



### Features

- 8 Programmable High-speed Digital/Analog I/O pins
- 10 amp sink/source/bridge with fault monitoring
- Simultaneous analog inputs on all pins
- Programmable digital voltage thresholds
- RS-485 port with MODBUS protocol
- P8X32A 80MHz multicore 32-bit processor
- +9 to +32V operation – fully protected
- Individual LED indicators
- Compact vertical DIN rail mounting 80x80x25mm
- Pluggable **Combicon** terminal connections
- Field upgradeable Quad I/O modules

```

32  plc.Source(solenoid)
33  plc.Task(MaintainTemperature)
34  plc.Task(RunMotor)
35
36  pub MaintainTemperature
37  plc.Source(Heater)
38  repeat
39  if plc.Vin(temperature) < 280
40  plc.TurnOn(Heater,5000)
41  else
42  plc.TurnOff(Heater,0)
43
44  pub RunMotor
45  plc.MakeBridge(Motor) ' Motor pins (I/O 3 & 4) form a H-bridge
46  if plc.InputOn(Heater) and plc.InputOn(runswitch)
47  if plc.InputOff(limitswitch)
48  plc.Forward(Motor,3000) ' run motor forward while runswitch is c

```



### Overview

A PLC that's designed for rugged environments and automotive operation from +9 to +32V with on-board current limiting and transient protection. The PLC features 8 pin programmable inputs/outputs capable of sourcing or sinking 10 amps each. Each input/output can be configured for analog/digital input, source, sink, or paired as H-bridges for full motor control.

Communications with the MultiPLC is via the RS485 port using MODBUS or customer specified protocol which means this unit can operate as the control PLC or as dumb I/O in a distributed system. The multicore processor features eight 32-bit cores ready to tackle any high-speed real-time operation and is user programmable. User "programs" run in parallel on their own processor. Free Windows based programming software is available along with predefined support libraries.

### ADDITIONAL FEATURES:

- All inputs feature analog to digital conversion
- Load monitoring which detects faulty loads (shorts or open-circuits)
- Independently variable PWM or frequency switching per pin
- Minimum continuous 6A source, 10A sink
- High-speed digital inputs (all encoder capable)
- Special function I/O modules available (Thermocouple, current-loop, CAN bus)

### APPLICATIONS

- Networked PLC or distributed I/O
- Motor and solenoid controllers
- Stepper motor control



### Multicore PLC Module

The heart of the MultiPLC is a unique multicore processor which has eight 32-bit processors on the one chip. The advantages offered by a multicore processor over a single processor are the simultaneous high-speed operations that are performed concurrently without interruptions as would be the case in a single core. Some of these tasks also include communications, timing, and high-speed pulse generation/measurements as well as the high-level tasks associated with programmable logic control.

Each processor core is 32-bits wide which means complex instructions and data can be manipulated in a single step that would take a more conventional 8-bit CPU many more steps to achieve the same result. However, unlike 8-bit processors the P8X32A operates at around 10 times the raw speed of most 8-bit processors so this coupled with eight 32-bit cores means there is just no comparison. Effectively there is no "wall" at which the processor runs out of processing power for PLC applications. PLC scan times are irrelevant as each core can react in real-time to events to within a fraction of a microsecond.

Most PLCs offer a number of "I/O" lines implemented as some dedicated digital inputs and some dedicated digital outputs that usually switch loads with a single polarity. When special outputs such as reversible motors, speed-control, analog signals and high-speed inputs are required most PLCs can be expanded with special modules specifically for these applications. What the MultiPLC does is far more versatile as each of its 8 I/O pins are capable of being programmed under software control to perform whatever is necessary without adding special function modules. Whether it is H-bridge motor control, stepper motors, encoders, and RPM inputs or analog controls the pin driver handles this easily as well the usual digital functions totally under software control.

Internally there are two pluggable quad pin-driver modules fitted as standard that can source, sink, both, or input. Each module may parallel its own outputs as needed. As well other modules are available for special functions such as Thermocouples, analog outputs, Current loops, CAN bus, etc.

#### SIGNAL CONNECTIONS

1	+VIN	+9 to 32V power
2	GND	Common
3	RS485A	RS485 A
4	RS485B	RS485 B
5	IO 1	INPUT/OUTPUT
6	IO 2	INPUT/OUTPUT
7	IO 3	INPUT/OUTPUT
8	IO 4	INPUT/OUTPUT
9	IO 5	INPUT/OUTPUT
10	IO 6	INPUT/OUTPUT
11	IO 7	INPUT/OUTPUT
12	IO 8	INPUT/OUTPUT

<b>Supply Voltage</b>	+9 to +32V
<b>Supply Current</b>	50ma @ +24V
<b>Weight</b>	200g approx
<b>Case</b>	Polyamide (PA 6.6)
<b>Environment</b>	-55°C to +125°C operating
<b>Standards</b>	IEC 1010; AS/NZS 3548 EMI/EMC; C Tick

<b>RS-232</b>	3.5mm jack Programming port
<b>RS-485</b>	9600 – 2Mbit
<b>PROTOCOL</b>	MODBUS RTU MASTER or SLAVE
<b>IO MODULES</b>	2 QUAD COMBO I/O modules fitted
<b>CPU</b>	P8X32A 8-core 32-bit CPU
<b>MEMORY</b>	64KB EEPROM, 48K RAM, 32K ROM, 1MB Dataflash

#### PIN CONFIGURATIONS

- Digital Input (24V) with or without programmable pull-up/pull-down
- High-current SOURCE or SINK
- High-current half bridge switches between ground or supply or disconnected
- Analog input (0..25.3V)



**CesCom**

 **N400**  
ACA approved



**CE0810**  
**MultiPLC**

*Multicore PLC Module*