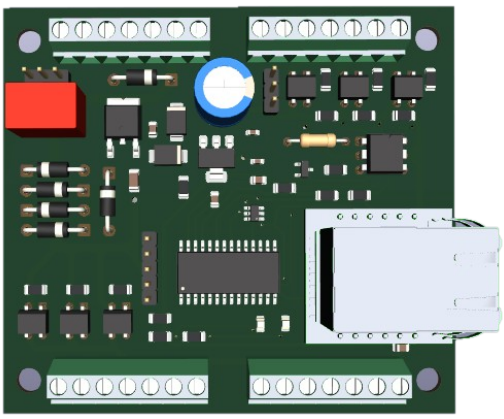
AMT Millennium ETH

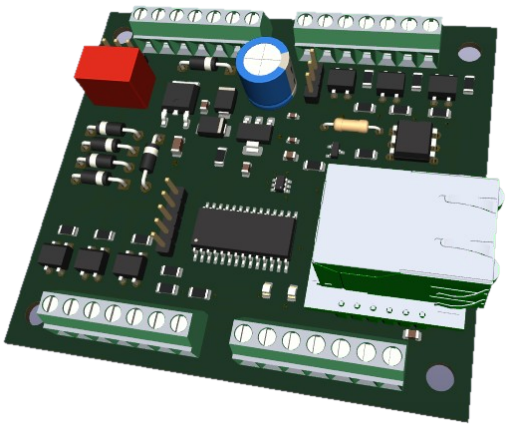
Ethernet Pulse-Rate Totalizer & I/O Module

Product Specification

A network-addressable pulse-rate totalizer and I/O module. It counts and measures the rate of an isolated pulse input, provides digital and analog I/O, and is accessed over Ethernet using either a custom ASCII/TCP protocol or Modbus TCP. Supplied as a bare OEM PCB module for panel or embedded integration.



Top view



Isometric view

Pulse / Totalizer Input

Channels	1 (dedicated pulse / totalizer input)
Signal	5 to 24 VDC, optically isolated
Frequency range	0.5 Hz to 30 kHz
Minimum pulse width	> 33.33 us high / low
Totalizer	56-bit non-volatile counter; retained through power loss. Reset requires a four-digit code and is available over the ASCII protocol only
Maximum count	72,057,594,037,927,935
Count longevity	approx 76,000 years at 30 kHz; approx 457,000 years at 5 kHz
Rate measurement	Hardware period measurement, 8 MHz timebase (0.125 us resolution)
Rate calibration	Field-calibratable against a reference frequency; correction stored non-volatile

Digital & Analog I/O

Digital inputs	3 channels, 5 to 24 VDC, optically isolated (shared input common)
Digital outputs	3 channels, optically isolated, open-collector (shared output common)
Analog inputs	4 channels, 0 to 5 VDC, 12-bit resolution (0 to 4095), single-ended, non-isolated
Isolation	Optical on pulse input, digital inputs and digital outputs; separate user commons for inputs and outputs. Analog inputs and power are non-isolated.

Communications

Interface	Ethernet 10/100, RJ45
Protocols	ASCII over TCP (port 5000) or Modbus TCP (port 502), selected by an onboard jumper and read at power-up; one protocol active at a time
Modbus support	Read Input Registers, Read Discrete Inputs, Read Coils, Write Single Coil, and Write Multiple Registers for the code-gated control block
Default network	IP 192.168.1.222 (field configurable)
Configuration jumpers	Protocol select and factory reset, both read at power-up. Factory reset restores the default address and counter reset code; the pulse total and calibration are not affected
Firmware update	Field-updatable over Ethernet. A resident bootloader stages and verifies each image before it is activated, so an interrupted update cannot disable the unit. Updating requires the four-digit access code

Power

Input power	12 or 24 VDC (user selectable)
Current draw	< 130 mA at 24 VDC
Connection	Screw (cage) terminal block

Physical / Mechanical

Form factor	Bare OEM PCB module (no enclosure)
Board size	72 mm x 80 mm
Mounting holes	4 x 5 mm ID; 70.5 mm x 60 mm spacing
Panel mounting	Optional DIN-rail mounting
Connections	Screw (cage) terminal blocks

Terminal Connections

Screw (cage) terminal blocks. Isolated pulse input and digital inputs share User Common 1; isolated digital outputs use User Common 2; analog inputs are single-ended to DC Common.

TB1 - Power

Terminal	Signal
1	DC Input
2	DC Input
3	(not used)
4	+12 VDC
5	(not used)
6	DC Common
7	DC Common

TB2 - Pulse & Digital Inputs

Terminal	Signal
1	Pulse In
2	Pulse In Common
3	Input 1
4	Input 2
5	Input 3
6	User Common 1 (USR_COM1)
7	User Common 1 (USR_COM1)

TB3 - Digital Outputs

Terminal	Signal
1	Output 1 (open collector)
2	Output 2 (open collector)
3	Output 3 (open collector)
4	User Common 2 (USR_COM2)
5	(not used)
6	DC Common
7	DC Common

TB4 - Analog Inputs

Terminal	Signal
1	Analog In 1
2	DC Common
3	Analog In 2
4	DC Common
5	Analog In 3
6	DC Common
7	Analog In 4

Typical Applications

Energy submetering (pulse-output kWh meters), flow measurement (turbine / gear / paddle-wheel flowmeters), run-hour logging on rotating equipment, production and batch counting, fuel and fluid dispensing, and industrial IoT / edge data collection.

OEM Program

Private-label / white-label branding; board-level supply for embedded OEM builds; custom firmware for specialized applications; bare-board or DIN-rail-mount SKUs. Volume pricing available - contact AMT for a quote.