

COMS2288

2 AI + 2 AO + 8 DI + 8 DO
DIN-Rail Mount, MODBUS over Serial
18~32 VDC Operated

Operation Manual

This brief manual is primarily meant for quick reference to wiring connections and parameter searching. For more details on operation and application; please log on to www.ppiindia.net



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Analog Inputs																																						
Input Registers (Read-Only Parameters)																																						
Parameter	MODBUS Address	Values																																				
Process Value (Signed 16 Bit Integer)	1561 (AI-1) & 1562 (AI-2)	The following constant counts indicate PV Errors. <table><tr><th>Value</th><th>PV Error Type</th></tr><tr><td>-32768</td><td>Under Range</td></tr><tr><td>+32752</td><td>Over Range</td></tr><tr><td>+32767</td><td>Sensor Open</td></tr></table>	Value	PV Error Type	-32768	Under Range	+32752	Over Range	+32767	Sensor Open																												
Value	PV Error Type																																					
-32768	Under Range																																					
+32752	Over Range																																					
+32767	Sensor Open																																					
Process Value (Single Precision 32 Bit Float)	2001 (AI-1) to 2003 (AI-2)																																					
Alarm Status as Bit-Mapped Input Register																																						
Alarm-1 Status	1577	<table><tr><td>Bit 15</td><td>.....</td><td>Bit 1</td><td>Bit 0</td></tr><tr><td colspan="2">Ignore Bit-2 to Bit-15</td><td>Alarm-X Status for AI-1</td><td>Alarm-X Status for AI-2</td></tr></table> <table><tr><th>Bit Value</th><th>Status</th></tr><tr><td>0</td><td>Alarm OFF</td></tr><tr><td>1</td><td>Alarm ON</td></tr></table>	Bit 15		Bit 1	Bit 0	Ignore Bit-2 to Bit-15		Alarm-X Status for AI-1	Alarm-X Status for AI-2	Bit Value	Status	0	Alarm OFF	1	Alarm ON																						
Bit 15			Bit 1	Bit 0																																		
Ignore Bit-2 to Bit-15			Alarm-X Status for AI-1	Alarm-X Status for AI-2																																		
Bit Value	Status																																					
0	Alarm OFF																																					
1	Alarm ON																																					
Alarm-2 Status	1578																																					
Alarm-3 Status	1579																																					
Alarm-4 Status	1580																																					
Alarm Status as Discrete Inputs / Coils																																						
Alarm-1 Status Function Code (0x01 & 0x02)	417 (AI-1) & 418 (AI-2)	<table><tr><th>Coil Value</th><th>Status</th></tr><tr><td>0</td><td>Alarm OFF</td></tr><tr><td>1</td><td>Alarm ON</td></tr></table>	Coil Value	Status	0	Alarm OFF	1	Alarm ON																														
Coil Value	Status																																					
0	Alarm OFF																																					
1	Alarm ON																																					
Alarm-2 Status Function Code (0x01 & 0x02)	433 (AI-1) & 434 (AI-2)																																					
Alarm-3 Status Function Code (0x01 & 0x02)	449 (AI-1) & 450 (AI-2)																																					
Alarm-4 Status Function Code (0x01 & 0x02)	465 (AI-1) & 466 (AI-2)																																					
Digital Filter	1612 (AI-1) & 1613 (AI-2)	0 to 90% (Default : 0%)																																				
Ambient Temperature	82	Signed integer values from -30000 to +30000 representing the measured Ambient Temperature through the semi-conductor sensor mounted on the Module. The measured value is always in °C with 0.1 resolution. For example, 30.0°C is represented as 300.																																				
Holding Registers (Read / Write Parameters)																																						
Parameter	MODBUS Address	Settings (Default Value)																																				
Input Type	83 (AI-1) & 84 (AI-2)	<table><tr><th>Value</th><th>Type</th></tr><tr><td>0</td><td>Type J Thermocouple</td></tr><tr><td>1</td><td>Type K Thermocouple</td></tr><tr><td>2</td><td>Type T Thermocouple</td></tr><tr><td>3</td><td>Type R Thermocouple</td></tr><tr><td>4</td><td>Type S Thermocouple</td></tr><tr><td>5</td><td>Type B Thermocouple</td></tr><tr><td>6</td><td>Type N Thermocouple</td></tr><tr><td>7</td><td>Type E Thermocouple</td></tr><tr><td>8</td><td>RTD Pt100, 3-wire</td></tr><tr><td>9</td><td>0 to 20 mA</td></tr><tr><td>10</td><td>4 to 20 mA</td></tr><tr><td>11</td><td>0 to 80 mV</td></tr><tr><td>12</td><td>Reserved (Default: 0 to 80 mV)</td></tr><tr><td>13</td><td>0 to 1.25 V</td></tr><tr><td>14</td><td>0 to 5 V</td></tr><tr><td>15</td><td>0 to 10 V</td></tr><tr><td>16</td><td>1 to 5 V</td></tr></table> (Default : 0 to 10 V)	Value	Type	0	Type J Thermocouple	1	Type K Thermocouple	2	Type T Thermocouple	3	Type R Thermocouple	4	Type S Thermocouple	5	Type B Thermocouple	6	Type N Thermocouple	7	Type E Thermocouple	8	RTD Pt100, 3-wire	9	0 to 20 mA	10	4 to 20 mA	11	0 to 80 mV	12	Reserved (Default: 0 to 80 mV)	13	0 to 1.25 V	14	0 to 5 V	15	0 to 10 V	16	1 to 5 V
Value	Type																																					
0	Type J Thermocouple																																					
1	Type K Thermocouple																																					
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6	Type N Thermocouple																																					
7	Type E Thermocouple																																					
8	RTD Pt100, 3-wire																																					
9	0 to 20 mA																																					
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11	0 to 80 mV																																					
12	Reserved (Default: 0 to 80 mV)																																					
13	0 to 1.25 V																																					
14	0 to 5 V																																					
15	0 to 10 V																																					
16	1 to 5 V																																					
Temperature Units	99 (AI-1) & 100 (AI-2)	<table><tr><th colspan="2">Conditional Parameter</th></tr><tr><th>Value</th><th>Unit</th></tr><tr><td>0</td><td>°C</td></tr><tr><td>1</td><td>°F</td></tr></table> (Default : °C)	Conditional Parameter		Value	Unit	0	°C	1	°F																												
Conditional Parameter																																						
Value	Unit																																					
0	°C																																					
1	°F																																					

Parameter	MODBUS Address	Settings (Default Value)
DC Resolution	115 (AI-1) & 116 (AI-2)	Conditional Parameter
		ValueResolution
		01
		10.1
		20.01
		30.001
		40.0001
(Default : 1 Unit for DC Linear input & 0.1 for Thermocouple & RTD)		
Signal Low	501 (AI-1) & 502 (AI-2)	Conditional Parameter
		Input TypeSettingsDefault
		0 to 20 mA0.00 to Signal High0.00
		4 to 20 mA4.00 to Signal High4.00
		0 to 80 mV0.00 to Signal High0.00
		0 to 1.25 V0.000 to Signal High0.000
		0 to 5 V0.000 to Signal High0.000
		0 to 10 V0.00 to Signal High0.00
		1 to 5 V1.000 to Signal High1.000
Signal High	517 (AI-1) & 518 (AI-2)	Conditional Parameter
		Input TypeSettingsDefault
		0 to 20 mASignal Low to 20.0020.00
		4 to 20 mASignal Low to 20.0020.00
		0 to 80 mVSignal Low to 80.0080.00
		0 to 1.25 VSignal Low to 1.2501.250
		0 to 5 VSignal Low to 5.0005.000
		0 to 10 VSignal Low to 10.0010.00
		1 to 5 VSignal Low to 5.0005.000
Range Low	131 (AI-1) & 132 (AI-2)	Conditional Parameter -30000 to 30000 (Default : 0)
Range High	147 (AI-1) & 148 (AI-2)	Conditional Parameter -30000 to 30000 (Default : 1000)
Offset for PV	163 (AI-1) & 164 (AI-2)	-30000 to 30000 (Default : 0)
Alarm-1 Type	179 (AI-1) & 180 (AI-2)	ValueType
Alarm-2 Type	243 (AI-1) & 244 (AI-2)	0None
		1Process Low
Alarm-3 Type	307 (AI-1) & 308 (AI-2)	2Process High
		(Default : None)
Alarm-4 Type	371 (AI-1) & 372 (AI-2)	
Alarm-1 Set-point	195 (AI-1) & 196 (AI-2)	Min. to Max. Range specified for the selected Input Type Refer Table 1 (Default : Min or Max Range depending on the Alarm type)
Alarm-2 Set-point	259 (AI-1) & 260 (AI-2)	
Alarm-3 Set-point	323 (AI-1) & 324 (AI-2)	
Alarm-4 Set-point	387 (AI-1) & 388 (AI-2)	
Alarm-1 Hysteresis	211 (AI-1) & 212 (AI-2)	1 to 30000 (Default : 20)
Alarm-2 Hysteresis	275 (AI-1) & 276 (AI-2)	
Alarm-3 Hysteresis	339 (AI-1) & 340 (AI-2)	
Alarm-4 Hysteresis	403 (AI-1) & 404 (AI-2)	

Parameter	MODBUS Address	Settings (Default Value)						
Alarm-1 Inhibit	227 (AI-1) & 228 (AI-2)	<table><tr><th>Value</th><th>Inhibit</th></tr><tr><td>0</td><td>Disable</td></tr><tr><td>1</td><td>Enable</td></tr></table> (Default : Disable)	Value	Inhibit	0	Disable	1	Enable
Value	Inhibit							
0	Disable							
1	Enable							
Alarm-2 Inhibit	291 (AI-1) & 292(AI-2)							
Alarm-3 Inhibit	355 (AI-1) & 356 (AI-2)							
Alarm-4 Inhibit	419 (AI-1) & 420 (AI-2)							
Enable Bottom Clipping	435 (AI-1) & 436 (AI-2)	<table><tr><th>Value</th><th>Enable</th></tr><tr><td>0</td><td>No</td></tr><tr><td>1</td><td>Yes</td></tr></table> (Default : No)	Value	Enable	0	No	1	Yes
Value	Enable							
0	No							
1	Yes							
Bottom Clip Value	451(AI-1) & 452 (AI-2)	-30000 to 30000 (Default : 0)						
Enable Top Clipping	467 (AI-1) & 468 (AI-2)	<table><tr><th>Value</th><th>Enable</th></tr><tr><td>0</td><td>No</td></tr><tr><td>1</td><td>Yes</td></tr></table> (Default : No)	Value	Enable	0	No	1	Yes
Value	Enable							
0	No							
1	Yes							
Top Clip Value	483 (AI-1) & 484 (AI-2)	-30000 to 30000 (Default : 1000)						

Table 1		
Input Type	Range (Min. to Max.)	Resolution
Type J Thermocouple	0 to +960.0°C / +32.0 to +1760.0°F	0.1 °C / °F
Type K Thermocouple	-200.0 to +1376.0°C / -328.0 to +2508.0°F	
Type T Thermocouple	-200.0 to +387.0°C / -328.0 to +728.0°F	
Type R Thermocouple	0 to +1771.0°C / +32.0 to +3219.0°F	
Type S Thermocouple	0 to +1768.0°C / +32.0 to +3214.0°F	
Type B Thermocouple	0 to +1826.0°C / +32.0 to +3318.0°F	
Type N Thermocouple	0 to +1314.0°C / +32.0 to +2397.0°F	
Type E Thermocouple	-200 to +1000.0°C / -328.0 to +1832.0°F	
3-wire, RTD Pt100	-199.0 to +600.0°C / -328.0 to +1112.0°F	
0 to 20mA DC current	-30000 to 30000 units	
4 to 20mA DC current		1
0 to 80mV DC voltage		0.1
0 to 1.25V DC voltage		0.01
0 to 5.0V DC voltage		0.001
0 to 10.0V DC voltage		0.0001
1 to 5.0V DC voltage		Units

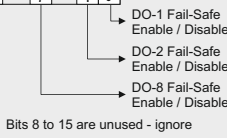
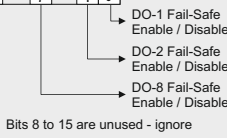
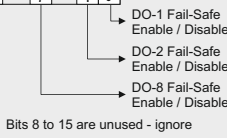
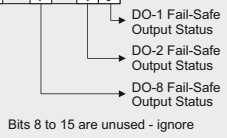
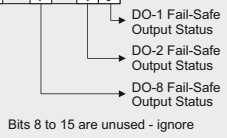
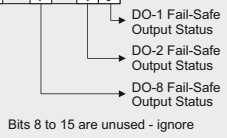
Analog Outputs																
Parameter	MODBUS Address	Settings (Default Value)														
Output Type (Registers) Configuration Parameter (Stored in Non-Volatile memory) Holding Register Function Code (0x06 & 0x10)	4002 (AO-1) & 4003 (AO-2)	<table><tr><th>Value</th><th>Type</th></tr><tr><td>0</td><td>0 to 10 V</td></tr><tr><td>1</td><td>1 to 5 V</td></tr><tr><td>2</td><td>0 to 5 V</td></tr><tr><td>3</td><td>0 to 20 mA</td></tr><tr><td>4</td><td>4 to 20 mA</td></tr><tr><td>5</td><td>0 to 10 mA</td></tr></table> (Default : 0 to 10 V)	Value	Type	0	0 to 10 V	1	1 to 5 V	2	0 to 5 V	3	0 to 20 mA	4	4 to 20 mA	5	0 to 10 mA
Value	Type															
0	0 to 10 V															
1	1 to 5 V															
2	0 to 5 V															
3	0 to 20 mA															
4	4 to 20 mA															
5	0 to 10 mA															
Range Low (Registers) Configuration Parameter (Stored in Non-Volatile memory) Holding Register Function Code (0x06 & 0x10)	4018 (AO-1) & 4019 (AO-2)	-30000 to 30000 (Default : 0)														
Range High (Registers) Configuration Parameter (Stored in Non-Volatile memory) Holding Register Function Code (0x06 & 0x10)	4034 (AO-1) & 4035 (AO-2)	-30000 to 30000 (Default : 1000)														

Parameter	MODBUS Address	Settings (Default Value)										
Output Count (Registers) <i>Run-Time Parameter</i> Holding Register Function Code (0x06 & 0x10)	4066 (AO-1) & 4067 (AO-2)	-30000 to 30000 (Default : 0)										
Fail-Safe Output Mode (Register) <i>Configuration Parameter</i> (Stored in Non-Volatile memory) Bit-Mapped Holding Register Function Code (0x06 & 0x10)	4001	<table border="1"><tr><td>Bit 15</td><td>.....</td><td>Bit 1</td><td>0</td></tr></table> Ignore Bit-2 to Bit-15 → AO-1 Fail-Safe Enable / Disable → AO-2 Fail-Safe Enable / Disable <table border="1"><thead><tr><th>Bit Value</th><th>Enable / Disable</th></tr></thead><tbody><tr><td>0</td><td>Fail-Safe Disable</td></tr><tr><td>1</td><td>Fail-Safe Enable</td></tr></tbody></table>	Bit 15		Bit 1	0	Bit Value	Enable / Disable	0	Fail-Safe Disable	1	Fail-Safe Enable
Bit 15		Bit 1	0									
Bit Value	Enable / Disable											
0	Fail-Safe Disable											
1	Fail-Safe Enable											
Fail-Safe Output Mode (Coils) Function Code (0x05 & 0x0F)	401 (AO-1) & 402 (AO-2)	<table border="1"><thead><tr><th>Coil Value</th><th>Enable / Disable</th></tr></thead><tbody><tr><td>0</td><td>Fail-Safe Disable</td></tr><tr><td>1</td><td>Fail-Safe Enable</td></tr></tbody></table>	Coil Value	Enable / Disable	0	Fail-Safe Disable	1	Fail-Safe Enable				
Coil Value	Enable / Disable											
0	Fail-Safe Disable											
1	Fail-Safe Enable											
Fail-Safe Output Counts (Registers) <i>Configuration Parameter</i> (Stored in Non-Volatile memory) Holding Register Function Code (0x06 & 0x10)	4050 (AO-1) & 4051 (AO-2)	Min : Range Low Counts - 4% of Span* Max : Range High Counts + 4% of Span* * Span = Range High Counts - Range Low Counts										
Communication Link Fail-Safe Time Period (Register) <i>Configuration Parameter</i> (Stored in Non-Volatile memory) Holding Register Function Code (0x06 & 0x10)	3007	1 to 300 Seconds (Default : 10 Seconds)										

Digital Inputs																																						
Modbus Data Type	MODBUS Address	Values																																				
1. Select Digital Input Type <i>Configuration Parameter (Stored in Non-Volatile memory)</i>																																						
Holding Register Function Code (0x06 & 0x10)	2033	<table><tr><th>Value</th><th>DI Type</th></tr><tr><td>0</td><td>Dry (Potential-Free) Open / Close Contact or Open Drain / Collector (Sink)</td></tr><tr><td>1</td><td>Wet Open / Close Contact or Voltage Level</td></tr></table> Default : Dry (Potential-Free) Open / Close Contact or Open Drain / Collector (Sink)	Value	DI Type	0	Dry (Potential-Free) Open / Close Contact or Open Drain / Collector (Sink)	1	Wet Open / Close Contact or Voltage Level																														
Value	DI Type																																					
0	Dry (Potential-Free) Open / Close Contact or Open Drain / Collector (Sink)																																					
1	Wet Open / Close Contact or Voltage Level																																					
2. Instantaneous Digital Input Status (Read-Only Parameters) <i>Run Time Parameter (Read Only)</i>																																						
Bit-Mapped Input or Holding Register <i>Function Code (0x03 or 0x04)</i>	38	<table><tr><td>Bit 15</td><td>..</td><td>Bit 7</td><td>..</td><td>Bit 1</td><td>Bit 0</td></tr><tr><td colspan="6"></td></tr><tr><td colspan="6">Bits 8 to 15 are unused - ignore</td></tr><tr><td colspan="2">Bit Value</td><td colspan="4">DI Status</td></tr><tr><td colspan="2">0</td><td colspan="4">Contact Open / Logic Low</td></tr><tr><td colspan="2">1</td><td colspan="4">Contact Close / Logic High</td></tr></table>	Bit 15	..	Bit 7	..	Bit 1	Bit 0							Bits 8 to 15 are unused - ignore						Bit Value		DI Status				0		Contact Open / Logic Low				1		Contact Close / Logic High			
Bit 15	..	Bit 7	..	Bit 1	Bit 0																																	
																																						
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Bit Value		DI Status																																				
0		Contact Open / Logic Low																																				
1		Contact Close / Logic High																																				
Discrete Input (Coils) <i>Function Code (0x01 & 0x02)</i>	1 (DI-1) to 8 (DI-8)	<table><tr><th>Coil Value</th><th>DI Status</th></tr><tr><td>0</td><td>Contact Open / Logic Low</td></tr><tr><td>1</td><td>Contact Close / Logic High</td></tr></table>	Coil Value	DI Status	0	Contact Open / Logic Low	1	Contact Close / Logic High																														
Coil Value	DI Status																																					
0	Contact Open / Logic Low																																					
1	Contact Close / Logic High																																					
3 (a). Low-to-High Latched Digital Input Status (Read-Only Parameters) <i>Run Time Parameter (Read Only)</i>																																						
Bit-Mapped Input or Holding Register <i>Function Code (0x03 or 0x04)</i>	40	<table><tr><td>Bit 15</td><td>..</td><td>Bit 7</td><td>..</td><td>Bit 1</td><td>Bit 0</td></tr><tr><td colspan="6"></td></tr><tr><td colspan="6">Bits 8 to 15 are unused - ignore</td></tr><tr><td colspan="2">Bit Value</td><td colspan="4">DI Status</td></tr><tr><td colspan="2">0</td><td colspan="4">No 'Low-to-High' Transition</td></tr><tr><td colspan="2">1</td><td colspan="4">'Low-to-High' Transition Detected</td></tr></table>	Bit 15	..	Bit 7	..	Bit 1	Bit 0							Bits 8 to 15 are unused - ignore						Bit Value		DI Status				0		No 'Low-to-High' Transition				1		'Low-to-High' Transition Detected			
Bit 15	..	Bit 7	..	Bit 1	Bit 0																																	
																																						
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Discrete Input (Coils) <i>Function Code (0x01 & 0x02)</i>	33 (DI-1) to 40 (DI-8)	<table><tr><th>Coil Value</th><th>DI Status</th></tr><tr><td>0</td><td>No 'Low-to-High' Transition</td></tr><tr><td>1</td><td>'Low-to-High' Transition Detected</td></tr></table>	Coil Value	DI Status	0	No 'Low-to-High' Transition	1	'Low-to-High' Transition Detected																														
Coil Value	DI Status																																					
0	No 'Low-to-High' Transition																																					
1	'Low-to-High' Transition Detected																																					

Digital Inputs								
Modbus Data Type	MODBUS Address	Values						
3 (b). Low-to-High Acknowledge Command Run Time Parameter (Not Stored in non-volatile memory)								
Bit-Mapped Holding Register Function Code (0x06 & 0x10)	2101	Bit 15 . . Bit 7 . . Bit 1 Bit 0 DI-1 Low-to-High Acknowledge DI-2 Low-to-High Acknowledge DI-8 Low-to-High Acknowledge Bits 8 to 15 are unused - ignore <table><tr><th>Bit Value</th><th>DI Status</th></tr><tr><td>0</td><td>No Effect</td></tr><tr><td>1</td><td>'Low-to-High' Status Cleared</td></tr></table>	Bit Value	DI Status	0	No Effect	1	'Low-to-High' Status Cleared
Bit Value	DI Status							
0	No Effect							
1	'Low-to-High' Status Cleared							
Coils Function Code (0x05 & 0x0F)	101 (DI-1) to 108 (DI-8)	<table><tr><th>Coil Value</th><th>DI Status</th></tr><tr><td>0</td><td>No Effect</td></tr><tr><td>1</td><td>'Low-to-High' Status Cleared</td></tr></table>	Coil Value	DI Status	0	No Effect	1	'Low-to-High' Status Cleared
Coil Value	DI Status							
0	No Effect							
1	'Low-to-High' Status Cleared							
4 (a). High-to-Low Latched Digital Input Status (Read-Only Parameters) Run Time Parameter (Read Only)								
Bit-Mapped Input or Holding Register Function Code (0x03 or 0x04)	42	Bit 15 . . Bit 7 . . Bit 1 Bit 0 DI-1 High-to-Low Latched Status DI-2 High-to-Low Latched Status DI-8 High-to-Low Latched Status Bits 8 to 15 are unused - ignore <table><tr><th>Bit Value</th><th>DI Status</th></tr><tr><td>0</td><td>No 'High-to-Low' Transition</td></tr><tr><td>1</td><td>'High-to-Low' Transition Detected</td></tr></table>	Bit Value	DI Status	0	No 'High-to-Low' Transition	1	'High-to-Low' Transition Detected
Bit Value	DI Status							
0	No 'High-to-Low' Transition							
1	'High-to-Low' Transition Detected							
Discrete Input (Coils) Function Code (0x01 & 0x02)	65 (DI-1) to 72 (DI-8)	<table><tr><th>Coil Value</th><th>DI Status</th></tr><tr><td>0</td><td>No 'High-to-Low' Transition</td></tr><tr><td>1</td><td>'High-to-Low' Transition Detected</td></tr></table>	Coil Value	DI Status	0	No 'High-to-Low' Transition	1	'High-to-Low' Transition Detected
Coil Value	DI Status							
0	No 'High-to-Low' Transition							
1	'High-to-Low' Transition Detected							
4 (b). High-to-Low Acknowledge Command Run Time Parameter (Not Stored in non-volatile memory)								
Bit-Mapped Holding Register Function Code (0x06 & 0x10)	2103	Bit 15 . . Bit 7 . . Bit 1 Bit 0 DI-1 High-to-Low Acknowledge DI-2 High-to-Low Acknowledge DI-8 High-to-Low Acknowledge Bits 8 to 15 are unused - ignore <table><tr><th>Bit Value</th><th>DI Status</th></tr><tr><td>0</td><td>No Effect</td></tr><tr><td>1</td><td>'High-to-Low' Status Cleared</td></tr></table>	Bit Value	DI Status	0	No Effect	1	'High-to-Low' Status Cleared
Bit Value	DI Status							
0	No Effect							
1	'High-to-Low' Status Cleared							
Coils Function Code (0x05 & 0x0F)	133 (DI-1) to 140 (DI-8)	<table><tr><th>Coil Value</th><th>DI Status</th></tr><tr><td>0</td><td>No Effect</td></tr><tr><td>1</td><td>'High-to-Low' Status Cleared</td></tr></table>	Coil Value	DI Status	0	No Effect	1	'High-to-Low' Status Cleared
Coil Value	DI Status							
0	No Effect							
1	'High-to-Low' Status Cleared							
5. Digital Filter Configuration Parameter (Stored in Non-Volatile memory)								
Holding Register Function Code (0x06 & 0x10)	2035 (DI-1) to 2042 (DI-8)	1 to 30000 mSec (Default : 10 mSec)						

Digital Outputs																	
Modbus Data Type	MODBUS Address	Values															
1. Digital Output Function Modes & Associated Parameters																	
Output Status Command Register <i>Run Time Parameter</i> Bit-Mapped Holding Register <i>Function Code (0x06 & 0x10)</i>	3001	<table border="1"><tr><td>Bit 15</td><td>..</td><td>Bit 7</td><td>..</td><td>Bit 1</td><td>Bit 0</td></tr></table>  DO-1 Command DO-2 Command DO-8 Command	Bit 15	..	Bit 7	..	Bit 1	Bit 0									
		Bit 15	..	Bit 7	..	Bit 1	Bit 0										
		Bits 8 to 15 are unused - ignore															
		Write Operation (Bit Positions 0 to 7)															
		<table border="1"><thead><tr><th>Bit Value</th><th>Mode</th><th>DO Status</th></tr></thead><tbody><tr><td rowspan="3">1</td><td>On-Off</td><td>Output ON</td></tr><tr><td>Single Pulse</td><td>Start a new pulse or re-trigger a running pulse</td></tr><tr><td>Pulse Train</td><td>Start / Keep running a Pulse-Train</td></tr><tr><td rowspan="3">0</td><td>On-Off</td><td>Output OFF</td></tr><tr><td>Single Pulse</td><td>No effect</td></tr><tr><td>Pulse Train</td><td>Stop Pulse-Train</td></tr></tbody></table>	Bit Value	Mode	DO Status	1	On-Off	Output ON	Single Pulse	Start a new pulse or re-trigger a running pulse	Pulse Train	Start / Keep running a Pulse-Train	0	On-Off	Output OFF	Single Pulse	No effect
Bit Value	Mode	DO Status															
1	On-Off	Output ON															
	Single Pulse	Start a new pulse or re-trigger a running pulse															
	Pulse Train	Start / Keep running a Pulse-Train															
0	On-Off	Output OFF															
	Single Pulse	No effect															
	Pulse Train	Stop Pulse-Train															

Modbus Data Type	MODBUS Address	Values																																																						
Output Status Command Coils Function Code (0x05 & 0x0F)	301 (DO-1) to 308 (DO-8)	Write Operation (Coil Address 301 to 308) <table><tr><th>Coil Value</th><th>Mode</th><th>DO Status</th></tr><tr><td rowspan="3">1</td><td>On-Off</td><td>Output ON</td></tr><tr><td>Single Pulse</td><td>Start a new pulse or re-trigger a running pulse</td></tr><tr><td>Pulse Train</td><td>Start / Keep running a Pulse-Train</td></tr><tr><td rowspan="3">0</td><td>On-Off</td><td>Output OFF</td></tr><tr><td>Single Pulse</td><td>No effect</td></tr><tr><td>Pulse Train</td><td>Stop Pulse-Train</td></tr></table>	Coil Value	Mode	DO Status	1	On-Off	Output ON	Single Pulse	Start a new pulse or re-trigger a running pulse	Pulse Train	Start / Keep running a Pulse-Train	0	On-Off	Output OFF	Single Pulse	No effect	Pulse Train	Stop Pulse-Train																																					
Coil Value	Mode	DO Status																																																						
1	On-Off	Output ON																																																						
	Single Pulse	Start a new pulse or re-trigger a running pulse																																																						
	Pulse Train	Start / Keep running a Pulse-Train																																																						
0	On-Off	Output OFF																																																						
	Single Pulse	No effect																																																						
	Pulse Train	Stop Pulse-Train																																																						
Output Function Mode Configuration Parameter (Stored in Non-Volatile memory) Holding Register Function Code (0x06 & 0x10)	3008 (DO-1) to 3015 (DO-8)	<table><tr><th>Value</th><th>Function Mode</th></tr><tr><td>0</td><td>ON-OFF</td></tr><tr><td>1</td><td>Single Pulse</td></tr><tr><td>2</td><td>Pulse Train</td></tr></table> (Default : ON-OFF Mode)	Value	Function Mode	0	ON-OFF	1	Single Pulse	2	Pulse Train																																														
Value	Function Mode																																																							
0	ON-OFF																																																							
1	Single Pulse																																																							
2	Pulse Train																																																							
Pulse-ON Time Run-Time / Configuration Parameter (Refer Parameter : 'Save Pulse-ON & Pulse-OFF Times to Non-Volatile Memory') Holding Register Function Code (0x06 & 0x10)	3040 (DO-1) to 3047 (DO-8)	Applicable for 'Single Pulse' & 'Pulse-Train' Mode Only 0 to 30000 Counts (0.01 to 300 Seconds) 1 count = 10 milli-Seconds (Default : 10 Counts)																																																						
Pulse-OFF Time Run-Time / Configuration Parameter (Refer Parameter : 'Save Pulse-ON & Pulse-OFF Times to Non-Volatile Memory') Holding Register Function Code (0x06 & 0x10)	3072 (DO-1) to 3079 (DO-8)	Applicable for 'Pulse-Train' Mode Only 0 to 30000 Counts (0.01 to 300 Seconds) 1 count = 10 milli-Seconds (Default : 10 Counts)																																																						
Save Pulse-ON & Pulse-OFF Times to Non-Volatile Memory Holding Register Function Code (0x06 & 0x10)	3104	Applicable for 'Single Pulse' & 'Pulse-Train' Mode Only <table><tr><th>Value</th><th>Save to Memory</th></tr><tr><td>0</td><td>No</td></tr><tr><td>1</td><td>Yes</td></tr></table>	Value	Save to Memory	0	No	1	Yes																																																
Value	Save to Memory																																																							
0	No																																																							
1	Yes																																																							
2. Output Fail-Safe Status																																																								
'Fail-Safe Enable' Register Configuration Parameter (Stored in Non-Volatile memory) Bit-Mapped Holding Register Function Code (0x06 & 0x10)	3003	<table><tr><td>Bit 15</td><td>...</td><td>Bit 7</td><td>...</td><td>Bit 1</td><td>Bit 0</td></tr><tr><td colspan="6"></td></tr><tr><td colspan="6">DO-1 Fail-Safe Enable / Disable</td></tr><tr><td colspan="6">DO-2 Fail-Safe Enable / Disable</td></tr><tr><td colspan="6">DO-8 Fail-Safe Enable / Disable</td></tr><tr><td colspan="6">Bits 8 to 15 are unused - ignore</td></tr><tr><td colspan="2">Bit Value</td><td colspan="4">Enable / Disable</td></tr><tr><td colspan="2">0</td><td colspan="4">Fail-Safe Disable</td></tr><tr><td colspan="2">1</td><td colspan="4">Fail-Safe Enable</td></tr></table> (Default : Disable)	Bit 15	...	Bit 7	...	Bit 1	Bit 0							DO-1 Fail-Safe Enable / Disable						DO-2 Fail-Safe Enable / Disable						DO-8 Fail-Safe Enable / Disable						Bits 8 to 15 are unused - ignore						Bit Value		Enable / Disable				0		Fail-Safe Disable				1		Fail-Safe Enable			
Bit 15	...	Bit 7	...	Bit 1	Bit 0																																																			
																																																								
DO-1 Fail-Safe Enable / Disable																																																								
DO-2 Fail-Safe Enable / Disable																																																								
DO-8 Fail-Safe Enable / Disable																																																								
Bits 8 to 15 are unused - ignore																																																								
Bit Value		Enable / Disable																																																						
0		Fail-Safe Disable																																																						
1		Fail-Safe Enable																																																						
'Fail-Safe Enable' Coils Function Code (0x05 & 0x0F)	333 (DO-1) to 340 (DO-8)	<table><tr><th>Coil Value</th><th>Enable / Disable</th></tr><tr><td>0</td><td>Fail-Safe Disable</td></tr><tr><td>1</td><td>Fail-Safe Enable</td></tr></table> (Default : Disable)	Coil Value	Enable / Disable	0	Fail-Safe Disable	1	Fail-Safe Enable																																																
Coil Value	Enable / Disable																																																							
0	Fail-Safe Disable																																																							
1	Fail-Safe Enable																																																							
'Fail-Safe Status' Register (This parameter is applicable only if 'Fail-Safe' is enabled) Configuration Parameter (Stored in Non-Volatile memory) Bit-Mapped Holding Register Function Code (0x06 & 0x10)	3005	<table><tr><td>Bit 15</td><td>...</td><td>Bit 7</td><td>...</td><td>Bit 1</td><td>Bit 0</td></tr><tr><td colspan="6"></td></tr><tr><td colspan="6">DO-1 Fail-Safe Output Status</td></tr><tr><td colspan="6">DO-2 Fail-Safe Output Status</td></tr><tr><td colspan="6">DO-8 Fail-Safe Output Status</td></tr><tr><td colspan="6">Bits 8 to 15 are unused - ignore</td></tr><tr><td colspan="2">Bit Value</td><td colspan="4">Output Status</td></tr><tr><td colspan="2">0</td><td colspan="4">OFF</td></tr><tr><td colspan="2">1</td><td colspan="4">ON</td></tr></table> (Default : OFF)	Bit 15	...	Bit 7	...	Bit 1	Bit 0							DO-1 Fail-Safe Output Status						DO-2 Fail-Safe Output Status						DO-8 Fail-Safe Output Status						Bits 8 to 15 are unused - ignore						Bit Value		Output Status				0		OFF				1		ON			
Bit 15	...	Bit 7	...	Bit 1	Bit 0																																																			
																																																								
DO-1 Fail-Safe Output Status																																																								
DO-2 Fail-Safe Output Status																																																								
DO-8 Fail-Safe Output Status																																																								
Bits 8 to 15 are unused - ignore																																																								
Bit Value		Output Status																																																						
0		OFF																																																						
1		ON																																																						
'Fail-Safe Status' Coils Function Code (0x05 & 0x0F)	365 (DO-1) to 372 (DO-8)	<table><tr><th>Coil Value</th><th>Output Status</th></tr><tr><td>0</td><td>OFF</td></tr><tr><td>1</td><td>ON</td></tr></table> (Default : OFF)	Coil Value	Output Status	0	OFF	1	ON																																																
Coil Value	Output Status																																																							
0	OFF																																																							
1	ON																																																							
'Fail-Safe Time Period' Register (This parameter is applicable only if 'Fail-Safe' is enabled) Configuration Parameter (Stored in Non-Volatile memory) Holding Register Function Code (0x06 & 0x10)	3007	1 to 300 Seconds (Default : 10 Seconds)																																																						

FRONT PANEL & CONFIGURATION MODE

POWER

CPU STS

COMM Status

Digital Outputs

Digital Inputs

CONFIG

COMS2288

Device Power Status (ON : Device Powered)

Device CPU Status (Flashing : CPU Status OK)

Serial Comm. Status
(RX Flashing : Receiving Query
TX Flashing : Responding Query)

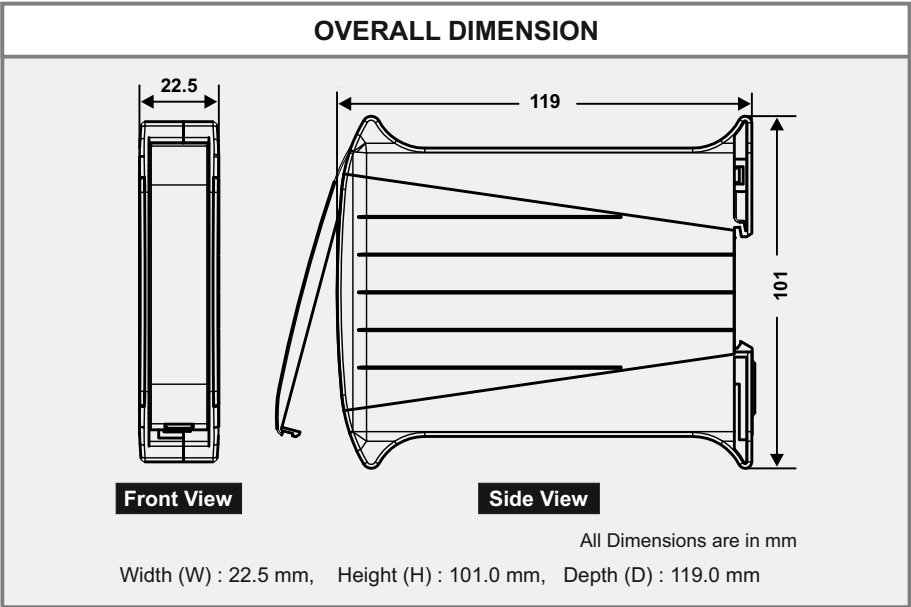
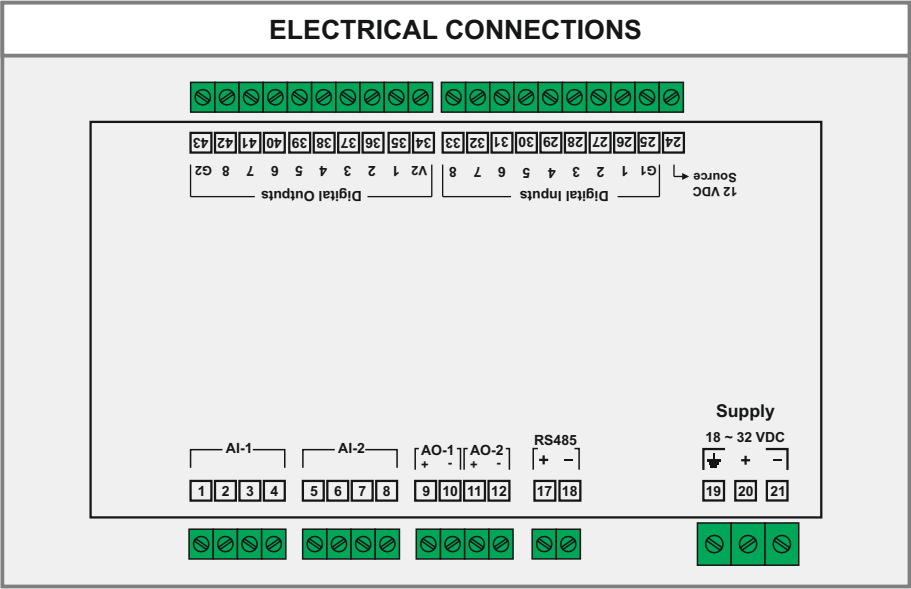
Channel-1 to Channel-8 Digital Output Status
(OFF : Contact Open / Logic Low
ON : Contact Close / Logic High)

Channel-1 to Channel-8 Digital Input Status
(OFF : Contact Open / Logic Low
ON : Contact Close / Logic High)

Slide Switch Set for Configuration Mode

Configuration Mode

Switch Position	ON 1 2 Down	ON 1 2 Up
Mode Indicator	OFF	ON
Operation Mode	Normal	Configuration
Communication Parameter Values	User Set values for Module Slave ID, Baud Rate & Parity	Module Slave ID : 1 Baud Rate : 9600 Parity : None



AI + AO + DI + DO CHANNELS

Analog Input

AI - X

T1 T2 T3 T4

+

-

TC

T1 T2 T3 T4

RTD

+

-

T1 T2 T3 T4

mA / mV / V

Analog Output

AO-X

T1 T2

mA / V

+

-

T1 T2

Current (mA) Output

+

-

R_L

(Max 500Ω)

Voltage (V) Output

+

-

R_L

(Min 1000Ω)

Digital Input

Dry Contact / Open Drain / Open Collector

Open Drain

Open Collector

Dry Contact

T

G1

Wet Contact / Voltage Pulses

5 to 30 VDC

Wet Contact

Voltage Pulses

T

G1

T = 1, 2,7, 8

Digital Output

External Supply 9 to 30VDC

LOAD

G2

8

LOAD

2

LOAD

1

V2