

ARTESYN POWERPRO DONGLE

MODBUS RTU TO CANBUS/CANOPEN
MODBUS RTU TO PMBUS



Modbus RTU communication is suitable for long distance data transmission in electrically noisy environments. Advanced Energy's Artesyn PowerPro Dongle support Modbus RTU communication for many Artesyn power supply series, such as NeoPower, LCM10K, LCM4000HV, iTS and iHP series. It converts CANbus/CANopen and PMbus protocols to the Modbus input on the PSU*.

CONTENTS

[Ordering Part Number](#)

[Mechanical Drawings](#)

[Connectors and Pin Definitions](#)

[Environment Specifications](#)

[Regulatory Requirements](#)

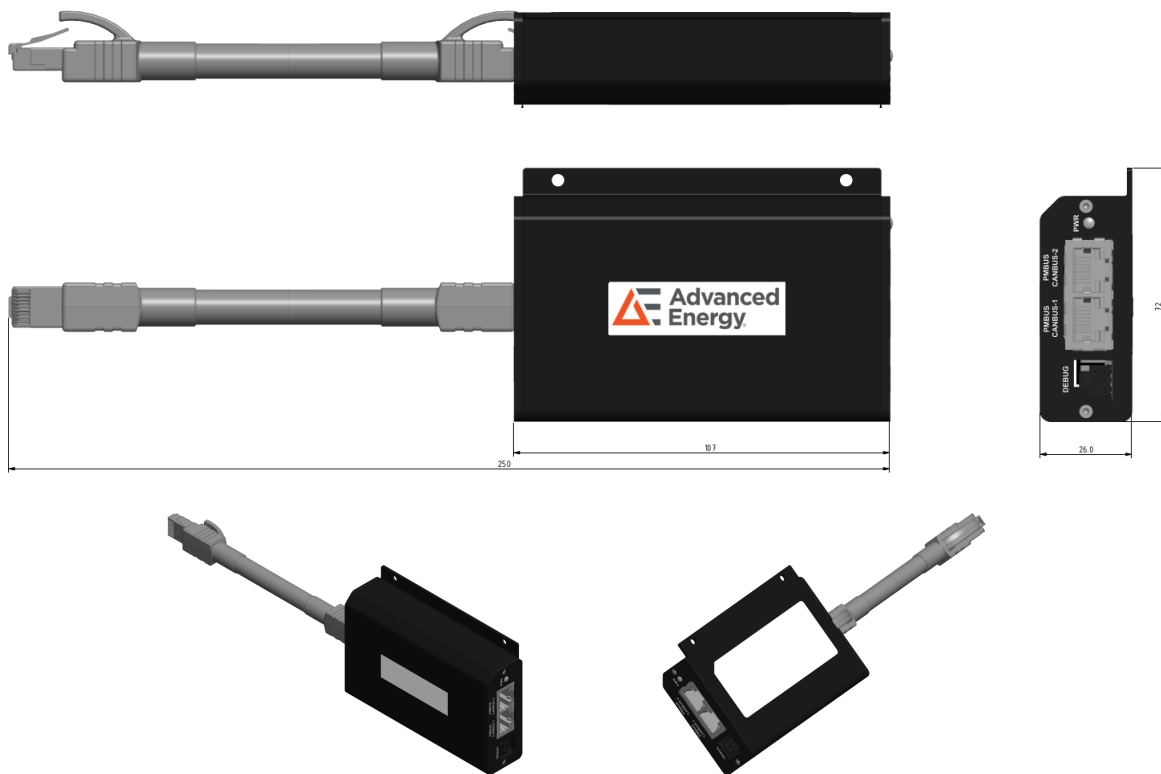
*Note: Contact AE technical support for the communication protocols documents.

POWERPRO DONGLE

ORDERING PART NUMBER

Ordering Part Number	Description
83-200-001	Dongle that converts CANBUS/CANOPEN and PMBUS protocols to the ModBus protocol

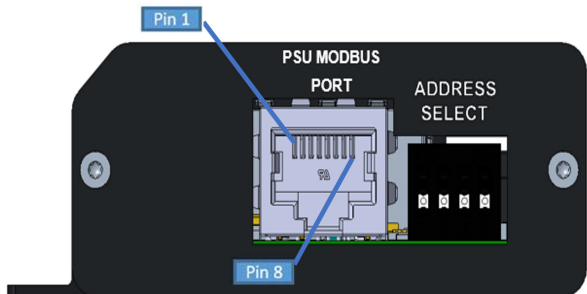
MECHANICAL DRAWINGS



Note: The dongle come with a RJ45 to RJ45 cable plug connected to the power supply.

CONNECTORS AND PIN DEFINITIONS

Back End Side




Back End Connector	Description
PSU MODBUS PORT	RJ45 port to the power supply
ADDRESS SELECT	DIP switch to set the I2C address and CAN ID

CONNECTORS AND PIN DEFINITIONS (CON'T)

PSU MODBUS PORT Connector Pin Definition

Pin	Description	Pin	Description
1	RS485 A	5	Reserve
2	RS485 B	6	Communication Return
3	Reserve	7	+5V Logic Supply
4	Communication Return	8	+5V Logic Supply Return

Addressing Switch

	ADDRESS SELECT Switch State	DIP ADDR[0] value Position 1	DIP ADDR[1] value Position 2	DIP ADDR[2] value Position 3	DIP ADDR[3] value Position 4
	ON	Set ADDR[0] = "0"	Set ADDR[1] = "0"	Set ADDR[2] = "0"	Reserved
OFF	Set ADDR[0] = "1"	Set ADDR[1] = "1"	Set ADDR[2] = "1"	Reserved	

Addressing - PMBUS

The dongle supports up to 8 unique customer facing addresses.

Bits 7-4	Bit 3 (A2)*	Bit 2 (A1)*	Bit 1 (A0)*	Bit 0 (R/W)	Address (R/W)
1011	0	0	0	1/0	0xB1/ 0xB0
1011	0	0	1	1/0	0xB3/ 0xB2
1011	0	1	0	1/0	0xB5/ 0xB4
1011	0	1	1	1/0	0xB7/ 0xB6
1011	1	0	0	1/0	0xB9/ 0xB8
1011	1	0	1	1/0	0xBB/ 0xBA
1011	1	1	0	1/0	0xBD/ 0xBC
1011	1	1	1	1/0	0xBF/ 0xBE

* DIP SWITCH ADDR [2-0] = [A2, A1, A0]

Addressing - CANBUS

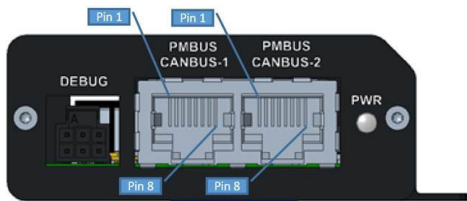
The dongle supports up to 8 unique customer facing addresses.

Bits 10-3	Bit 2 (A2)*	Bit 1 (A1)*	Bit 0 (A0)*	Address
00001011	0	0	0	0x58
00001011	0	0	1	0x59
00001011	0	1	0	0x5A
00001011	0	1	1	0x5B
00001011	1	0	0	0x5C
00001011	1	0	1	0x5D
00001011	1	1	0	0x5E
00001011	1	1	1	0x5F

* DIP SWITCH ADDR [2-0] = [A2, A1, A0]

CONNECTORS AND PIN DEFINITIONS (CON'T)

Front End Side



Front End Connector	Description
PMBUS CANBUS-1 & PMBUS CANBUS-2	Dual RJ45 ports for daisy-chaining up to 8 dongles
DEBUG	Dongle bootload and FRU writing (RS232 signal) ModBus daisychain (RS485 signal)

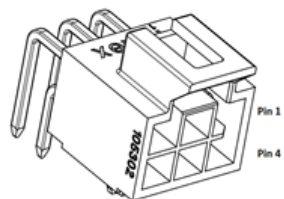
PMBUS CANBUS-1 / PMBUS CANBUS-2 Connector Pin Definition

Pin	Description (Left RJ45)	Description (Right RJ45)	External Resistor
1	Serial Data Signal (SDA)	Serial Data Signal (SDA)	Pull-up resistor 470 to 680 ohms, 1% tolerance
2	Digital Ground	Digital Ground	N/A
3	Serial Clock Signal (SCL)	Serial Clock Signal (SCL)	Pull-up resistor 470 to 680 ohms, 1% tolerance
4	Reserve	Reserve	N/A
5	Reserve	Reserve	N/A
6	SMBALERT#	SMBALERT#	Pull-up resistor 10K ohms, 1% tolerance
7	CANBus High	CANBus High	120 ohms, 1% tolerance resistor across CANBus Low and High signals
8	CANBus Low	CANBus Low	

Debug Connector Pin Definition

The dongle debug connector provides dongle bootload and FRU writing capability through RS232 signal* and passthrough ModBus daisychain capability through RS485 signal.

Pin	Signal	Description
1	RS232 TX	Dongle FW bootloading / FRU Write
2	GND	Ground
3	RS485A	Modbus passthrough from PSU
4	RS232 RX	Dongle FW Bootloading / FRU Write
5	GND	Ground
6	RS485B	Modbus passthrough from PSU



* RS232 serial configuration: Data Rate=9600, Data Bits=8, Parity=none, Stop Bits=1.

PWR LED

Color	Description
Solid Blue	Indicates dongle power on
Solid Amber	Indicates a dongle fault has occurred
Off	Indicates dongle power off

ENVIRONMENT SPECIFICATIONS

Environment Specifications	
Operational Temperature	-40°C to 70°C
Storage Temperature	-40°C to 85°C
Humidity	Operating, non-condensing 10% to 95% RH
EMC (Tested with compatible PSU model)	EN55035, CISPR 35: Emissions and immunity requirements FCC Part 15, EN55032, CISPR 32: Conducted emission FCC Part 15, EN55032, CISPR 32: Radiated emission
Shock and Vibration	TBD

REGULATORY REQUIREMENTS

Standard	Description
Safety Approvals	CE (LVD+ROHS), EN 62368-1 Listed
ROHS	RoHS 6 compliant



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ABOUT ADVANCED ENERGY

Advanced Energy (AE) has devoted more than four decades to perfecting power for its global customers. AE designs and manufactures highly engineered, precision power conversion, measurement and control solutions for mission-critical applications and processes.

Our products enable customer innovation in complex applications for a wide range of industries including semiconductor equipment, industrial, manufacturing, telecommunications, data center computing, and medical. With deep applications know-how and responsive service and support across the globe, we build collaborative partnerships to meet rapid technological developments, propel growth for our customers, and innovate the future of power.

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