

# Optimize machine cost and performance

Modicon M238

Optimized logic controller for simple machines requiring 20 to 80 I/O



SoMachine

# > A simple and flexible control solution for small automation systems

The Modicon™ M238 logic controller is a compact and optimized PLC. It is part of our Flexible Machine Control approach, a key component of our MachineStruxure™ solution which offers you maximum flexibility and optimized control of your machines. Based on high-speed counting and simple positioning features, the Modicon M238 offers an all-in-one solution in a compact unit.



intelligence  
communication  
integration  
upgradeability

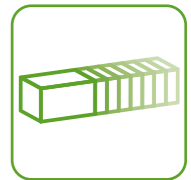


The Modicon M238 logic controller also offers extensive cabling flexibility through input/output expansion modules. Multiple connection options are available such as removable screw block terminals, spring terminal blocks, and HE10 connectors for simple, fast, and secure cabling.

Discrete expansion module

Analog expansion module

Fast-counting expansion module



### Up to 7 expansion modules

- > Adapt your configuration to perfectly suit your needs with powerful, efficient, and economical expansion modules
- Discrete I/O
- Analog I/O for measurement values for:
  - PT 100/PT 1000 temperature
  - current
  - voltage
- Fast I/O counting for measurement values for:
  - frequency
  - speed.



### Simplify machine programming

> Program your M238 Modicon controllers easily with the SoMachine™ software integrating 6 programming languages, ready-to-use automation system function libraries, powerful memory management, powerful debugging functions, and preset debugging screens.



**1 Pilot control equipment**  
> Opt for fast exchanges with **CANopen®**. Its openness also provides access to efficient and fast communication with numerous products.

**2 Exchange data easily**  
> Communicate with your automation equipment such as XBT graphic terminals, Altivar™ variable speed controllers, or monitor your equipment remotely via integrated communication ports.

**3 Closer to your core business**  
> Pilot your servo motor or synchronous motors efficiently using integrated business functions (application function blocks, motion function blocks) and dedicated function blocks (fast-counting HSC, PTO\* pulse train output, PWM\* pulse width modulation).  
  
> Ensure the accuracy of your machines thanks to the monitoring of the reflex actions.

\*only for 24 VDC models

### > Powerful:

- Fast-counting and integrated PWM/PTO control
- Complex calculations
- Extended memory.

### > Open and communicative:

- 1 USB port
- 2 serial links
- 1 integrated fieldbus
- Link to Ethernet via gateways.

### > Compact and economical:

- Minimum volume: 157 x 118 x 86 mm excluding expansion modules
- Removable connection
- Adapts perfectly to needs.

### > Flexible and modular:

- 15 discrete modules and 12 expansion analog modules
- Motion control and remote outputs/inputs by fieldbus.

### > Easy updating or duplication of applications:

- The program loader is an accessory designed to simplify updating or duplication of applications on Modicon M238 logic controllers
- No need for programming terminal.

# Modicon M238 selection guide

## Logic controller compact bases

Max. number of expansions	7	7	7	7
Power supply	24 VDC	24 VDC	100 - 240 VAC	100 - 240 VAC
Serial link	1	2	1	2
CANopen master	-	1	-	1
Inputs	14/24 VDC - 8/100 kHz	14/24 VDC - 8/100 kHz	14/24 VDC - 8/100 kHz	14/24 VDC - 8/100 kHz
Outputs	10 trans. 0.5 A 4/100 kHz	10 trans. 0.5 A 4/100 kHz	4 trans. 0.5 A + 5 relays 2 A + 1 relay 5 A	
References	<b>TM238LDD24DT</b>	<b>TM238LFC24DT</b>	<b>TM238LDA24DR</b>	<b>TM238LDA24DR</b>

## Discrete I/O expansion module

Max. number of expansions	8	16	32	4 I / 4 O	16 I / 8 O
Max. number of expansions	Removable screw terminal block	Removable screw terminal block	HE10 connectors	HE10 connectors	Removable screw terminal block Fixed spring terminal block
Ref: 24 VDC sink/source inputs	<b>TM2DDI8DT</b>	<b>TM2DDI16DT</b>	<b>TM2DDI16DK</b>	<b>TM2DDI32DK</b>	-
120 VAC inputs	<b>TM2DAI8DT</b>	-	-	-	-
2 A relay outputs	<b>TM2DRA8RT</b>	<b>TM2DRA16RT</b>	-	-	-
Source transistor outputs	<b>TM2DDO8TT<sup>(1)</sup></b>	-	<b>TM2DDO16TK<sup>(1)</sup></b>	<b>TM2DDO32TK<sup>(1)</sup></b>	-
24 VDC sink/source inputs + 2 A relay outputs	-	-	-	-	<b>TM2DMM8DRT</b> <b>TM2DMM24DRF</b>

(1) Also available with sink transistor outputs (TM2DDO8UT, TM2DDO16UK and TM2DDO32UK)

## Analog expansion module\*

Max. number of expansions	2 I	8 I	4 I	2 I / 1 O	1 O	2 O
Power supply	Removable screw terminal block					
Serial link	Serial link	0...10 V 4...20 mA <sup>(1)</sup>	0...10 V 0...20 mA <sup>(1)</sup>	0...10 V 0...20 mA <sup>(1)</sup> Pt100/1000 Ni100/1000	0...10 V 4...20 mA <sup>(1)</sup>	-
Serial link	Serial link	12 bits (4096 points)	10 bits (1024 points)	12 bits (4096 points)	12 ou 11 bits + signe (4096 points)	-
Serial link	Serial link	-	-	-	0...10 V 4...20 mA <sup>(1)</sup>	+ou-10 V
Serial link	Serial link	-	-	-	12 bits (4096 points)	12 bits (4096 points) 11 bits + signe (2048 points)
Max. number of expansions	0.2% PE					
Power supply	24 VDC					
Serial link	23.5 x 70 x 90 mm					
CANopen master	<b>TM2AMI2HT</b>	<b>TM2AMI8HT</b>	<b>TM2AMI4LT</b>	<b>TM2AMM3HT</b>	<b>TM2AMO1HT</b>	<b>TM2AVO2HT</b>

\* See the TM2 catalogue for other references

<sup>(1)</sup> Non-differential

## Fast-counting expansion module

Number of modules per controller	3 max.	3 max.
Number of channels	2	2
Number of inputs per channel	6/60 kHz	6/60 kHz
Number of outputs per channel	2 (reflex actions)	2 (reflex actions)
Connection	Removable screw terminal block	Removable spring terminal block
References	<b>TM200HSC206DT</b>	<b>TM200HSC206DF</b>

## Accessory: program loader

Designation	Kit: program loader, cable (USB/mini-B USB), 2 batteries (type AA/LR6)
Description	Used to update and duplicate applications Requires the use of a USB memory stick (not supplied)
Length	3 m (cable)
Reference	<b>TM2USBABDEV1</b>

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## Network/ bus communication

Ethernet	<b>499TWD01100<sup>(1)</sup></b>
DeviceNet™	<b>LUFP9<sup>(2)</sup></b>
PROFIBUS DP	<b>LUFP7<sup>(2)</sup></b>

<sup>(1)</sup> Logic controller Modicon M238 connection by cable XBTZ9980 to order separately.

<sup>(2)</sup> Logic controller Modicon M238 connection by cable VW3A8306R.. to order separately.