

# ioThinx 4500 Series (45ML) Modules

Communication modules for the ioThinx 4500 Series



### Features and Benefits

- Communication modules include the serial interface
- Easy tool-free installation and removal
- Class I Division 2 and ATEX Zone 2 certifications
- Wide operating temperature model available: -40 to 75°C (-40 to 167°F)

### Certifications

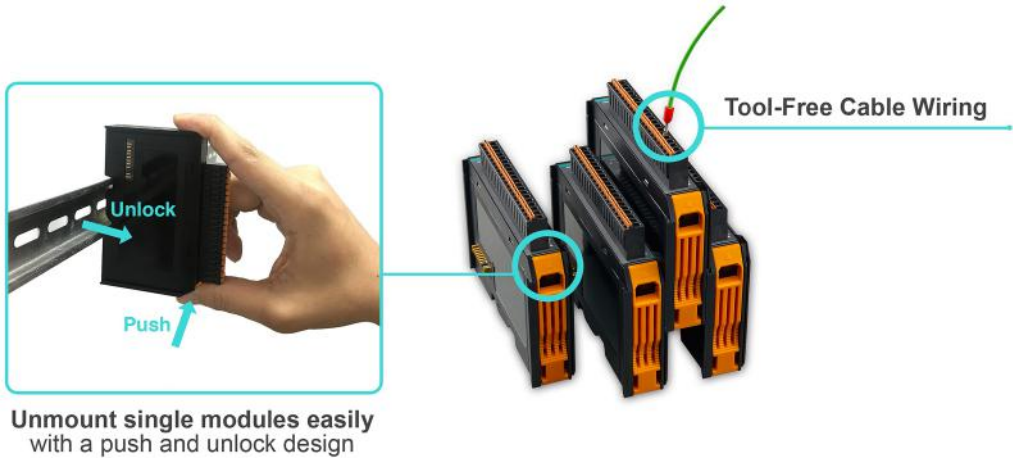


## Introduction

The 45ML series includes serial interface modules that can be used with the ioThinx 4500 Series head/CPU module, which has the communication bus installed on the left side. With its unique mechanical design, hardware installation and removal can be done easily without tools, greatly reducing the amount of time required to set up and replace the modules.

### Easy Tool-Free Installation and Removal

The ioThinx 4500 Series has a unique mechanical design that reduces the amount of time required for installation and removal. In fact, screwdrivers and other tools are not required for any part of the hardware installation, including mounting the device on a DIN-rail, as well as connecting the wiring for both communication and I/O signal acquisition. Furthermore, no tools are required to remove the ioThinx from a DIN-rail. Removing all of the modules from a DIN-rail is also easy using the latch and release tab.



## Specifications

### Input/Output Interface

Isolation	3k VDC or 2k Vrms
Serial Interface	
Connector	Spring-type Euroblock terminal
No. of Ports	4
Serial Standards	RS-232, RS-422, RS-485-2w

Baudrate	45ML-5401: 300, 600, 1200, 1800, 2400, 4800, 9600, 19200, 38400, 57600, 115200 bps
Data Bits	7, 8
Stop Bits	1, 2
Parity	Even, None, Odd
Flow Control	RTS/CTS (RS-232 only), XON/XOFF
Pull High/Low Resistor for RS-485	10 kilo-ohm
RS-485 Data Direction Control	ADDC (automatic data direction control)

#### Serial Signals

RS-232	TxD, RxD, RTS, CTS, GND
RS-422	Tx+, Tx-, Rx+, Rx-, GND
RS-485-2w	Data+, Data-, GND

#### Power Consumption

System Power	74.1 mA @ 12 VDC 37.05 mA @ 24 VDC
Field Power	140.4 mA @ 12 VDC 59.8 mA @ 24 VDC

#### Physical Characteristics

Housing	Plastic
Dimensions	26.4 x 99 x 65.5 mm (1.04 x 3.9 x 2.58 in)
Weight	115 g (0.254 lb)
Installation	DIN-rail mounting
Wiring	Serial cable, 18 to 24 AWG
Strip Length	Serial cable, 9 to 10 mm

#### Environmental Limits

Operating Temperature	45ML-5401-T: -40 to 75°C (-40 to 167°F) 45ML-5401: -20 to 60°C (-4 to 140°F)
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)
Altitude	Up to 2000 m <sup>1</sup>

#### Standards and Certifications

EMC	EN 55032/35
EMI	CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 3 V IEC 61000-4-8 PFMF

1. Please contact Moxa if you require products guaranteed to function properly at higher altitudes.

Shock	IEC 60068-2-27
Vibration	IEC 60068-2-6
Safety	EN 61010-2-201
Hazardous Locations	ATEX Class I Division 2

#### Declaration

Green Product	RoHS, CRoHS, WEEE
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#### MTBF

Time	916,671 hrs
Standards	Telcordia SR332

#### Warranty

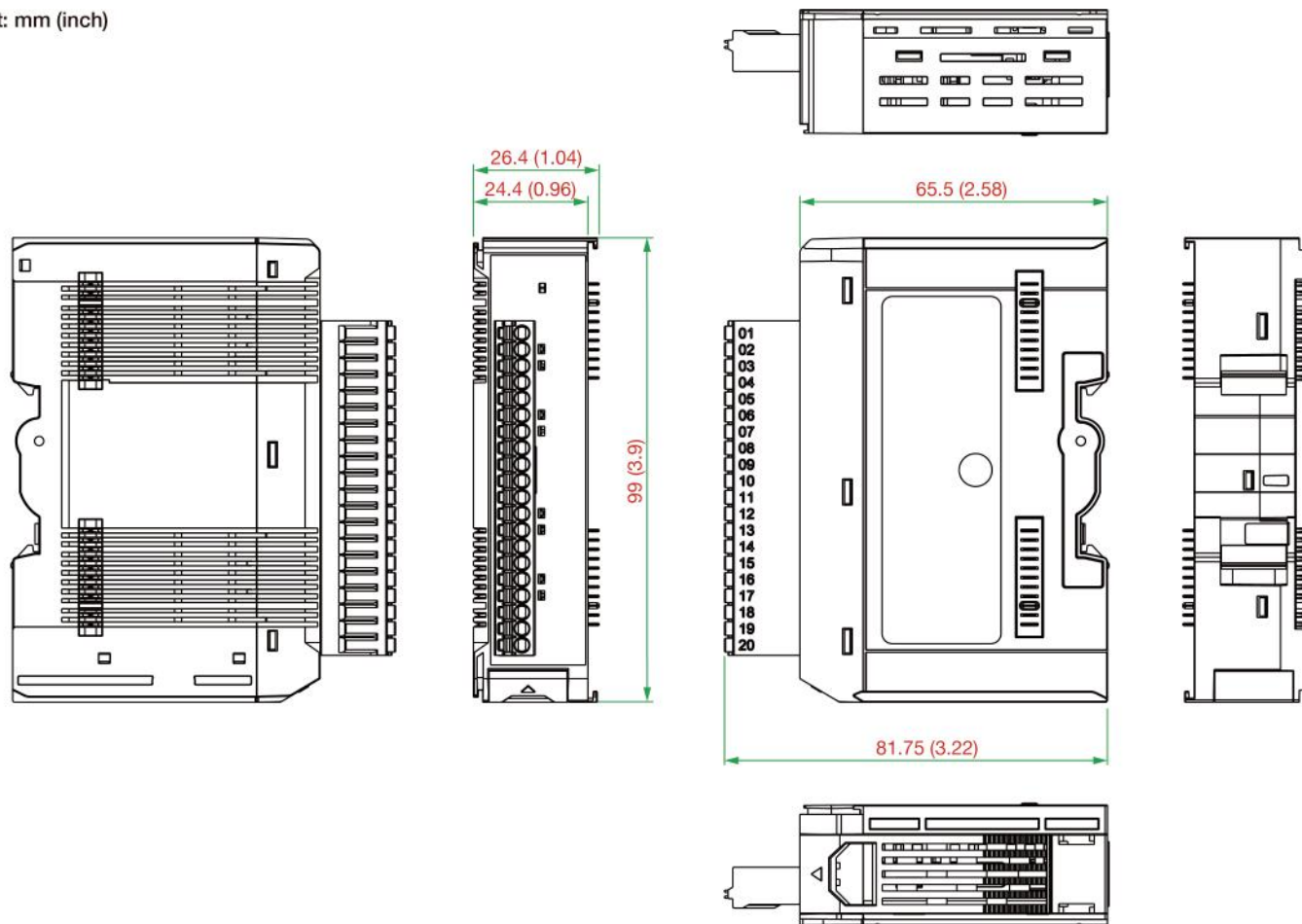
Warranty Period	5 years
Details	See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>

#### Package Contents

Device	1 x 45ML Series product
Installation Kit	1 x terminal block, 20-pin, 3.5 mm
Documentation	1 x quick installation guide 1 x warranty card

## Dimensions

Unit: mm (inch)



## Ordering Information

Model Name	Input/Output Interface	No. of Ports	Operating Temp.
45ML-5401	RS-232, RS-422, RS-485-2w	4	-20 to 60°C
45ML-5401-T	RS-232, RS-422, RS-485-2w	4	-40 to 75°C

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