alarm 2 - Alarm Low Set Point	0x6D, 0x02, 0x02	REAL
8	0x77, 0x01, 0x08	DINT	Alarm 3 - Alarm High Set Point	0x6D, 0x03, 0x01	REAL
9	0x77, 0x01, 0x09	DINT	Alarm 3 - Alarm Low Set Point	0x6D, 0x03, 0x02	REAL
10	0x77, 0x01, 0x0A	DINT	Alarm 4 - Alarm High Set Point	0x6D, 0x04, 0x01	REAL
11	0x77, 0x01, 0x0B	DINT	Alarm 4 - Alarm Low Set Point	0x6D, 0x04, 0x02	REAL
12	0x77, 0x01, 0x0C	DINT	Profile Action Request	0x7A, 0x01, 0x0B	DINT
13	0x77, 0x01, 0x0D	DINT	Profile Start	0x7A, 0x01, 0x01	DINT
14	0x77, 0x01, 0x0E	DINT	Heat Proportional Band	0x97, 0x01, 0x06	REAL
15	0x77, 0x01, 0x0F	DINT	Cool Proportional Band	0x97, 0x01, 0x07	REAL
16	0x77, 0x01, 0x10	DINT	Time Integral	0x97, 0x01, 0x08	REAL
17	0x77, 0x01, 0x11	DINT	Time Derivative	0x97, 0x01, 0x09	REAL
18	0x77, 0x01, 0x12	DINT	Heat Hysteresis	0x97, 0x01, 0x0B	REAL
19	0x77, 0x01, 0x13	DINT	Cool Hysteresis	0x97, 0x01, 0x0C	REAL
20	0x77, 0x01, 0x14	DINT	Dead Band	0x97, 0x01, 0x0A	REAL

CIP Implicit Assembly Target (PM) to Originator (Master)					
Assembly Members	**Assembly Class, Instance, Attritbute**	**PM Data Type**	**Parameter**	**Parameter Class, Instance, Attritbute**	**PLC Data Type**
0	Cannot be changed	Binary	Device Status	none	BIN
1	0x77, 0x02, 0x01	DINT	Analog Input 1, Analog Input Value	0x68, 0x01, 0x01	REAL
2	0x77, 0x02, 0x02	DINT	Analog Input 1, Input Error	0x68, 0x01. 0x02	REAL
3	0x77, 0x02, 0x03	DINT	Analog Input 2, Analog Input Value	0x68, 0x02, 0x01	REAL
4	0x77, 0x02, 0x04	DINT	Analog Input 2, Input Error	0x68, 0x02, 0x02	REAL
5	0x77, 0x02, 0x05	DINT	Alarm 1, Alarm State	0x6D, 0x01, 0x09	DINT
6	0x77, 0x02, 0x06	DINT	Alarm 2, Alarm State	0x6D, 0x02, 0x09	DINT
7	0x77, 0x02, 0x07	DINT	Alarm 3, Alarm State	0x6D, 0x03, 0x09	DINT
8	0x77, 0x02, 0x08	DINT	Alarm 4, Alarm State	0x6D, 0x04, 0x09	DINT
9	0x77, 0x02, 0x09	DINT	Event Status	0x6E, 0x01, 0x05	DINT
10	0x77, 0x02, 0x0A	DINT	Event Status	0x6E, 0x02, 0x05	DINT
11	0x77, 0x02, 0x0B	DINT	Control Mode Active	0x97, 0x01, 0x02	DINT
12	0x77, 0x02, 0x0C	DINT	Heat Power	0x97, 0x01, 0x0D	REAL
13	0x77, 0x02, 0x0D	DINT	Cool Power	0x97, 0x01, 0x0E	REAL
14	0x77, 0x02, 0x0E	DINT	Limit State	0x70, 0x01, 0x06	DINT
15	0x77, 0x02, 0x0F	DINT	Profile Start	0x74, 0x01, 0x01	DINT
16	0x77, 0x02, 0x10	DINT	Profile Action Request	0x74, 0x01, 0x0B	DINT
17	0x77, 0x02, 0x11	DINT	Current Profile	0x74, 0x01, 0x03	DINT
18	0x77, 0x02, 0x12	DINT	Current Step	0x74, 0x01, 0x04	DINT
19	0x77, 0x02, 0x13	DINT	Active Set Point	0x74, 0x01, 0x05	REAL
20	0x77, 0x02, 0x14	DINT	Step Time Remaining	0x74, 0x01, 0x09	DINT

Note:

When configuring the gateway T to O assembly size, the maximum size is 20. The graphic above shows 21 members where the first member (0 - Device Status) is implied. When configuring the Master assembly size, Device Status cannot be omitted.

RME CIP Implicit Assemblies

CIP Implicit Assembly Originator (Master) to Target (RME)					
Assembly Members	**Assembly Class, Instance, Attritbute**	**RM Module Data Type**	**Parameter**	**Parameter Class, Instance, Attritbute**	**PLC Data Type**
1	0x77, 0x01, 0x01	DINT	None specified	- - - -	- - - -
2	0x77, 0x01, 0x02	DINT	None specified	- - - -	- - - -
3	0x77, 0x01, 0x03	DINT	None specified	- - - -	- - - -
4	0x77, 0x01, 0x04	DINT	None specified	- - - -	- - - -
5	0x77, 0x01, 0x05	DINT	None specified	- - - -	- - - -
6	0x77, 0x01, 0x06	DINT	None specified	- - - -	- - - -
7	0x77, 0x01, 0x07	DINT	None specified	- - - -	- - - -
8	0x77, 0x01, 0x08	DINT	None specified	- - - -	- - - -
9	0x77, 0x01, 0x09	DINT	None specified	- - - -	- - - -
10	0x77, 0x01, 0x0A	DINT	None specified	- - - -	- - - -
11	0x77, 0x01, 0x0B	DINT	None specified	- - - -	- - - -
12	0x77, 0x01, 0x0C	DINT	None specified	- - - -	- - - -
13	0x77, 0x01, 0x0D	DINT	None specified	- - - -	- - - -
14	0x77, 0x01, 0x0E	DINT	None specified	- - - -	- - - -
15	0x77, 0x01, 0x0F	DINT	None specified	- - - -	- - - -
16	0x77, 0x01, 0x10	DINT	None specified	- - - -	- - - -
17	0x77, 0x01, 0x11	DINT	None specified	- - - -	- - - -
18	0x77, 0x01, 0x12	DINT	None specified	- - - -	- - - -
19	0x77, 0x01, 0x13	DINT	None specified	- - - -	- - - -
20	0x77, 0x01, 0x14	DINT	None specified	- - - -	- - - -

CIP Implicit Assembly Target (RME) to Originator (Master)					
Assembly Members	**Assembly Class, Instance, Attritbute**	**RM Module Data Type**	**Parameter**	**Parameter Class, Instance, Attritbute**	**PLC Data Type**
0	Cannot be changed	Binary	Device Status	none	DINT
1	0x77, 0x02, 0x01	DINT	None specified	- - - -	- - - -
2	0x77, 0x02, 0x02	DINT	None specified	- - - -	- - - -
3	0x77, 0x02, 0x03	DINT	None specified	- - - -	- - - -
4	0x77, 0x02, 0x04	DINT	None specified	- - - -	- - - -
5	0x77, 0x02, 0x05	DINT	None specified	- - - -	- - - -
6	0x77, 0x02, 0x06	DINT	None specified	- - - -	- - - -
7	0x77, 0x02, 0x07	DINT	None specified	- - - -	- - - -
8	0x77, 0x02, 0x08	DINT	None specified	- - - -	- - - -
9	0x77, 0x02, 0x09	DINT	None specified	- - - -	- - - -
10	0x77, 0x02, 0x0A	DINT	None specified	- - - -	- - - -
11	0x77, 0x02, 0x0B	DINT	None specified	- - - -	- - - -
12	0x77, 0x02, 0x0C	DINT	None specified	- - - -	- - - -
13	0x77, 0x02, 0x0D	DINT	None specified	- - - -	- - - -
14	0x77, 0x02, 0x0E	DINT	None specified	- - - -	- - - -
15	0x77, 0x02, 0x0F	DINT	None specified	- - - -	- - - -
16	0x77, 0x02, 0x10	DINT	None specified	- - - -	- - - -
17	0x77, 0x02, 0x11	DINT	None specified	- - - -	- - - -
18	0x77, 0x02, 0x12	DINT	None specified	- - - -	- - - -
19	0x77, 0x02, 0x13	DINT	None specified	- - - -	- - - -
20	0x77, 0x02, 0x14	DINT	None specified	- - - -	- - - -

RMC CIP Implicit Assemblies

RMC CIP O to T Implicit Assemblies

CIP Implicit Assembly Originator (Master) to Target (RMC)					
Assembly Members	**Assembly Class, Instance, Attritbute**	**RM Module Data Type**	**Parameter**	**Parameter Class, Instance, Attritbute**	**PLC Data Type**
1	0x77, 0x01, 0x01	DINT	Control Loop 1, Closed Loop Set Point	0x6B, 0x01, 0x01	REAL
2	0x77, 0x01, 0x02	DINT	Control Loop 2, Closed Loop Set Point	0x6B, 0x02, 0x01	REAL
3	0x77, 0x01, 0x03	DINT	Control Loop 3, Closed Loop Set Point	0x6B, 0x03, 0x01	REAL
4	0x77, 0x01, 0x04	DINT	Control Loop 4, Closed Loop Set Point	0x6B, 0x04, 0x01	REAL
5	0x77, 0x01, 0x05	DINT	Control Loop 1, Open Loop Set Point	0x6B, 0x01, 0x02	REAL
6	0x77, 0x01, 0x06	DINT	Control Loop 2, Open Loop Set Point	0x6B, 0x02, 0x02	REAL
7	0x77, 0x01, 0x07	DINT	Control Loop 3, Open Loop Set Point	0x6B, 0x03, 0x02	REAL
8	0x77, 0x01, 0x08	DINT	Control Loop 4, Open Loop Set Point	0x6B, 0x04, 0x02	REAL
9	0x77, 0x01, 0x09	DINT	Control Loop 1, User Control Mode	0x97, 0x01, 0x02	DINT
10	0x77, 0x01, 0x0A	DINT	Control Loop 2, User Control Mode	0x97, 0x02, 0x02	DINT
11	0x77, 0x01, 0x0B	DINT	Control Loop 3, User Control Mode	0x97, 0x03, 0x02	DINT
12	0x77, 0x01, 0x0C	DINT	Control Loop 4, User Control Mode	0x97, 0x04, 0x02	DINT
13	0x77, 0x01, 0x0D	DINT	Alarm 1, Alarm High Set Point	0x6D, 0x01, 0x01	REAL
14	0x77, 0x01, 0x0E	DINT	Alarm 2, Alarm High Set Point	0x6D, 0x02, 0x01	REAL
15	0x77, 0x01, 0x0F	DINT	Alarm 3, Alarm High Set Point	0x6D, 0x03, 0x01	REAL
16	0x77, 0x01, 0x10	DINT	Alarm 4, Alarm High Set Point	0x6D, 0x04, 0x01	REAL
17	0x77, 0x01, 0x11	DINT	Alarm 1, Alarm Low Set Point	0x6D, 0x05, 0x01	REAL
18	0x77, 0x01, 0x12	DINT	Alarm 2, Alarm Low Set Point	0x6D, 0x06, 0x01	REAL
19	0x77, 0x01, 0x13	DINT	Alarm 3, Alarm Low Set Point	0x6D, 0x07, 0x01	REAL
20	0x77, 0x01, 0x14	DINT	Alarm 4, Alarm Low Set Point	0x6D, 0x08, 0x01	REAL
21	0x77, 0x02, 0x15	DINT	None Specified	----	----
22	0x77, 0x02, 0x16	DINT	None Specified	----	----
23	0x77, 0x02, 0x17	DINT	None Specified	----	----
24	0x77, 0x02, 0x18	DINT	None Specified	----	----
25	0x77, 0x02, 0x19	DINT	None Specified	----	----
26	0x77, 0x02, 0x1A	DINT	None Specified	----	----
27	0x77, 0x02, 0x1B	DINT	None Specified	----	----
28	0x77, 0x02, 0x1C	DINT	None Specified	----	----
29	0x77, 0x02, 0x1D	DINT	None Specified	----	----
30	0x77, 0x02, 0x1E	DINT	None Specified	----	----
31	0x77, 0x02, 0x1F	DINT	None Specified	----	----
32	0x77, 0x02, 0x20	DINT	None Specified	----	----
33	0x77, 0x02, 0x21	DINT	None Specified	----	----
34	0x77, 0x02, 0x22	DINT	None Specified	----	----
35	0x77, 0x02, 0x23	DINT	None Specified	----	----
36	0x77, 0x02, 0x24	DINT	None Specified	----	----
37	0x77, 0x02, 0x25	DINT	None Specified	----	----
38	0x77, 0x02, 0x26	DINT	None Specified	----	----
39	0x77, 0x02, 0x27	DINT	None Specified	----	----
40	0x77, 0x02, 0x28	DINT	None Specified	----	----

Note:

Although 40 members are built into this module the RUI allows for a maximum of 20.

RMC CIP T to O Implicit Assemblies

CIP Implicit Assembly Target (RMC) to Originator (Master)					
Assembly Members	**Assembly Class, Instance, Attritbute**	**RM Module Data Type**	**Parameter**	**Parameter Class, Instance, Attritbute**	**PLC Data Type**
0	Cannot be changed	Binary	Device Status	none	DINT
1	0x77, 0x02, 0x01	DINT	Analog Input 1, Analog Input Value (filtered)	0x68, 0x01, 0x01	REAL
2	0x77, 0x02, 0x02	DINT	Analog Input 1, Input Error	0x68, 0x01, 0x02	DINT
3	0x77, 0x02, 0x03	DINT	Analog Input 2, Analog Input Value (filtered)	0x68, 0x02, 0x01	REAL
4	0x77, 0x02, 0x04	DINT	Analog Input 2, Input Error	0x68, 0x02, 0x02	DINT
5	0x77, 0x02, 0x05	DINT	Analog Input 3, Analog Input Value (filtered)	0x68, 0x03, 0x01	REAL
6	0x77, 0x02, 0x06	DINT	Analog Input 3, Input Error	0x68, 0x03, 0x02	DINT
7	0x77, 0x02, 0x07	DINT	Analog Input 4, Analog Input Value (filtered)	0x68, 0x04, 0x01	REAL
8	0x77, 0x02, 0x08	DINT	Analog Input 4, Input Error	0x68, 0x04, 0x02	DINT
9	0x77, 0x02, 0x09	DINT	Alarm 1, Alarm State	0x6D, 0x01, 0x09	DINT
10	0x77, 0x02, 0x0A	DINT	Alarm 2, Alarm State	0x6D, 0x02, 0x09	DINT
11	0x77, 0x02, 0x0B	DINT	Alarm 3, Alarm State	0x6D, 0x03, 0x09	DINT
12	0x77, 0x02, 0x0C	DINT	Alarm 4, Alarm State	0x6D, 0x04, 0x09	DINT
13	0x77, 0x02, 0x0D	DINT	Alarm 5, Alarm State	0x6D, 0x05, 0x09	DINT
14	0x77, 0x02, 0x0E	DINT	Alarm 6, Alarm State	0x6D, 0x06, 0x09	DINT
15	0x77, 0x02, 0x0F	DINT	Alarm 7, Alarm State	0x6D, 0x07, 0x09	DINT
16	0x77, 0x02, 0x10	DINT	Alarm 8, Alarm State	0x6D, 0x08, 0x09	DINT
17	0x77, 0x02, 0x11	DINT	Control Loop 1, Output Power	0x97, 0x01, 0x0F	REAL
18	0x77, 0x02, 0x12	DINT	Control Loop 2, Output Power	0x97, 0x02, 0x0F	REAL
19	0x77, 0x02, 0x13	DINT	Control Loop 3, Output Power	0x97, 0x03, 0x0F	REAL
20	0x77, 0x02, 0x14	DINT	Control Loop 4, Output Power	0x97, 0x04, 0x0F	REAL
21	0x77, 0x02, 0x15	DINT	None Specified	- - - -	- - - -
22	0x77, 0x02, 0x16	DINT	None Specified	- - - -	- - - -
23	0x77, 0x02, 0x17	DINT	None Specified	- - - -	- - - -
24	0x77, 0x02, 0x18	DINT	None Specified	- - - -	- - - -
25	0x77, 0x02, 0x19	DINT	None Specified	- - - -	- - - -
26	0x77, 0x02, 0x1A	DINT	None Specified	- - - -	- - - -
27	0x77, 0x02, 0x1B	DINT	None Specified	- - - -	- - - -
28	0x77, 0x02, 0x1C	DINT	None Specified	- - - -	- - - -
29	0x77, 0x02, 0x1D	DINT	None Specified	- - - -	- - - -
30	0x77, 0x02, 0x1E	DINT	None Specified	- - - -	- - - -
31	0x77, 0x02, 0x1F	DINT	None Specified	- - - -	- - - -
32	0x77, 0x02, 0x20	DINT	None Specified	- - - -	- - - -
33	0x77, 0x02, 0x21	DINT	None Specified	- - - -	- - - -
34	0x77, 0x02, 0x22	DINT	None Specified	- - - -	- - - -
35	0x77, 0x02, 0x23	DINT	None Specified	- - - -	- - - -
36	0x77, 0x02, 0x24	DINT	None Specified	- - - -	- - - -
37	0x77, 0x02, 0x25	DINT	None Specified	- - - -	- - - -
38	0x77, 0x02, 0x26	DINT	None Specified	- - - -	- - - -
39	0x77, 0x02, 0x27	DINT	None Specified	- - - -	- - - -
40	0x77, 0x02, 0x28	DINT	None Specified	- - - -	- - - -

Note:

When configuring the gateway T to O assembly size for the RMC, the maximum size is using the RUI is 20. The graphic above shows 41 members where the first member (0 - Device Status) is implied. When configuring the Master assembly size, Device Status cannot be omitted.

RMH, RMS and RML CIP Implicit Assemblies

RMH, RMS and RML O to T CIP Implicit Assemblies

CIP Implicit Assembly Originator (Master) to Target (RMH / RMS / RML)					
Assembly Members	**Assembly Class, Instance, Attritbute**	**RM Module Data Type**	**Parameter**	**Parameter Class, Instance, Attritbute**	**PLC Data Type**
1	0x77, 0x01, 0x01	DINT	None specified	- - - -	- - - -
2	0x77, 0x01, 0x02	DINT	None specified	- - - -	- - - -
3	0x77, 0x01, 0x03	DINT	None specified	- - - -	- - - -
4	0x77, 0x01, 0x04	DINT	None specified	- - - -	- - - -
5	0x77, 0x01, 0x05	DINT	None specified	- - - -	- - - -
6	0x77, 0x01, 0x06	DINT	None specified	- - - -	- - - -
7	0x77, 0x01, 0x07	DINT	None specified	- - - -	- - - -
8	0x77, 0x01, 0x08	DINT	None specified	- - - -	- - - -
9	0x77, 0x01, 0x09	DINT	None specified	- - - -	- - - -
10	0x77, 0x01, 0x0A	DINT	None specified	- - - -	- - - -
11	0x77, 0x01, 0x0B	DINT	None specified	- - - -	- - - -
12	0x77, 0x01, 0x0C	DINT	None specified	- - - -	- - - -
13	0x77, 0x01, 0x0D	DINT	None specified	- - - -	- - - -
14	0x77, 0x01, 0x0E	DINT	None specified	- - - -	- - - -
15	0x77, 0x01, 0x0F	DINT	None specified	- - - -	- - - -
16	0x77, 0x01, 0x10	DINT	None specified	- - - -	- - - -
17	0x77, 0x01, 0x11	DINT	None specified	- - - -	- - - -
18	0x77, 0x01, 0x12	DINT	None specified	- - - -	- - - -
19	0x77, 0x01, 0x13	DINT	None specified	- - - -	- - - -
20	0x77, 0x01, 0x14	DINT	None specified	- - - -	- - - -
21	0x77, 0x01, 0x15	DINT	None specified	- - - -	- - - -
22	0x77, 0x01, 0x16	DINT	None specified	- - - -	- - - -
23	0x77, 0x01, 0x17	DINT	None specified	- - - -	- - - -
24	0x77, 0x01, 0x18	DINT	None specified	- - - -	- - - -
25	0x77, 0x01, 0x19	DINT	None specified	- - - -	- - - -
26	0x77, 0x01, 0x1A	DINT	None specified	- - - -	- - - -
27	0x77, 0x01, 0x1B	DINT	None specified	- - - -	- - - -
28	0x77, 0x01, 0x1C	DINT	None specified	- - - -	- - - -
29	0x77, 0x01, 0x1D	DINT	None specified	- - - -	- - - -
30	0x77, 0x01, 0x1E	DINT	None specified	- - - -	- - - -
31	0x77, 0x01, 0x1F	DINT	None specified	- - - -	- - - -
32	0x77, 0x01, 0x20	DINT	None specified	- - - -	- - - -
33	0x77, 0x01, 0x21	DINT	None specified	- - - -	- - - -
34	0x77, 0x01, 0x22	DINT	None specified	- - - -	- - - -
35	0x77, 0x01, 0x23	DINT	None specified	- - - -	- - - -
36	0x77, 0x01, 0x24	DINT	None specified	- - - -	- - - -
37	0x77, 0x01, 0x25	DINT	None specified	- - - -	- - - -
38	0x77, 0x01, 0x26	DINT	None specified	- - - -	- - - -
39	0x77, 0x01, 0x27	DINT	None specified	- - - -	- - - -
40	0x77, 0x01, 0x28	DINT	None specified	- - - -	- - - -

RMH, RMS and RML T to O CIP Implicit Assemblies

CIP Implicit Assembly Target (RMH / RMS / RML) to Originator (Master)					
Assembly Members	**Assembly Class, Instance, Attritbute**	**RM Module Data Type**	**Parameter**	**Parameter Class, Instance, Attritbute**	**PLC Data Type**
0	Cannot be changed	Binary	Device Status	none	DINT
1	0x77, 0x02, 0x01	DINT	None specified	- - - -	- - - -
2	0x77, 0x02, 0x02	DINT	None specified	- - - -	- - - -
3	0x77, 0x02, 0x03	DINT	None specified	- - - -	- - - -
4	0x77, 0x02, 0x04	DINT	None specified	- - - -	- - - -
5	0x77, 0x02, 0x05	DINT	None specified	- - - -	- - - -
6	0x77, 0x02, 0x06	DINT	None specified	- - - -	- - - -
7	0x77, 0x02, 0x07	DINT	None specified	- - - -	- - - -
8	0x77, 0x02, 0x08	DINT	None specified	- - - -	- - - -
9	0x77, 0x02, 0x09	DINT	None specified	- - - -	- - - -
10	0x77, 0x02, 0x0A	DINT	None specified	- - - -	- - - -
11	0x77, 0x02, 0x0B	DINT	None specified	- - - -	- - - -
12	0x77, 0x02, 0x0C	DINT	None specified	- - - -	- - - -
13	0x77, 0x02, 0x0D	DINT	None specified	- - - -	- - - -
14	0x77, 0x02, 0x0E	DINT	None specified	- - - -	- - - -
15	0x77, 0x02, 0x0F	DINT	None specified	- - - -	- - - -
16	0x77, 0x02, 0x10	DINT	None specified	- - - -	- - - -
17	0x77, 0x02, 0x11	DINT	None specified	- - - -	- - - -
18	0x77, 0x02, 0x12	DINT	None specified	- - - -	- - - -
19	0x77, 0x02, 0x13	DINT	None specified	- - - -	- - - -
20	0x77, 0x02, 0x14	DINT	None specified	- - - -	- - - -
21	0x77, 0x02, 0x15	DINT	None specified	- - - -	- - - -
22	0x77, 0x02, 0x16	DINT	None specified	- - - -	- - - -
23	0x77, 0x02, 0x17	DINT	None specified	- - - -	- - - -
24	0x77, 0x02, 0x18	DINT	None specified	- - - -	- - - -
25	0x77, 0x02, 0x19	DINT	None specified	- - - -	- - - -
26	0x77, 0x02, 0x1A	DINT	None specified	- - - -	- - - -
27	0x77, 0x02, 0x1B	DINT	None specified	- - - -	- - - -
28	0x77, 0x02, 0x1C	DINT	None specified	- - - -	- - - -
29	0x77, 0x02, 0x1D	DINT	None specified	- - - -	- - - -
30	0x77, 0x02, 0x1E	DINT	None specified	- - - -	- - - -
31	0x77, 0x02, 0x1F	DINT	None specified	- - - -	- - - -
32	0x77, 0x02, 0x20	DINT	None specified	- - - -	- - - -
33	0x77, 0x02, 0x21	DINT	None specified	- - - -	- - - -
34	0x77, 0x02, 0x22	DINT	None specified	- - - -	- - - -
35	0x77, 0x02, 0x23	DINT	None specified	- - - -	- - - -
36	0x77, 0x02, 0x24	DINT	None specified	- - - -	- - - -
37	0x77, 0x02, 0x25	DINT	None specified	- - - -	- - - -
38	0x77, 0x02, 0x26	DINT	None specified	- - - -	- - - -
39	0x77, 0x02, 0x27	DINT	None specified	- - - -	- - - -
40	0x77, 0x02, 0x28	DINT	None specified	- - - -	- - - -

Note:

When configuring the gateway T to O assembly size for the RMH, RMS and RML, the maximum size using the RUI is 20. The graphic above shows 41 members where the first member (0 - Device Status) is implied. When configuring the Master assembly size, Device Status cannot be omitted.

Specifications

Basic Remote User Interface (RUI)

Operator Interface

- Dual 4-digit, 7-segment LED displays
- Forward, backward, up and down keys plus a customer programmable function key
- Typical display update rate 1Hz
- Agency approved to IP65/NEMA 4X (indoor use only)
- Standard Bus protocol ships with all units
- Optional Communications Protocols:
  - EIA 232/485 Modbus RTU
  - EtherNet/IP and Modbus TCP
  - DeviceNet
  - Profibus DP

Line Voltage/Power

- 85 to 264V~ (ac), 47 to 63Hz, 10VA maximum
- 20 to 28V≂ (ac/dc), 47 to 63Hz

Environment

- -18 to 65°C ambient
- -40 to 80°C shipping and storage

Dimensions

Size	Behind Panel (max.)	Width	Height	Display Height
Long Case	101.6 mm (4.00 in)	53.3 mm (2.10 in)	53.3 mm (2.10 in)	up: 10.80 mm (0.425 in) low: 6.98 mm (0.275 in)
Short Case	59.1 mm (2.33 in)	53.3 mm (2.10 in)	53.3 mm (2.10 in)	up: 10.80 mm (0.425 in) low: 6.98 mm (0.275 in)

Weight

- Controller (short case): 99.8 g (0.22 lb)
- Controller (long case): 162.5 g (0.36 lb)

Note:

These specifications are subject to change without prior notice.

Ordering Information

EZ-ZONE® Remote Users Interface E Z K __ - __ __ __ __ - __ __ __ __

Remote User Interface (RUI)

B	Basic 1/16 DIN

Power Supply Voltage for Remote User Interface (RUI)

L	Low voltage 24 to 28V≂ (ac/dc)
H	Universal high voltage 100 to 240V≂ (ac/dc)

Communications Options (Standard Bus always included)

A	None (short case)
2	EIA 232/485 Modbus® RTU (long case)
3	EtherNet/IP™ Modbus TCP (long case)
5	DeviceNet™ (long case)
6	Profibus DP (long case)

Custom Remote User Interface (RUI)

AA	None
XX	Custom options, consult factory

Future Option

A	None

Future Option

A	None

Future Option

AA	None

Note:

Configurator PC software can be downloaded for free from the Watlow website:
http://www.watlow.com/products/software/zone_config.cfm

Declaration of Conformity

Series EZ-ZONE® RUI

WATLOW an ISO 9001 approved facility since 1996.
1241 Bundy Blvd.
Winona, MN 55987 USA

Declares that the following product:

Designation:	**Series EZ-ZONE® RUI**
Model Numbers:	EZK (A, B, C, D or E) (A, L or H) (any three numbers or letters) A, A, (any two letters or numbers)
Classification:	Temperature control, Installation Category II, Pollution degree 2 IP66 Environmental seal on front panel.
Rated Voltage and Frequency:	Control 100 to 240 V~ (ac 50/60 Hz) **or** 24 to 28 V≂ (ac 50/60 Hz or dc)
Rated Power Consumption:	10 VA

Meets the essential requirements of the following European Union Directives by using the relevant standards show below to indicate compliance.

2004/108/EC Electromagnetic Compatibility Directive

EN 61326-1	**2006**	**Electrical equipment for measurement, control and laboratory use – EMC requirements (Industrial Immunity, EZK_- _A models are Class A emissions. *Not for use in a Class B environment without additional filtering),* All other models are Class B emissions.**
EN 61000-4-2	1996 +A1,A2	Electrostatic Discharge Immunity
EN 61000-4-3	2006	Radiated Field Immunity
EN 61000-4-4	2004	Electrical Fast-Transient / Burst Immunity
EN 61000-4-5	2006	Surge Immunity
EN 61000-4-6	1996 +A1,A2,A3	Conducted Immunity
EN 61000-4-8	1994 +A1:2001	Magnetic Field Immunity
EN 61000-4-11	2004	Voltage Dips, Short Interruptions and Voltage Variations Immunity
EN 61000-3-2	2006	Harmonic Current Emissions
EN 61000-3-3	2005	Voltage Fluctuations and Flicker
SEMI F47	2000	Specification for Semiconductor Sag Immunity Figure R1-1

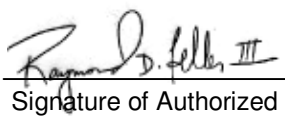
2006/95/EC Low-Voltage Directive

EN 61010-1	**2001**	**Safety Requirements of electrical equipment for measurement, control and laboratory use. Part 1: General requirements**

Compliant with 2002/95/EC RoHS Directive

Per 2002/96/EC WEEE Directive *Please Recycle Properly*

Raymond D. Feller III	Winona, Minnesota, USA
Name of Authorized Representative	Place of Issue
General Manager	June 2009
Title of Authorized Representative	Date of Issue



Signature of Authorized Representative

CE DOC EZ-ZONE RUI-06-09