Introducing the **Easy** Series
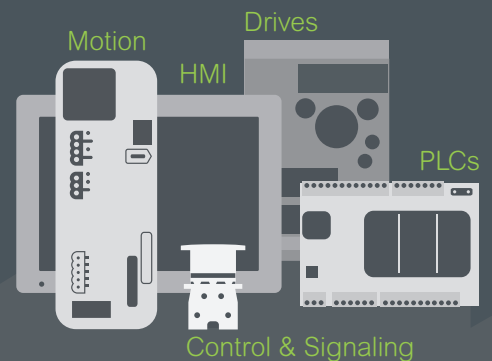Essential automation & control products

When just enough is just right!

Motion
HMI
Drives
PLCs
Control & Signaling

Easy Modicon M100

Logic controllers
For simple machines up to 40 I/O

Life Is On | Schneider Electric

Content

Easy Modicon™ M100 Logic controllers

■ **Presentation**

■ **Description**

■ **References**

Easy Modicon M100
Logic controllers
Introduction, A user-oriented range of products,
Applications

16 I/O channels
110 x 70 x 90 mm (W x H x D)
(4.33 x 2.76 x 3.55 in.)

24 I/O channels
130 x 70 x 90 mm (W x H x D)
(5.12 x 2.76 x 3.55 in.)

32 I/O channels
175 x 70 x 90 mm (W x H x D)
(6.89 x 2.76 x 3.55)

40 I/O channels
175 x 70 x 90 mm (W x H x D)
(6.89 x 2.76 x 3.55)

Introduction

The new range of Easy Modicon™ M100 logic controllers comprises 4 logic controllers for 110...220 V AC power supply:
■ One model with 16 I/O
■ One model with 24 I/O
■ One model with 32 I/O
■ One model with 40 I/O

A user-oriented range of products

The Easy Modicon M100 range of logic controllers has been designed to meet customer requirements, specifically on the 4 following key-points:

Fit for purpose
☐ Dedicated to sequential control and communication

Easy throughout the life cycle
■ Easy to order thanks to the just enough number of references
■ Easy to mount and wire
■ Easy to set up and program thanks to EcoStruxure Machine Expert – Basic software
■ Easy to test and debug thanks to the standard USB port
■ Easy to duplicate without specific skills using the Micro SD memory card
■ Easy to maintain and update with USB powerless download, and Micro SD memory card

Robustness
■ Inputs designed to help protect against overvoltage
■ Coated electronics for enhanced robustness in polluted environments

Widely available
■ Fast delivery through a large distribution network
■ Fast access to information and support through Partner Relationship Management tool and dedicated network of engineers

Applications

Designed for simple machines, the particularly small dimensions of Easy Modicon M100 logic controllers are ideal to fit wall-mounted and floor-standing control system enclosures.
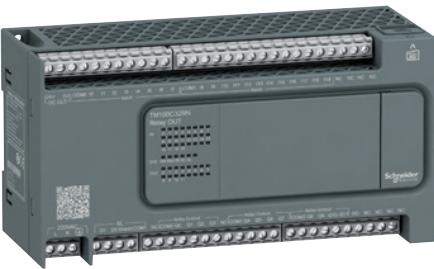
■ The functions embedded in M100 controllers minimize the cost of the machine:
☐ Modbus serial link
☐ USB port dedicated to programming

■ EcoStruxure Machine Expert – Basic programming software is intuitive, making it quick to create applications.
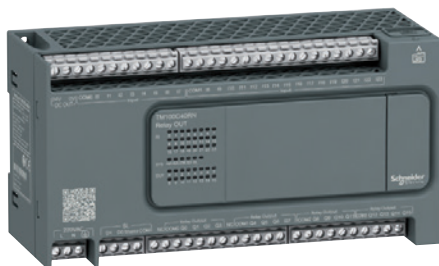
Schneider
Electric

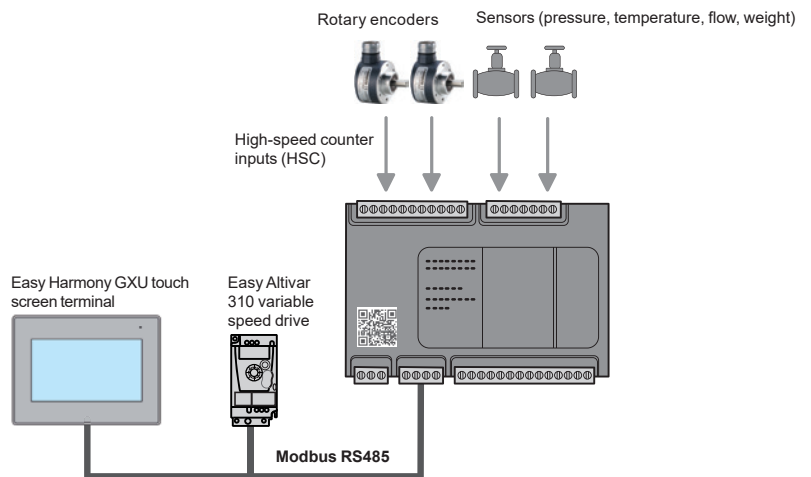## Control architecture for standalone machines
Typical applications: repetitive machines

The Easy Modicon M100 range has been designed for use in small automation systems and machines, with few actuators and sensors.

Easy Modicon™ M100 logic controllers are ideal for use in the following sectors and for the following repetitive machines:

■ Packaging
  - Compactor
  - Baling presses
  - etc.
■ Material handling
  - Small conveyors
  - Palletizers
  - Goods elevating platform
  - etc.
■ Metal working
  - Small punching machines
■ Water
  - Small pumping equipment
■ Building
  - Automatic door
  - Automatic awning
  - Roller blind and shutters
  - Car park occupancy management
  - Lighting control
  - Greenhouse air circulator control
  - etc.

Control architecture with Easy Modicon M100 logic controller

Rotary encoders   Sensors (pressure, temperature, flow, weight)

High-speed counter inputs (HSC)

Easy Harmony GXU touch screen terminal

Easy Altivar 310 variable speed drive

Modbus RS485

Easy Modicon M100
Logic controllers
Main features

Main features *(1)*

Processing power

- Execution speed: 0.2 μs/Boolean instruction
- Program: 6 K list instructions
- Number of words: 4,000%MW
- Number of internal bits: 512%M
- Retain memory: 2,000 words (%MW0 to %MW1999)
- Application structure:
  - Master task: 1 task configurable as freewheeling or cyclic
  - Auxiliary task: 1 task configurable as timer cycle interrupt
  - Interrupt task: 4 external tasks tripped by fast inputs and 4 high-speed counters

Supply characteristics

- Power supply: 100...220 V $\sim$

- Voltage limit (ripple included): 85...264 V $\sim$

- Max. consumption: 33...45 VA (AC power supply)

Connection of the embedded I/O

On fixed screw terminal blocks at intervals of 5.08 mm/*0.200 in*.
24 V DC sensor power output provided by the controller: 400 mA.

Programming

Easy Modicon M100 controllers are programmed with EcoStruxure Machine Expert – Basic software.
EcoStruxure Machine Expert – Basic is an integral component of EcoStruxure Machine Expert software and is available as a free download from our global website www.schneider-electric.com *(2)*.

EcoStruxure Machine Expert – Basic software

Environmental characteristics

- Degree of protection: IP 20

Product certification and conformity to standards

- $C\epsilon$ certification
- Conformity to the main national and international standards concerning electronic industrial control devices (IEC/EN 61131-2, UL 508, and IEC/EN 61010-2-201)

(1) For more information on our range of products, please visit our website https://www.https://www.schneider-electric.cn/
(2) EcoStruxure Machine Expert – Basic for Easy Modicon M100 logic controller could be activated with the special code "ulck8loca" in the software settings.

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Easy Modicon M100
Logic controllers
Embedded communication

Embedded communication

■ M100 logic controllers have 2 types of integrated communication port:
□ RS485 embedded serial link
□ Mini USB programming port

Serial links

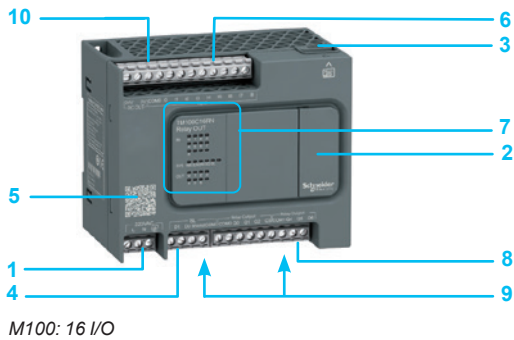Each TM100C●●● logic controller has an embedded RS 485 serial link.

This serial link also provides the functionality for loading, updating, and development when the controller is powered.

■ The two main protocols used in the market are embedded in this link:
□ Modbus ASCII/RTU Master or Slave
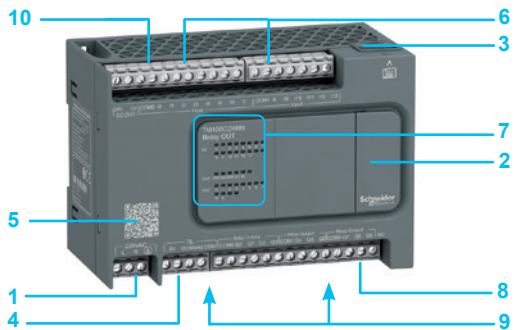□ Character string (ASCII)

Software programming with power off charging function

The programming port, equipped with a USB mini-B connector, is embedded in each M100 controller; it is used to communicate with a PC equipped with EcoStruxure Machine Expert – Basic for programming, debugging, and maintenance.
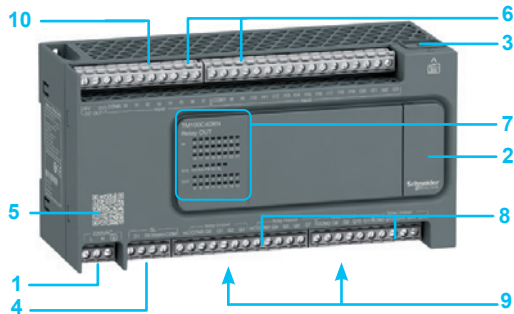
In addition, it offers the ability to upload an application program or update the firmware without the controller being powered by another source.

M100: 16 I/O

M100: 24 I/O

M100: 32 I/O and 40 I/O

Description

M100 logic controllers (TM100C●●●●)

1 Fixed screw terminal block, 3 terminals for connecting the 110...220 V ∿ power supply

2 Behind the removable cover:
- USB mini-B connector for connecting a PC equipped with EcoStruxure Machine Expert-Basic software
- Run/Stop switch

3 Slot for the Micro SD memory card

4 Serial link (RS 485): connector on fixed screw terminal block

5 Controller technical documentation QR code

6 Connection of 24 V ⎓ digital inputs on fixed screw terminal blocks *(1)*

7 LED display block showing:
- the status of the controller and its components (Micro SD memory card)
- serial link status
- I/O status

8 Connection of relay digital outputs: on fixed screw terminal blocks *(2)*

9 Clip for locking on 35 mm/*1.38 in*. DIN rail

10 Sensor power supply 24 V ⎓ output

(1) Number of digital inputs according to model: see next page.
(2) Number of digital outputs according to model: see next page.

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TM100C16RN

TM100C24RN

TM100C32RN

TM100C40RN

EcoStruxure Machine Expert – Basic software

Easy Modicon M100 logic controllers (1)

Number of digital I/O	Digital inputs	Digital outputs	Embedded communication ports (2) Serial link	Reference	Weight kg lb
110...220 V ∿ power supply					
16 I/O	9 sink/source 24 V ⎓ inputs, including 3 regular inputs, 2 high-speed inputs for HSC and 4 fast inputs for FC	7 relay outputs	1	**TM100C16RN**	0.295 *0.650*
24 I/O	14 sink/source 24 V ⎓ inputs, including 8 regular inputs, 2 high-speed inputs for HSC and 4 fast inputs for FC	10 relay outputs	1	**TM100C24RN**	0.331 *0.730*
32 I/O	20 sink/source 24 V ⎓ inputs, including 14 regular inputs, 2 high-speed inputs for HSC and 4 fast inputs for FC	12 relay outputs	1	**TM100C32RN**	0.409 *0.902*
40 I/O	24 sink/source 24 V ⎓ inputs, including 18 regular inputs, 2 high-speed inputs for HSC and 4 fast inputs for FC	16 relay outputs	1	**TM100C40RN**	0.409 *0.902*

Programming software

Designation	For use with	Reference
EcoStruxure Machine Expert – Basic	Easy Modicon M100 logic controllers. PC should be equipped with Windows 10 or Windows 7 or 8 (32-bit or 64-bit)	*Download this software on Schneider Electric Global website*

(1) Easy Modicon M100 controllers are supplied with:
- *fixed screw terminal blocks for connecting the I/O*
- *a fixed screw terminal block for connecting the power supply*
- *a fixed screw terminal block for the serial link*

(2) Each Easy Modicon M100 logic controller has an embedded USB mini-B programming port.

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Learn more about our products at
www.schneider-electric.com

Design: Schneider Electric
Photos: Schneider Electric