EDAM-9000 I/O Modbus Mapping Table

Version 1.1

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Chapter 1 MODBUS/TCP Command structure

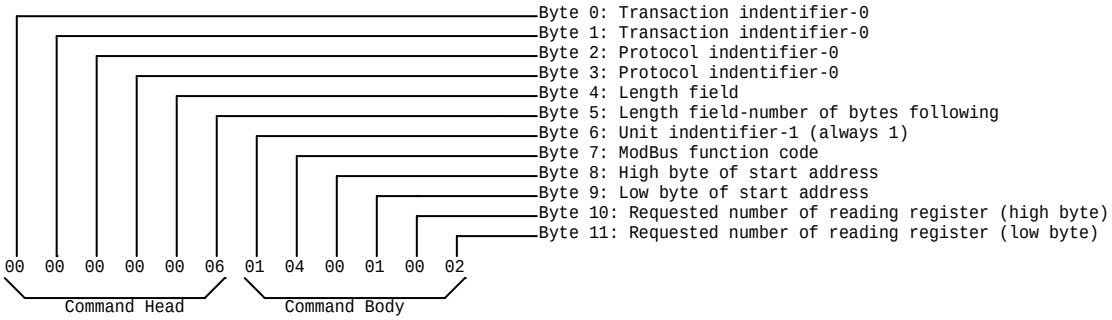
EDAM-9000 system accepts a command/response form with the host computer. When systems are not transmitting they are in listen mode. The host issues a command to a system with a specified address and waits a certain amount of time for the system to respond. If no response arrives, a time-out aborts the sequence and returns control to the host. This chapter explains the structure of the commands with Modbus/TCP protocol, and guides to use these command sets to implement user's programs.

1.1 Command Structure

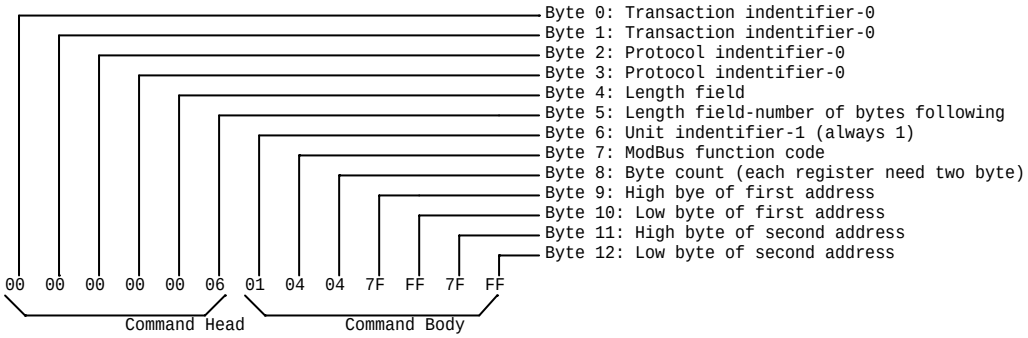
It is important to understand the encapsulation of a Modbus request or response carried on the Modbus/TCP network. A complete command is consisted of command head and command body. The command head is prefixed by six bytes and responded to pack Modbus format; the command body defines target device and requested action. Following example will help you to realize this structure quickly.

Example:

If you want to read the first two values of EADM-9017 (address: 40001~40002), the request command should be:



And the response should be:



1.2 ModBus Function code introductions

Code (Hex)	Name	Usage
01	Read Coil Status	Read Discrete Output Bit
02	Read Input Status	Read Discrete Input Bit
03	Read Holding Registers	Read 16-bit register. Used to read integer or floating point process data.
04	Read Input Registers	
05	Force Single Coil	Write data to force coil ON/OFF
06	Preset Single Register	Write data in 16-bit integer format
0F	Force Multiple Coils	Write multiple data to force coil ON/OFF
10	Preset Multiple Registers	Write multiple data in 16-bit integer format

Chapter 2 EDAM-9050 12 Digital Input/6 Digital Output Module

2.1 Holding Register Address (Unit:16bits)

Where X=40000 for function 03, function 06, function 16

X=30000 for function 04

Address	Channel	Item
X+0001~X+0024	For Counter	12 Channels, 32 Bits
X+0025~X+0036	For Pulse Output L level, time Unit:0.1ms	6 Channels, 32 Bits
X+0037~X+0048	For Pulse Output H level, time Unit:0.1ms	6 Channels, 32 Bits
X+0049~X+0060	Set Absolute pulse (Set to 0=Continue mode)	6 Channels, 32 Bits
X+0061~X+0073	Set DO pulse value	Channels, 32 Bit

2.2 Bit Address (Unit:1Bit)

Where X=00000 for function 01, function 05

X=10000 for function 02

Address	Channel	Item
X+0001~X+0012	For DI	12 Channels, 1 Bit
X+0013~X+0018	For DO	6 Channels, 1 Bit
X+0032	Ch0 (For Counter Mode)	Start(1)/Stop(0)
X+0033	Ch0 (For Counter Mode)	Clear Counter(1)
X+0034	Ch0 (For Counter Mode)	Clear Overflow
X+0035	Ch0 (For Counter Mode)	Latch Status(read)/Clear Status(Write)
X+0036	Ch1 (For Counter Mode)	Start(1)/Stop(0)
X+0037	Ch1 (For Counter Mode)	Clear Counter(1)
X+0038	Ch1 (For Counter Mode)	Clear Overflow
X+0040	Ch1 (For Counter Mode)	Latch Status(read)/Clear Status(Write)
X+0041	Ch2 (For Counter Mode)	Start(1)/Stop(0)
X+0042	Ch2 (For Counter Mode)	Clear Counter(1)
X+0043	Ch2 (For Counter Mode)	Clear Overflow
X+0044	Ch2 (For Counter Mode)	Latch Status(read)/Clear Status(Write)
X+0045	Ch3 (For Counter Mode)	Start(1)/Stop(0)
X+0046	Ch3 (For Counter Mode)	Clear Counter(1)
X+0047	Ch3 (For Counter Mode)	Clear Overflow
X+0048	Ch3 (For Counter Mode)	Latch Status(read)/Clear Status(Write)
X+0049	Ch4 (For Counter Mode)	Start(1)/Stop(0)
X+0050	Ch4 (For Counter Mode)	Clear Counter(1)
X+0051	Ch4 (For Counter Mode)	Clear Overflow
X+0052	Ch4 (For Counter Mode)	Latch Status(read)/Clear Status(Write)
X+0053	Ch5 (For Counter Mode)	Start(1)/Stop(0)
X+0054	Ch5 (For Counter Mode)	Clear Counter(1)
X+0055	Ch5 (For Counter Mode)	Clear Overflow
X+0056	Ch5 (For Counter Mode)	Latch Status(read)/Clear Status(Write)
X+0057	Ch6 (For Counter Mode)	Start(1)/Stop(0)
X+0058	Ch6 (For Counter Mode)	Clear Counter(1)
X+0059	Ch6 (For Counter Mode)	Clear Overflow
X+0060	Ch6 (For Counter Mode)	Latch Status(read)/Clear Status(Write)

X+0061	Ch7 (For Counter Mode)	Start(1)/Stop(0)
X+0062	Ch7 (For Counter Mode)	Clear Counter(1)
X+0063	Ch7 (For Counter Mode)	Clear Overflow
X+0064	Ch7 (For Counter Mode)	Latch Status(read)/Clear Status(Write)
X+0065	Ch8 (For Counter Mode)	Start(1)/Stop(0)
X+0066	Ch8 (For Counter Mode)	Clear Counter(1)
X+0067	Ch8 (For Counter Mode)	Clear Overflow
X+0068	Ch8 (For Counter Mode)	Latch Status(read)/Clear Status(Write)
X+0069	Ch9 (For Counter Mode)	Start(1)/Stop(0)
X+0070	Ch9 (For Counter Mode)	Clear Counter(1)
X+0071	Ch9 (For Counter Mode)	Clear Overflow
X+0072	Ch9 (For Counter Mode)	Latch Status(read)/Clear Status(Write)
X+0073	Ch10 (For Counter Mode)	Start(1)/Stop(0)
X+0074	Ch10 (For Counter Mode)	Clear Counter(1)
X+0075	Ch10 (For Counter Mode)	Clear Overflow
X+0076	Ch10 (For Counter Mode)	Latch Status(read)/Clear Status(Write)
X+0077	Ch11 (For Counter Mode)	Start(1)/Stop(0)
X+0078	Ch11 (For Counter Mode)	Clear Counter(1)
X+0079	Ch11 (For Counter Mode)	Clear Overflow
X+0080	Ch11 (For Counter Mode)	Latch Status(read)/Clear Status(Write)

Chapter 3 EDAM-9051 12 Digital Input/2 Counter/2 Output Module

3.1 Register Address (Unit:16bits)

Where X=40000 for function 03, function 06, function 16

X=30000 for function 04

Address	Channel	Item
X+0001~X+0028	For Counter	14 Channels, 32 Bits
X+0029~X+0032	For Pulse Output L level, time Unit:0.1ms	2 Channels, 32 Bits
X+0033~X+0036	For Pulse Output H level, time Unit:0.1ms	2 Channels, 32 Bits
X+0037~X+0040	Set Absolute pulse(Set to 0=Continue mode)	2 Channels, 32 Bits
X+0041~X+0044	Set DO pulse value	2 Channels, 32 Bits

3.2 bit Address (Unit:1Bit)

Where X=00000 for function 01, function 05

X=10000 for function 02

Address	Channel	Item
X+0001~X+0014	For DI 14 Channels, 1 Bit	
X+0017~X+0018	For DO 2 Channels, 1 Bit	
X+0033	Ch0 (For Counter Mode)	Start(1)/Stop(0)
X+0034	Ch0 (For Counter Mode)	Clear Counter(1)
X+0035	Ch0 (For Counter Mode)	Clear Overflow
X+0036	Ch0 (For Counter Mode)	Latch Status(read)/Clear Status(Write)
X+0037	Ch1 (For Counter Mode)	Start(1)/Stop(0)
X+0038	Ch1 (For Counter Mode)	Clear Counter(1)
X+0039	Ch1 (For Counter Mode)	Clear Overflow
X+0040	Ch1 (For Counter Mode)	Latch Status(read)/Clear Status(Write)
X+0041	Ch2 (For Counter Mode)	Start(1)/Stop(0)
X+0042	Ch2 (For Counter Mode)	Clear Counter(1)
X+0043	Ch2 (For Counter Mode)	Clear Overflow
X+0044	Ch2 (For Counter Mode)	Latch Status(read)/Clear Status(Write)
X+0045	Ch3 (For Counter Mode)	Start(1)/Stop(0)
X+0046	Ch3 (For Counter Mode)	Clear Counter(1)
X+0047	Ch3 (For Counter Mode)	Clear Overflow
X+0048	Ch3 (For Counter Mode)	Latch Status(read)/Clear Status(Write)
X+0049	Ch4 (For Counter Mode)	Start(1)/Stop(0)
X+0050	Ch4 (For Counter Mode)	Clear Counter(1)
X+0051	Ch4 (For Counter Mode)	Clear Overflow
X+0052	Ch4 (For Counter Mode)	Latch Status(read)/Clear Status(Write)
X+0053	Ch5 (For Counter Mode)	Start(1)/Stop(0)
X+0054	Ch5 (For Counter Mode)	Clear Counter(1)
X+0055	Ch5 (For Counter Mode)	Clear Overflow
X+0056	Ch5 (For Counter Mode)	Latch Status(read)/Clear Status(Write)
X+0057	Ch6 (For Counter Mode)	Start(1)/Stop(0)
X+0058	Ch6 (For Counter Mode)	Clear Counter(1)
X+0059	Ch6 (For Counter Mode)	Clear Overflow
X+0060	Ch6 (For Counter Mode)	Latch Status(read)/Clear Status(Write)

X+0061	Ch7 (For Counter Mode)	Start(1)/Stop(0)
X+0062	Ch7 (For Counter Mode)	Clear Counter(1)
X+0063	Ch7 (For Counter Mode)	Clear Overflow
X+0064	Ch7 (For Counter Mode)	Latch Status(read)/Clear Status(Write)
X+0065	Ch8 (For Counter Mode)	Start(1)/Stop(0)
X+0066	Ch8 (For Counter Mode)	Clear Counter(1)
X+0067	Ch8 (For Counter Mode)	Clear Overflow
X+0068	Ch8 (For Counter Mode)	Latch Status(read)/Clear Status(Write)
X+0069	Ch9 (For Counter Mode)	Start(1)/Stop(0)
X+0070	Ch9 (For Counter Mode)	Clear Counter(1)
X+0071	Ch9 (For Counter Mode)	Clear Overflow
X+0072	Ch9 (For Counter Mode)	Latch Status(read)/Clear Status(Write)
X+0073	Ch10 (For Counter Mode)	Start(1)/Stop(0)
X+0074	Ch10 (For Counter Mode)	Clear Counter(1)
X+0075	Ch10 (For Counter Mode)	Clear Overflow
X+0076	Ch10 (For Counter Mode)	Latch Status(read)/Clear Status(Write)
X+0077	Ch11 (For Counter Mode)	Start(1)/Stop(0)
X+0078	Ch11 (For Counter Mode)	Clear Counter(1)
X+0079	Ch11 (For Counter Mode)	Clear Overflow
X+0080	Ch11 (For Counter Mode)	Latch Status(read)/Clear Status(Write)
X+0081	Ch12 (For Counter Mode)	Start(1)/Stop(0)
X+0082	Ch12 (For Counter Mode)	Clear Counter(1)
X+0083	Ch12 (For Counter Mode)	Clear Overflow
X+0084	Ch12 (For Counter Mode)	Latch Status(read)/Clear Status(Write)
X+0085	Ch13 (For Counter Mode)	Start(1)/Stop(0)
X+0086	Ch13 (For Counter Mode)	Clear Counter(1)
X+0087	Ch13 (For Counter Mode)	Clear Overflow
X+0088	Ch13 (For Counter Mode)	Latch Status(read)/Clear Status(Writ

Chapter 4 EDAM-9052 8 channel digital Input /digital out Module

4.1 Register Address (Unit: 16bits)

Where X=40000 for function 03, function 06, function 16

X=30000 for function 04

Address	Channel	Item	Type
X+0001~X+0016	For DI Counter (32 bits/channel)	8 Channels, 32 Bits	R
X+0017~X+0032	For Pulse Output L level, time Unit:0.1ms	8 Channels, 32 Bits	R/W
X+0033~X+0048	For Pulse Output H level, time Unit:0.1ms	8 Channels, 32 Bits	R/W
X+0049~X+0064	Set DO pulse value (Set to 0=Continue mode)	8 Channels, 32 Bits	R/W
X+0065	Digital input status	8 channel,16 Bits	R
X+0066	Digital output status	8 channel,16 Bits	R/W

4.2 Bit Address (Unit: 1Bit)

Where X=00000 for function 01, function 05

X=10000 for function 02

Address	Channel	Item	Type
X+0001~X+0008	For DI 8 Channels, 1 Bit/channel		R
X+0017~X+0024	For DO 8 Channels, 1 Bit/channel		R/W
X+0033	Ch0 (For Counter Mode)	Start(1)/Stop(0)	R/W
X+0034	Ch0 (For Counter Mode)	Clear Counter(1)	R/W
X+0035	Ch0 (For Counter Mode)	Clear Overflow	R/W
X+0036	Ch0 (For Counter Mode)	Latch Status(read)/Clear Status(Write)	R/W
X+0037	Ch1 (For Counter Mode)	Start(1)/Stop(0)	R/W
X+0038	Ch1 (For Counter Mode)	Clear Counter(1)	R/W
X+0039	Ch1 (For Counter Mode)	Clear Overflow	R/W
X+0040	Ch1 (For Counter Mode)	Latch Status(read)/Clear Status(Write)	R/W
X+0041	Ch2 (For Counter Mode)	Start(1)/Stop(0)	R/W
X+0042	Ch2 (For Counter Mode)	Clear Counter(1)	R/W
X+0043	Ch2 (For Counter Mode)	Clear Overflow	R/W
X+0044	Ch2 (For Counter Mode)	Latch Status(read)/Clear Status(Write)	R/W
X+0045	Ch3 (For Counter Mode)	Start(1)/Stop(0)	R/W
X+0046	Ch3 (For Counter Mode)	Clear Counter(1)	R/W
X+0047	Ch3 (For Counter Mode)	Clear Overflow	R/W
X+0048	Ch3 (For Counter Mode)	Latch Status(read)/Clear Status(Write)	R/W
X+0049	Ch4 (For Counter Mode)	Start(1)/Stop(0)	R/W
X+0050	Ch4 (For Counter Mode)	Clear Counter(1)	R/W
X+0051	Ch4 (For Counter Mode)	Clear Overflow	R/W
X+0052	Ch4 (For Counter Mode)	Latch Status(read)/Clear Status(Write)	R/W
X+0053	Ch5 (For Counter Mode)	Start(1)/Stop(0)	R/W
X+0054	Ch5 (For Counter Mode)	Clear Counter(1)	R/W
X+0055	Ch5 (For Counter Mode)	Clear Overflow	R/W
X+0056	Ch5 (For Counter Mode)	Latch Status(read)/Clear Status(Write)	R/W
X+0057	Ch6 (For Counter Mode)	Start(1)/Stop(0)	R/W
X+0058	Ch6 (For Counter Mode)	Clear Counter(1)	R/W
X+0059	Ch6 (For Counter Mode)	Clear Overflow	R/W
X+0060	Ch6 (For Counter Mode)	Latch Status(read)/Clear Status(Write)	R/W
X+0061	Ch7 (For Counter Mode)	Start(1)/Stop(0)	R/W
X+0062	Ch7 (For Counter Mode)	Clear Counter(1)	R/W
X+0063	Ch7 (For Counter Mode)	Clear Overflow	R/W
X+0064	Ch7 (For Counter Mode)	Latch Status(read)/Clear Status(Write)	R/W

Chapter 5 EDAM-9015 7-Channel RTD Input Module

5.1 Register Address (unit:16 bits)

Where X=40000 for function 03, function 06, function 16

X=30000 for function 04

Address	Channel	Item	Attribute
X+0001	0	Current value	R
X+0002	1	Current value	R
X+0003	2	Current value	R
X+0004	3	Current value	R
X+0005	4	Current value	R
X+0006	5	Current value	R
X+0007	6	Current value	R
X+0008		Reserved	R
X+0009	8	Average ch0~ch6	R
X+0010	-	Reserved	R
X+0011	0	Max value	R
X+0012	1	Max value	R
X+0013	2	Max value	R
X+0014	3	Max value	R
X+0015	4	Max value	R
X+0016	5	Max value	R
X+0017	6	Max value	R
X+0018		Reserved	
X+0019~X+0020		Reserved	
X+0021	0	Min value	R
X+0022	1	Min value	R
X+0023	2	Min value	R
X+0024	3	Min value	R
X+0025	4	Min value	R
X+0026	5	Min value	R
X+0027	6	Min value	R
X+0028~X+0030		Reserved	

5.2 Bit Address (unit:1 bit)

Where X=00000 for function 01, function 05

X=10000 for function 02

Address	Channel	Item	Attribute
X+0101	0	Reset Max. value	R/W
X+0102	1	Reset Max. value	R/W
X+0103	2	Reset Max. value	R/W
X+0104	3	Reset Max. value	R/W
X+0105	4	Reset Max. value	R/W
X+0106	5	Reset Max. value	R/W
X+0107	6	Reset Max. value	R/W
X+0108~X+0110		Reserved	
X+0111	0	Reset Min. value	R/W
X+0112	1	Reset Min. value	R/W
X+0113	2	Reset Min. value	R/W
X+0114	3	Reset Min. value	R/W
X+0115	4	Reset Min. value	R/W
X+0116	5	Reset Min. value	R/W
X+0117	6	Reset Min. value	R/W
X+0118~X+0120	--	Reserved	
X+0121	0	Burnout flag	R
X+0122	1	Burnout flag	R
X+0123	2	Burnout flag	R
X+0124	3	Burnout flag	R
X+0125	4	Burnout flag	R
X+0126	5	Burnout flag	R
X+0127	6	Burnout flag	R
X+0128~X+0130	--	Reserved	
X+0131	0	High alarm flag	R
X+0132	1	High alarm flag	R
X+0133	2	High alarm flag	R
X+0134	3	High alarm flag	R
X+0135	4	High alarm flag	R
X+0136	5	High alarm flag	R
X+0137	6	High alarm flag	R
X+0138~X+0140	--	Reserved	
X+0141	0	Low alarm flag	R
X+0142	1	Low alarm flag	R
X+0143	2	Low alarm flag	R
X+0144	3	Low alarm flag	R
X+0145	4	Low alarm flag	R
X+0146	5	Low alarm flag	R
X+0147	6	Low alarm flag	R

Chapter 6 EDAM-9017 8-Channel Voltage/Current Input Module

6.1 Register Address(unit:16 bits)

Where X=40000 for function 03, function 06, function 16

X=30000 for function 04

Address	Channel	Item	Attribute
X+0001	0	Current value	R
X+0002	1	Current value	R
X+0003	2	Current value	R
X+0004	3	Current value	R
X+0005	4	Current value	R
X+0006	5	Current value	R
X+0007	6	Current value	R
X+0008	7	Current Value	R
X+0009	8	Average ch0~ch7	R
X+0010	-	Reserved	R
X+0011	0	Max value	R
X+0012	1	Max value	R
X+0013	2	Max value	R
X+0014	3	Max value	R
X+0015	4	Max value	R
X+0016	5	Max value	R
X+0017	6	Max value	R
X+0018	7	Max value	R
X+0019~X+0020		Reserved	
X+0021	0	Min value	R
X+0022	1	Min value	R
X+0023	2	Min value	R
X+0024	3	Min value	R
X+0025	4	Min value	R
X+0026	5	Min value	R
X+0027	6	Min value	R
X+0028	7	Min value	R
X+0029 ~X+0030		Reserved	

6.2 Bit Address (unit:1 bit)

Where X=00000 for function 01, function 05

X=10000 for function 02

Address	Channel	Item	Attribute
X+0017	0	DO value	R/W
X+0018	1	DO value	R/W
X+0101	0	Reset Max. value	R/W
X+0102	1	Reset Max. value	R/W
X+0103	2	Reset Max. value	R/W
X+0104	3	Reset Max. value	R/W
X+0105	4	Reset Max. value	R/W
X+0106	5	Reset Max. value	R/W
X+0107	6	Reset Max. value	R/W
X+0108	7	Reset Max. value	R/W
X+0109~X+0110	8	Reserved	
X+0111	0	Reset Min. value	R/W
X+0112	1	Reset Min. value	R/W
X+0113	2	Reset Min. value	R/W
X+0114	3	Reset Min. value	R/W
X+0115	4	Reset Min. value	R/W
X+0116	5	Reset Min. value	R/W
X+0117	6	Reset Min. value	R/W
X+0118	7	Reset Min. value	R/W
X+0119~X+0130	--	Reserved	
X+0131	0	High alarm flag	R
X+0132	1	High alarm flag	R
X+0133	2	High alarm flag	R
X+0134	3	High alarm flag	R
X+0135	4	High alarm flag	R
X+0136	5	High alarm flag	R
X+0137	6	High alarm flag	R
X+0138	7	High alarm flag	R
X+0139~X+0140	--	Reserved	
X+0141	0	Low alarm flag	R
X+0142	1	Low alarm flag	R
X+0143	2	Low alarm flag	R
X+0144	3	Low alarm flag	R
X+0145	4	Low alarm flag	R
X+0146	5	Low alarm flag	R
X+0147	6	Low alarm flag	R
X+0148	7	Low alarm flag	R

Chapter 7 EDAM-9019 8-Channel T/C Input Module

7.1 Register Address (unit:16 bits)

Where X=40000 for function 03, function 06, function 16

X=30000 for function 04

Address	Channel	Item	Attribute
X+0001	0	Current value	R
X+0002	1	Current value	R
X+0003	2	Current value	R
X+0004	3	Current value	R
X+0005	4	Current value	R
X+0006	5	Current value	R
X+0007	6	Current value	R
X+0008		Current value	R
X+0009	8	Average ch0~ch7	R
X+0010	-	Reserved	R
X+0011	0	Max value	R
X+0012	1	Max value	R
X+0013	2	Max value	R
X+0014	3	Max value	R
X+0015	4	Max value	R
X+0016	5	Max value	R
X+0017	6	Max value	R
X+0018	7	Max value	
X+0019~X+0020		Reserved	
X+0021	0	Min value	R
X+0022	1	Min value	R
X+0023	2	Min value	R
X+0024	3	Min value	R
X+0025	4	Min value	R
X+0026	5	Min value	R
X+0027	6	Min value	R
X+0028~X+0030		Reserved	

7.2 Bit Address (unit:1 bit)

Where X=00000 for function 01, function 05

X=10000 for function 02

Address	Channel	Item	Attribute
X+0017	0	DO value	R/W
X+0018	1	DO value	R/W
X+0101	0	Reset Max. value	R/W
X+0102	1	Reset Max. value	R/W
X+0103	2	Reset Max. value	R/W
X+0104	3	Reset Max. value	R/W
X+0105	4	Reset Max. value	R/W
X+0106	5	Reset Max. value	R/W
X+0107	6	Reset Max. value	R/W
X+0108	7	Reset Max. value	R/W
X+0109~X+0110		Reserved	
X+0111	0	Reset Min. value	R/W
X+0112	1	Reset Min. value	R/W
X+0113	2	Reset Min. value	R/W
X+0114	3	Reset Min. value	R/W
X+0115	4	Reset Min. value	R/W
X+0116	5	Reset Min. value	R/W
X+0117	6	Reset Min. value	R/W
X+0118	7	Reset Min. value	R/W
X+0119~X+0120	--	Reserved	
X+0121	0	Burnout flag	R
X+0122	1	Burnout flag	R
X+0123	2	Burnout flag	R
X+0124	3	Burnout flag	R
X+0125	4	Burnout flag	R
X+0126	5	Burnout flag	R
X+0127	6	Burnout flag	R
X+0128	7	Burnout flag	R
X+0129~X+0130	--	Reserved	
X+0131	0	High alarm flag	R
X+0132	1	High alarm flag	R
X+0133	2	High alarm flag	R
X+0134	3	High alarm flag	R
X+0135	4	High alarm flag	R
X+0136	5	High alarm flag	R
X+0137	6	High alarm flag	R
X+0138	7	High alarm flag	R
X+0139~X+0140	--	Reserved	
X+0141	0	Low alarm flag	R
X+0142	1	Low alarm flag	R
X+0143	2	Low alarm flag	R
X+0144	3	Low alarm flag	R
X+0145	4	Low alarm flag	R
X+0146	5	Low alarm flag	R

X+0147	6	Low alarm flag	R
X+0148	7	Low alarm flag	R