

COLLINE IO

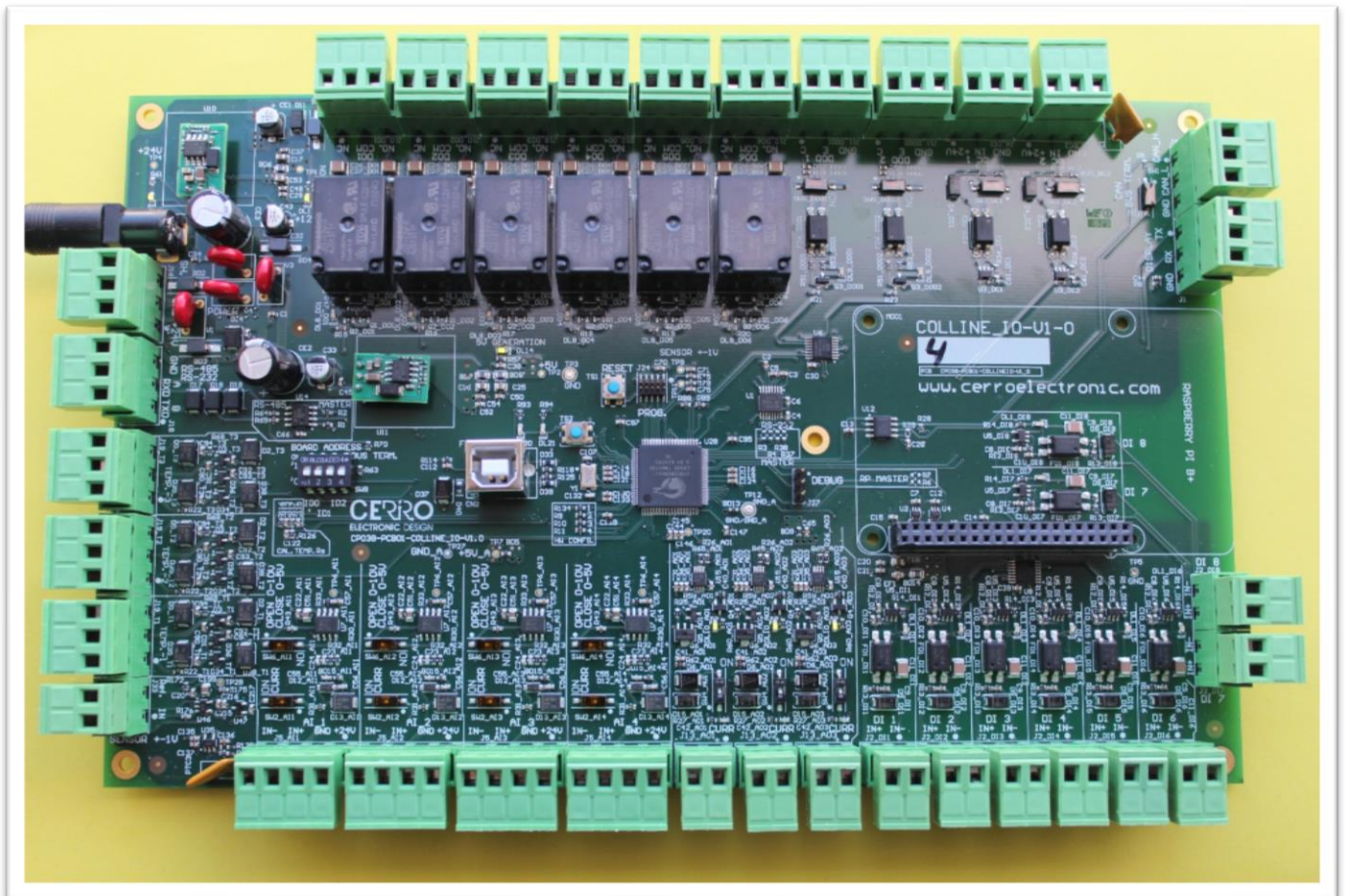
Inputs/outputs control board

CollineIO board is a general purpose inputs/outputs control board. It is able to manage digital and analog signals.

It can work as a master or as a slave. Working as a master, users can develop their own software to read/write to any input/output. Cerro will supply a software example and the users will create their own application using free IDE from Cypress PSOC Creator.

Working as a slave, an external CPU, using industrial standard MODBUS RTU protocol will ask to the board the status of the inputs or set the outputs. The external CPU can use RS-485 or RS-232 to communicate with it. Another possibility is to plug a RaspberryPi (or other format size compatible) in the internal connector. CollineIO firmware will manage all the input/outputs according to the commands received from the external CPU.

CollineIO is based on PSoC Programmable System-on-Chip, CY8C5868AXI-LP035, ARM Cortex- M3, 256 KB Flash, 62 GPIOs an analogue peripherals.



Application

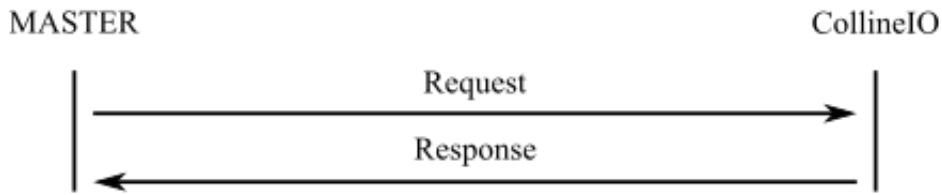
- Factory automation
- Building automation system
- Machinery control
- Remote monitoring and control

Features

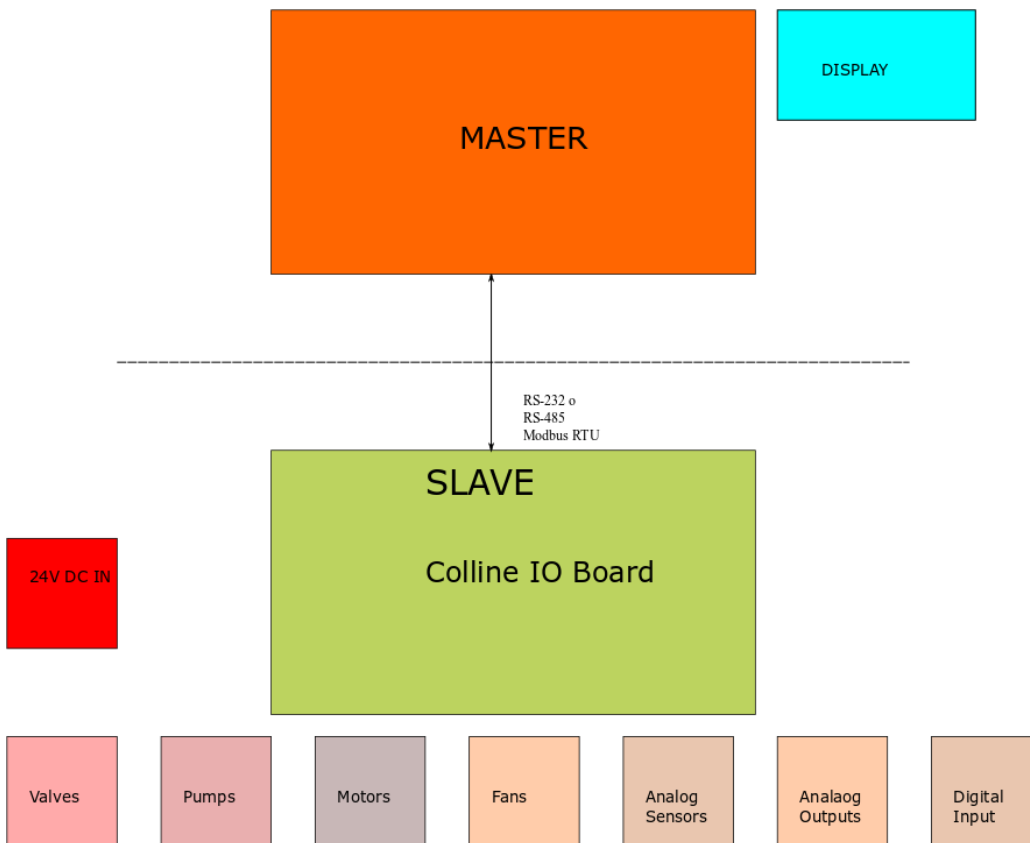
Communication	<ul style="list-style-type: none"> • RS-485 • RS-232 • CAN • USB for FW uploading • MODBUS RTU
Digital Inputs	<ul style="list-style-type: none"> • 8 General opto-isolated inputs, maximum 30V. On board led to indicate the state of each input. • 2 Pulse inputs able to count pulse frequency inputs up to 5Khz.
Analog Input	<ul style="list-style-type: none"> • 4 Input channels, hardware configurable: 0-20mA, 4-20ma, 0-5V & 0-10V. • Each channel can be configured as voltage/current input using an integrated microswitch. • One additional channel for a high precision sensor in the $\pm 1V$ range (for example, pH sensor). • 20 bits ADC resolution.
Digital output	<ul style="list-style-type: none"> • 6 channels based on power relay (10A), with NO and NC contacts available. Includes snubber filter and status LED for each output. • 2 opto-isolated channels. Pull-up resistor connected to 24V, configurable using an integrated microswitch. Includes a status LED for each output.
Analog Outputs	<ul style="list-style-type: none"> • 3 channels 0-20mA, 4-20mA, 0-5V or 0-10V. Current or voltage configurable with microswitch • 8 bits DAC resolution
Temperature	<ul style="list-style-type: none"> • 3 PT-100 channels, $\pm 1^{\circ}C$
Input for Sensor	<ul style="list-style-type: none"> • $\pm 1V$ output sensor
Power	<ul style="list-style-type: none"> • 24VDC/400mA
Microprocessor	<ul style="list-style-type: none"> • P50C5 LP family of microprocessor by Cypress. Based on ARM Cortex-M3 core and a large variety of selectable digital and analog peripherals.
External CPU connection	<ul style="list-style-type: none"> • Direct connection or • Embedded connector for RaspberryPi
Dimensions	<ul style="list-style-type: none"> • 250x156mm. Five holes for fixing M3

CollineIO as a Slave

In this mode, the Cerro IO board is waiting for commands coming from a Master system, which is in charge of all the processing of the application. The board is continuously waiting for commands.

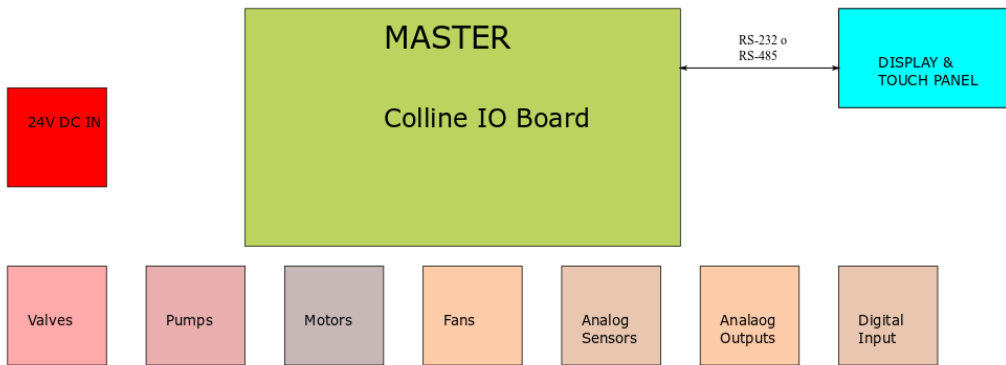


The commands from the master can use the RS-485 or RS-232 port. Commands are Modbus RTU compatible. Optionally master systems can be RaspberryPi (student or amateur) or any other CPU format size compatible (for example, i.MX6UL Module from Digi) for industrial environments.



CollineIO as aMaster

The other way CollineIO can work is as a complete master system. The application is developed in the own board.



Customer application can be developed in C using free IDE from Cypress PSOC Creator.

Some options for display that Cerro can supply: size (4.2,"5", 7", 10") with or without touch panel

Optional: Cerro can develop the full application for customer. Just ask us.

Hardware configuration

Board has several microswitches to configure several options:

- Communication: RS-485 or RS232
- Analog Inputs: current or voltage
- Analog Ouputs: current or voltage
- Identification number of board for RS-485 networks (up to 7 boards can be added in parallel).

Available Documentation

- User Guide
- Full schematic of the board
- Communication Protocol

Delivery Items

- CollineIO board
- Documentation (User Guide, Schematic, Communication Protocol)
- Desktop Power supply
- Firmware preprogramed for slave or master use

Special requirements, other questions

If you need special requirements please let us know, we can help you.

Contact us for further information.

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