

Achieve 100% machine flexibility and optimization

Modicon OTB, TM5 and TM7 modular I/O systems



SoMachine™

> Innovate and improve machine flexibility while reducing costs

Flexibility and cost optimization are the key benefits of an automation solution that is completely adapted to your needs. Our modular Modicon™ OTB, TM5 and TM7 I/O systems offer this flexibility and provide total design freedom by allowing local, remote or distributed automation architectures. They are — together with our SoMachine™ software suite — part of our Flexible Machine Control concept that provides you with 100% machine flexibility. Flexible Machine Control is a key component of our MachineStruxure™ solution.

From simple to complex machines...

CANopen

Ethernet

MODBUS



Modicon OTB (IP 20)

for simple machines up to 248 I/O

Simple and compact, the Modicon OTB is an optimized modular I/O system that is designed to meet your challenges for cost reduction, size flexibility, and simplicity.

CANopen



Modicon TM5 (IP 20)

for complex machines or installations up to 2400 I/O

With its modular and evolutionary design, the Modicon TM5 is designed to meet your challenges for flexibility, performance, and modularity.

CANopen



Modicon TM7 (IP 67)

for complex machines or installations

With its robust design and maximum flexibility, the Modicon TM7 is a modular I/O system that is suitable for installation at the heart of a process or in harsh environments.

> Benefits

- > Simplified machine architectures
- > Reduced set-up and commissioning time
- > Smaller enclosures
- > Reduced cabling errors and costs
- > Easy maintenance using on-board diagnostics, as close as possible to the sensors/actuators.

30%

**Potential reduction
in assembly, wiring, and
commissioning time!**

...we have the modular I/O systems that meet your needs

Optimum solution for cost, function, size, and simplicity

- > 3 communication base modules each with 20 integrated I/O
- > Expandable (from 8 — 32 channel I/O modules)
- > Targeted range: 24V DC
- > Wide range of Modicon TM2 I/O expansion modules, common to Modicon OTB I/O system, Modicon M238 Logic controllers and XBTCG HMI controllers.

Simple installation

- > Ideal compactness ratio: 20 I/O within a width of 55 mm, including fieldbus connection
- > Removable terminal block
- > Direct mounting on DIN rail
- > Simple clip-on of I/O expansion modules on base modules.

Flexible and scaleable I/O configuration

- > Distributed I/O via the CANopen® interface module, or local or remote expansion via the local TM5 expansion bus on Modicon M258 and Modicon LMC058 controllers (PLC and PAC)
- > Wide range of Modicon TM5 I/O expansion modules, common to Modicon M258 Logic controllers and LMC058 Motion controllers.

Easy maintenance and installation

- > Embedded diagnostics for local and remote supervision
- > Hot-swappable modules (I/O changeable during operation)
- > Simple cabling: spring terminals, removable terminal blocks.

Robust design

- > IP protection rating: 67
- > Temperature range: -10 to +60°C (14 to 140°F)
- > EMC protection.

Easy maintenance and installation

- > Embedded diagnostics for local and remote supervision
- > Simple cabling: M8 or M12 connector.

Flexible and scaleable I/O configuration

- > Distributed I/O via CANopen interface block, or remote I/O via local TM5 expansion bus on Modicon M258 and LMC058 controllers (PLC/PAC)
- > Complete offer with digital and analog IP67 blocks
- > Perfect suitability for your requirements with freely configurable I/O.

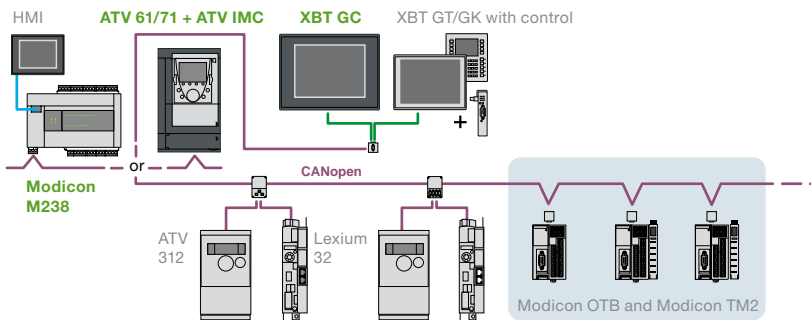
> Reduce engineering time

- > Fully compatible with SoMachine software
- > Certified FDT/DTM technology for all compatible automation software systems (on CANopen)



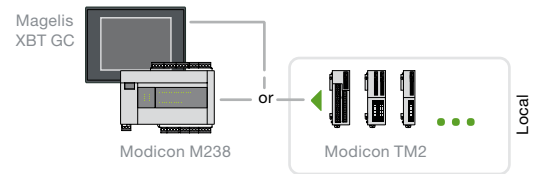
SoMachine™

Distributed I/O CANopen example

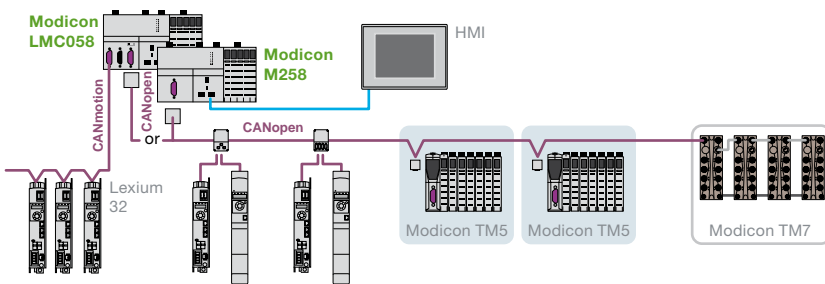


A distributed architecture that is both simple and economical. Our winning solution: Modicon OTB + M238 Logic controllers or Magelis™ XBTGC HMI controllers or Altivar™ IMC Drive controller.

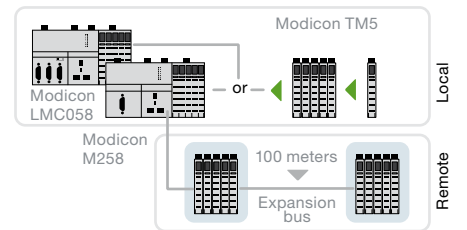
Local or remote I/O



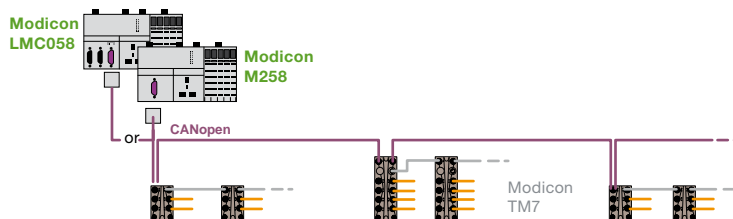
Cost optimization: Modicon TM2 I/O expansion modules are also common to Modicon M238 and Magelis XBTGC.



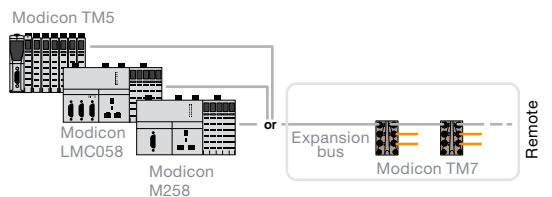
A distributed architecture providing performance and maximum flexibility whilst reducing your costs. Our winning solution: Modicon TM5 + Modicon M258 Logic controllers or Modicon LMC058 Motion controllers.



Cost optimization: Modicon TM5 I/O expansion modules are also common to Modicon M258 and Modicon LMC058. Consistency: Embedded I/O on local or remote configurations with synchronized data acquisition.



A distributed architecture for high performance and reliability even in the harshest environments. Our winning solution: Modicon TM7 + Modicon M258 Logic controllers or Modicon LMC058 Motion controllers.



Fast and economical wiring: due to the common expansion bus with Modicon TM5, M258 and LMC058, the Modicon TM7 system can be used to control the I/O remotely.

> Selection guide

Modicon OTB

		CANopen	Ethernet TCP/IP network ⁽²⁾	Modbus Series network
Applications		Optimum distributed I/O (IP 20)		
Compatibility		Modicon M238 Logic controller XBT GC, XBT GT/GK HMI controller with monitoring function Altivar IMC Drive controller		
Configuration with I/O expansion modules	Module type	Modicon TM2: ⁽¹⁾ Digital I/O modules Analog I/O modules Expert modules Common distribution modules		
	Capacity	For 1 Modicon OTB interface module: 7 Modicon TM2 modules max. Including: Digital I/O modules: 132 I/O max. with modules with screw terminals 188 I/O max. with modules with spring terminals 244 I/O max. with modules with HE10 connector Analog I/O modules with screw terminals: up to 7 x 8 inputs, or 7 x 2 outputs, or 7 x (4I/2O) Expert modules Common distribution module		
Integrated I/O	Number and type (depending on model)	12 x 24 V DC digital inputs 2 x 24 V DC solid state outputs 6 x 30 V DC/240 V AC relay outputs 2 channels: 5 kHz/20 kHz 2 PWM function channels		
		OTB1C0DM9LP	OTB1E0DM9LP	OTB1S0DM9LP

⁽¹⁾ Modicon TM2 I/O expansion modules, please consult:
> MachineStruxure solutions catalogue (MKTED211041EN), also downloadable from www.schneider-electric.com
> Modicon M238 brochure (DIA6ED1081201EN)

Modicon TM5

		CANopen			
Applications		Performance distributed I/O (IP 20)			
Compatibility		Modicon M258 Logic controller Modicon LMC058 Motion controller			
Configuration with I/O expansion modules	Module type	Modicon TM5 modules and/or Modicon TM7 blocks: ⁽²⁾ Digital I/O modules Analog I/O modules Common distribution modules (TM5 only)			
	Capacity	For 1 Modicon TM5 interface module: 40 TM5/TM7 modules max. Including: Digital I/O modules: 240 inputs and 240 outputs max. Analog I/O modules: 20 inputs and 20 outputs Maximum distance from the expansion bus (TM5 or TM7): 2500 m. Maximum distance between 2 islands of TM5 modules: 100 m. Maximum distance between 2 TM7 blocks: 100 m. Maximum distance between 1 island of TM5 modules and 1 TM7 block: 100 m			
Type of component to be ordered separately		CANopen electronic interface	Power distribution electronic module	Bus base 24 DC	Terminal block
		TM5NC01	TM5SPS3	TM5ACBN1	TM5ACTB12PS

Modicon TM7

		CANopen			
Applications		Performance distributed I/O (IP 67)			
Compatibility		Modicon M258 Logic controller Modicon LMC058 Motion controller			
Configuration with I/O expansion modules	Module type	Modicon TM5 modules and/or Modicon TM7 blocks: ⁽²⁾ Digital I/O modules Analog I/O modules Common distribution modules (TM5 only)			
	Capacity	Modicon TM7 CANopen interface block: 40 TM5/TM7 modules max. Including: Digital I/O modules: 240 inputs and 240 outputs max. Analog I/O modules: 20 inputs and 20 outputs Maximum distance from the expansion bus (TM5 or TM7): 2500 m. Maximum distance between 2 islands of TM5 modules: 100 m. Maximum distance between 2 TM7 blocks: 100 m. Maximum distance between 1 island of TM5 modules and 1 TM7 block: 100 m			
Max number of digital channels		8 channels that can be configured as inputs or outputs	16 channels that can be configured as inputs or outputs	16 channels that can be configured as inputs or outputs	
Digital I/O channels	Sensor connector	3-way female M8, 1 channel per connector	3-way female M8, 1 channel per connector	A-coded 5-way female M12, 2 channels per connector	
	Actuator connector	3-way female M8, 1 channel per connector	3-way female M8, 1 channel per connector	A-coded 5-way female M12, 2 channels per connector	
Interface I/O block power supply	Input connector	4-way male M8	4-way male M8	4-way male M8	
	Output connector	4-way female M8	4-way female M8	4-way female M8	
		TM7NCOM08B	TM7NCOM16B	TM7NCOM16A	

⁽²⁾ Modicon TM5 and Modicon TM7 I/O expansion modules and blocks, please consult:
> MachineStruxure solutions catalogue (MKTED211041EN), also downloadable from www.schneider-electric.com
> Modicon M258 or Modicon LMC058 brochure (DIA6ED1091008EN/DIA6ED1091009EN)

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