AIMS Plus

Enhanced Features :
Programmable Channel Sampling Rate
Support for Pt1000 Sensor

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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Input Registers (Read-Only Parameters)

Parameter	MODBUS Address	Values
Process Value	1561 to 1564 (4 Channels) 1561 to 1568 (8 Channels)	Value / PV Error Type -32768 Under Range +32752 Over Range +32767 Sensor Open
Alarm-1 Status	1577	Bit 15 . . . Bit 7 . . . Bit 1 Bit 0 (n = 1, 2, 3, 4) Alarm-n Status for Channel-1 Alarm-n Status for Channel-2 Alarm-n Status for Channel-8 Bit Value: 0 Alarm OFF; 1 Alarm ON For 4 Ch Version (AIMS Plus-4X), ignore Bit-4 to Bit-15 For 8 Ch Version (AIMS Plus-8X), ignore Bit-8 to Bit-15
Alarm-2 Status	1578	
Alarm-3 Status	1579	
Alarm-4 Status	1580	
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 to 86 (4 Channels) 83 to 90 (8 Channels)	**Applicable for Input Type TC / RTD Pt100 / V / mV / mA** 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 17 0 to 160 mV 18 to 20 Reserved (Default: 0 to 160 mV) 21 RTD Pt1000, 3-wire (Default : 0 to 10 V) **Applicable for Input Type RTD Pt100** 0 RTD Pt100, 3-wire (This is a ***Read Only*** parameter) **Applicable for Input Type TC / mV** 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 0 to 80 mV (Default : Type K)
Input Type	83 to 86 (4 Channels) 83 to 90 (8 Channels)	**Applicable for Input Type V / mA** 0 0 to 20 mA 1 4 to 20 mA 2 0 to 1.25 V 3 0 to 5 V 4 0 to 10 V 5 1 to 5 V (Default : 0 to 10 V)
Temperature Units	99 to 102 (4 Channels) 99 to 106 (8 Channels)	**Conditional Parameter** 0 °C 1 °F (Default : °C)
DC Resolution	115 to 118 (4 Channels) 115 to 122 (8 Channels)	**Conditional Parameter** 0 1 1 0.1 2 0.01 3 0.001 4 0.0001 (Default : 1 Unit for DC Linear input & 0.1 for Thermocouple & RTD)
Signal Low	501 to 504 (4 Channels) 501 to 508 (8 Channels)	**Conditional Parameter** Input Type / Settings / Default 0 to 20 mA / 0.00 to Signal High / 0.00 4 to 20 mA / 4.00 to Signal High / 4.00 0 to 80 mV / 0.00 to Signal High / 0.00 0 to 160 mV / 0.0 to Signal High / 0.0 0 to 1.25 V / 0.000 to Signal High / 0.000 0 to 5 V / 0.000 to Signal High / 0.000 0 to 10 V / 0.00 to Signal High / 0.00 1 to 5 V / 1.000 to Signal High / 1.000
Signal High	517 to 520 (4 Channels) 517 to 524 (8 Channels)	**Conditional Parameter** Input Type / Settings / Default 0 to 20 mA / Signal Low to 20.00 / 20.00 4 to 20 mA / Signal Low to 20.00 / 20.00 0 to 80 mV / Signal Low to 80.00 / 80.00 0 to 160 mV / Signal Low to 160.0 / 160.0 0 to 1.25 V / Signal Low to 1.250 / 1.250 0 to 5 V / Signal Low to 5.000 / 5.000 0 to 10 V / Signal Low to 10.00 / 10.00 1 to 5 V / Signal Low to 5.000 / 5.000
Range Low	131 to 134 (4 Channels) 131 to 138 (8 Channels)	**Conditional Parameter** -30000 to 30000 (Default : 0)
Range High	147 to 150 (4 Channels) 147 to 154 (8 Channels)	**Conditional Parameter** -30000 to 30000 (Default : 1000)
Offset for PV	163 to 166 (4 Channels) 163 to 170 (8 Channels)	-30000 to 30000 (Default : 0)
Alarm-1 Type	179 to 182 (4 Channels) 179 to 186 (8 Channels)	Value / Type 0 None 1 Process Low 2 Process High (Default : None)
Alarm-2 Type	243 to 246 (4 Channels) 243 to 250 (8 Channels)	
Alarm-3 Type	307 to 310 (4 Channels) 307 to 314 (8 Channels)	
Alarm-4 Type	371 to 374 (4 Channels) 371 to 378 (8 Channels)	

Parameter	MODBUS Address	Settings (Default Value)
Alarm-1 Set-point	195 to 198 (4 Channels) 195 to 202 (8 Channels)	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 to 262 (4 Channels) 259 to 266 (8 Channels)	
Alarm-3 Set-point	323 to 326 (4 Channels) 323 to 330 (8 Channels)	
Alarm-4 Set-point	387 to 390 (4 Channels) 387 to 394 (8 Channels)	
Alarm-1 Hysteresis	211 to 214 (4 Channels) 211 to 218 (8 Channels)	1 to 30000 (Default : 20)
Alarm-2 Hysteresis	275 to 278 (4 Channels) 275 to 282 (8 Channels)	
Alarm-3 Hysteresis	339 to 342 (4 Channels) 339 to 346 (8 Channels)	
Alarm-4 Hysteresis	403 to 406 (4 Channels) 403 to 410 (8 Channels)	
Alarm-1 Inhibit	227 to 230 (4 Channels) 227 to 234 (8 Channels)	Value / Inhibit 0 Disable 1 Enable (Default : Disable)
Alarm-2 Inhibit	291 to 294 (4 Channels) 291 to 298 (8 Channels)	
Alarm-3 Inhibit	355 to 358 (4 Channels) 355 to 362 (8 Channels)	
Alarm-4 Inhibit	419 to 422 (4 Channels) 419 to 426 (8 Channels)	
Enable Bottom Cliping	435 to 438 (4 Channels) 435 to 442 (8 Channels)	Value / Enable 0 No 1 Yes (Default : No)
Bottom Clip Value	451 to 454 (4 Channels) 451 to 458 (8 Channels)	-30000 to 30000 (Default : 0)
Enable Top Cliping	467 to 470 (4 Channels) 467 to 474 (8 Channels)	Value / Enable 0 No 1 Yes (Default : No)
Top Clip Value	483 to 486 (4 Channels) 483 to 490 (8 Channels)	-30000 to 30000 (Default : 1000)
ADC Sample Time	1557	Value / Type 0 146 mS 1 79 mS 2 45 mS (Default : 45 mS for AIMS Plus 4D / 8D versions and 146 mS for other versions.)

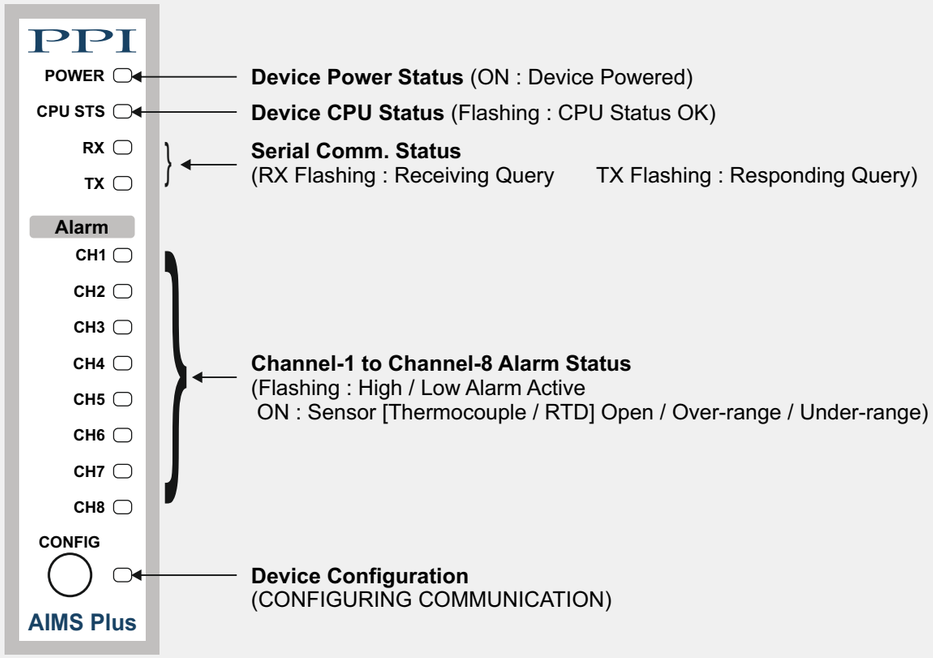
Configuring Communication Parameters

Parameter	MODBUS Address	Settings (Default Value)
Modbus Slave ID	1	1 to 127 (Default : 1)
Baud Rate	2	Value / Baud Rate 0 2400 bps 1 4800 bps 2 9600 bps 3 19200 bps 4 38400 bps 5 57600 bps (Default : 9600 bps)
Parity	3	Value / Parity 0 None 1 Even 2 Odd (Default : Even)

Table 1

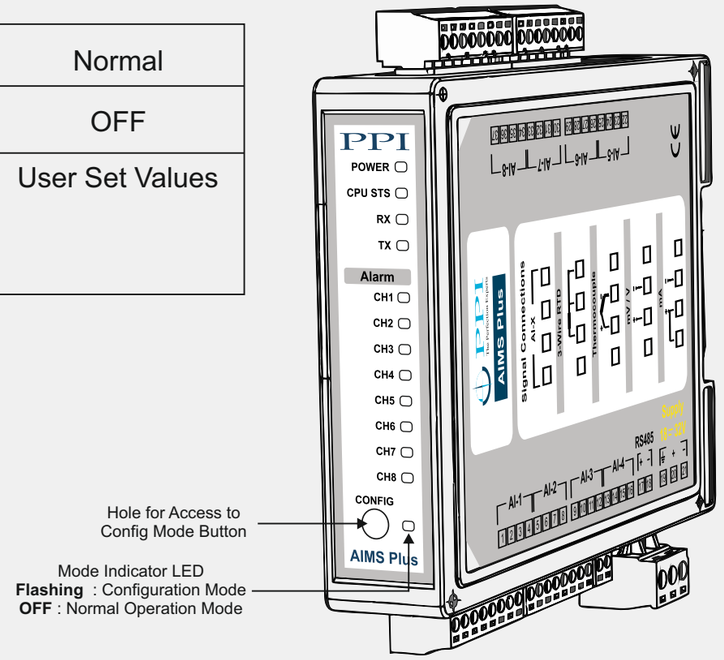
Input Type	Range (Min. to Max.)	Resolution
Type J Thermocouple	0 to +960.0°C / +32.0 to +1760.0°F	0.1 °C / °F
Type K Thermocouple	-200.0 to +1376.0°C / -328.0 to +2508.0°F	
Type T Thermocouple	-200.0 to +387.0°C / -328.0 to +728.0°F	
Type R Thermocouple	0 to +1771.0°C / +32.0 to +3219.0°F	
Type S Thermocouple	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	
2 / 3-wire, RTD Pt100	-199.0 to +850.0°C / -328.0 to +1562.0°F	
2 / 3-wire, RTD Pt1000		
0 to 20mA DC current	-30000 to 30000 units	1 0.1 0.01 0.001 0.0001 Units
4 to 20mA DC current		
0 to 80mV DC voltage		
0 to 160mV DC voltage		
0 to 1.25V DC voltage		
0 to 5.0V DC voltage		
0 to 10.0V DC voltage		
1 to 5.0V DC voltage		

FRONT PANEL

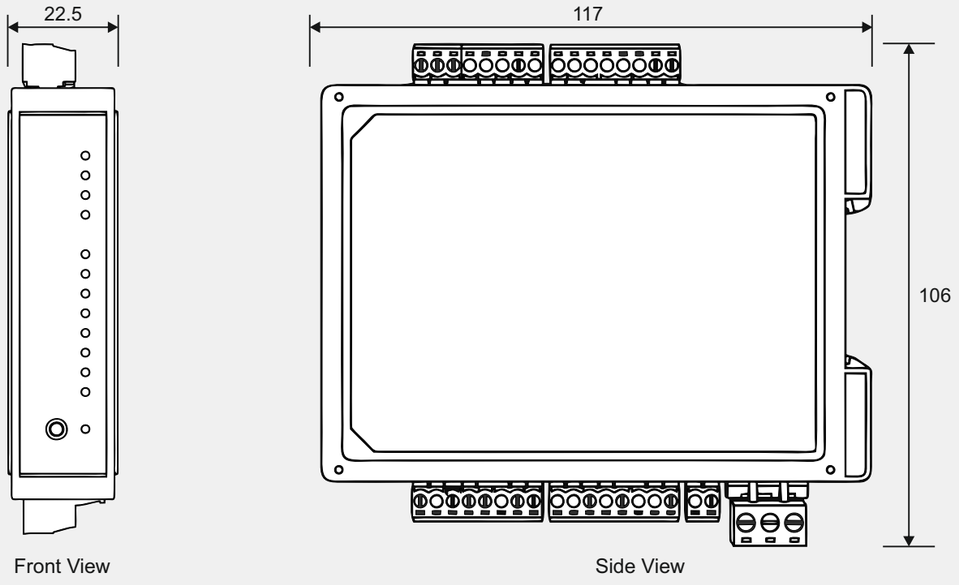


CONFIGURING COMMUNICATION

Operation Mode	Configuration	Normal
Mode Indicator LED	Flashing	OFF
Communication Parameter Values	Fixed Values Slave ID : 1 Baud Rate : 9600 bps Parity : None	User Set Values



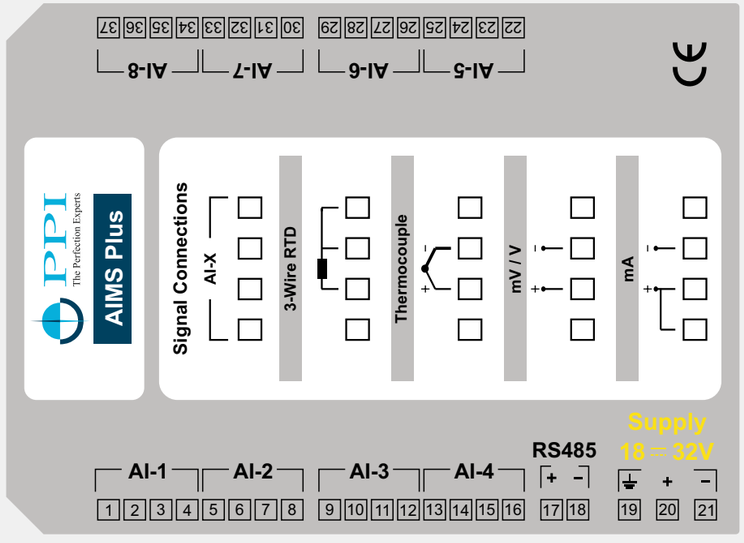
OVERALL DIMENSION



(All Dimensions in mm)

ELECTRICAL CONNECTIONS

4 / 8 Channel Module



Note : For 4 Channel Version the connectors for channels AI-5 to AI-8 are not fitted.