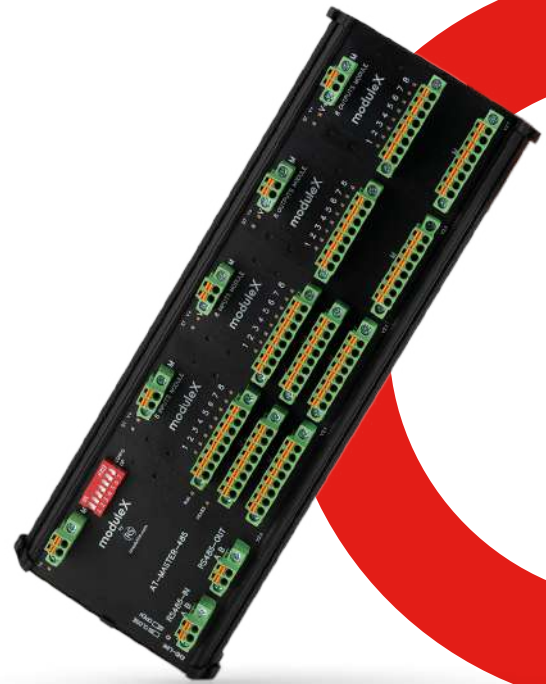




moduleX

Expansion I/O Module

- Up to 2048 I/O
- 10msec refresh rate
- Up to 16 distributed cluster within a plant
- RS485 interface with each device
- Automatic configuration



Description

ModuleX is an expansible I/O platform for industrial world completely designed and developed by the RedSmart BU of IDT.

Through a Modbus-RTU communication, MX-master485 can communicate with any electronic board or PLC handling, although we are about to release other industrial communication protocols (Profinet, EtherCAT, Modbus-TCP). Each master module can handle up to 16 slave modules forming an I/O cluster, actually 4 types of modules are available:

- MX-8DI: 8 digital Inputs
- MX-8DO: 8 digital Outputs
- MX-4AI: 4 analog Inputs
- MX-4AO: 4 analog Outputs

Xbus is robust communication protocol that exchange data between master and slaves modules, they can be removed or added at any time even hot-swapped: no software configuration is required, the master detects automatically the slave

devices and maps dynamically the data to Modbus registers.

Thanks to the flexibility of the Modbus protocol, it is possible to connect up to 16 ModuleX clusters on the same 485 bus, making the solution adaptable to any scenario.

The core asset of ModuleX is its possibility to have different clusters delocalized on the automation line or machine, and not necessarily stuck inside a single cabinet. Last but not least, this solution helps reduce both time and costs by enabling direct wiring to slave modules, eliminating the need for distribution blocks.

If the PLC used is an Arduino Opta, it is also possible to use our "XViewer" App for iOS and Android to monitor production and sensors' status, integrable into Opta with the following library: <https://github.com/idt-redsmart/XViewer-Opta>
Get it on App Store and Google Play!



Key features

- ➔ **PLUG & PLAY**
No software configuration is required; the master can be connected through 2 wires to any device with an RS485.
- ➔ **MODULAR**
A cluster consists of 1 master device that can handle up to 16 slave modules. By adding or removing modules, the master self-configures dynamically, eliminating the need for intervention by an expert technician for reconfiguration.
- ➔ **DISTRIBUTED**
The RS485 bus can be extended from each master, reaching up to 16 distributed clusters within a facility. This allows for up to 2048 digital I/O points.



SIMPLIFIED WIRING

In a traditional electrical panel, I/O modules or PLCs are wired to distribution terminals, to which sensors and actuators are then connected. Our modules eliminate this step for installers by providing power distribution terminals for direct wiring. This results in significant space, time, and cost savings.



SPEED

Each cluster achieves a refresh rate of 10 mSec for 128 I/O points!

MASTER MODULE | Technical specifications

Power supply: 12-28VDC max 0.5A

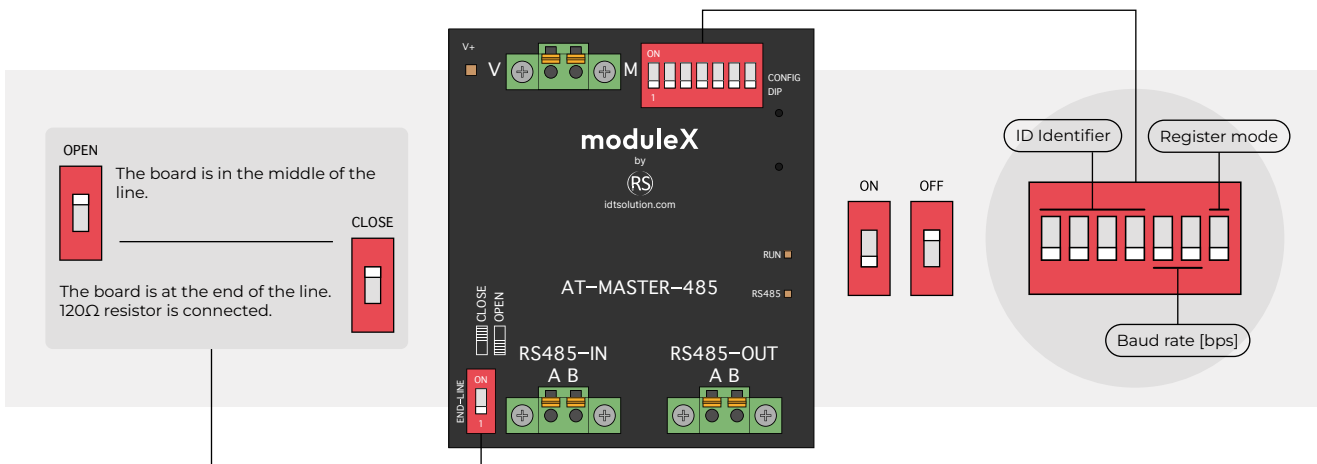
Dimensions: 72x63mm

Xbus: up to 16 slaves, 10msec refresh rate

Protocol: Modbus-RTU slave up to 115200bps, configurable address

Connection: easy with push-in spring terminals, bus extension with IN-OUT terminals

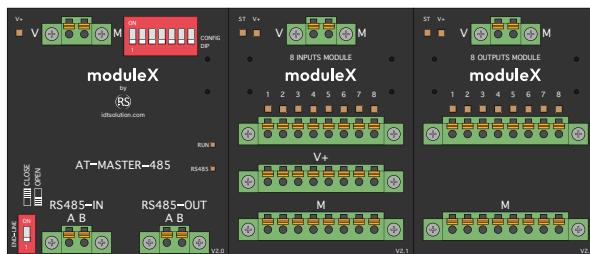
Configuration: Modbus ID, RS485 speed, register mode, and line terminator can be changed using dip switches.



DIGITAL AND ANALOG I/O MODULES

INPUT	<p>8DI Module Logic power supply: 5Vdc (from Xbus) Secondary power supply: 12-28Vdc max 8A Dimensions: 72x45mm Protocol: Xbus Inputs: 8 isolated IEC61131-2 compliant digital channels (secondary power supply required)</p>	<p>4AI Module Logic power supply: 5Vdc (from Xbus) Secondary power supply: 12-28Vdc max 2A Dimensions: 72x45mm Protocol: Xbus Inputs: 4 isolated analog channels (secondary power supply required). Operating mode configurable via dip switch: 0-10V/0-20mA</p>
OUTPUT	<p>8DO Module Logic power supply: 5Vdc (from Xbus) Secondary power supply: 12-28Vdc max 8A Dimensions: 72x45mm Protocol: Xbus Outputs: 8 digital channels, up to 0.65A per channel, isolated (secondary power supply required)</p>	<p>4AOV Module Logic power supply: 5Vdc (from Xbus) Secondary power supply: 12-28Vdc max 2A Dimensions: 72x45mm Protocol: Xbus Outputs: 4 isolated analog channels (secondary power supply required). Voltage output: 0-10V, max 30mA</p>

EXAMPLE OF CONFIGURATION



Master + 8DI + 8DO

Power supply: 24Vcc +/- 20%

Dimensions (with DIN case): 137x90x55

Galvanically isolated voltage groups

8 digital inputs, compliant with IEC61131-2

8 digital outputs, 0,6 amperes per channel

Protocol: Modbus RTU (slave)