



PCB Mount I/O Modules

Agile Module I/O Selection Guide

- PCB mount for signal distribution
- Fast EtherCAT communication
- Ultra compact chassis, diversified and flexible
- Very suitable for mass production

■ Dimension and signal leds



■ Agile Module I/O and signal distribution board

Agile Module I/O



■ Digital Input: AM-10xx, AM-13xx

Signals	16 Channels
NPN	AM-1019-0000 Filter: 3ms
	AM-1019-0001 Filter: 3ms, DC supported
PNP	AM-1319-0000 Filter: 3ms, Type 1/3
	AM-1319-0001 Filter: 3ms, Type 1/3, DC supported

■ Digital Output: AM-20xx, AM-23xx

Signals	16 Channels
NPN	AM-2019-0000 I_{max} : 500mA, Short circuit protection
	AM-2019-0001 I_{max} : 500mA, Short circuit protection, DC supported
PNP	AM-2319-0000 I_{max} : 500mA, Short circuit protection
	AM-2319-0001 I_{max} : 500mA, Short circuit protection, DC supported

■ Analog Input: AM-3xxx

Signals	4 Channels	8 Channels
$\pm 10V$	AM-3224-0000 16 bit, $\pm 0.1\%$, Single-ended, DC&SM supported	AM-3228-0000 16 bit, $\pm 0.1\%$, Single-ended, DC&SM supported
0...20mA	AM-3424-0000 16 bit, $\pm 0.1\%$, Single-ended, DC&SM supported	AM-3428-0000 16 bit, $\pm 0.1\%$, Single-ended, DC&SM supported
4...20mA	AM-3524-0000 16 bit, $\pm 0.1\%$, Single-ended, DC&SM supported	AM-3528-0000 16 bit, $\pm 0.1\%$, Single-ended, DC&SM supported

■ Analog Output: AM-4xxx

Signals	4 Channels
$\pm 10V$	AM-4224-0000 16 bit, $\pm 0.1\%$, Single-ended, DC&SM supported
0...20mA	AM-4424-0000 16 bit, $\pm 0.1\%$, Single-ended, DC&SM supported
4...20mA	AM-4524-0000 16 bit, $\pm 0.1\%$, Single-ended, DC&SM supported

■ System Config: AM-9xxx

Signals	
Power Supply	AM-9403-0000 DC24V Input, Us Output: DC3.3V, 3A
Slot Dummy	AM-9000
Slave Dummy	AM-9001

■ Digital Input: AM-1019-0000, AM-1019-0001

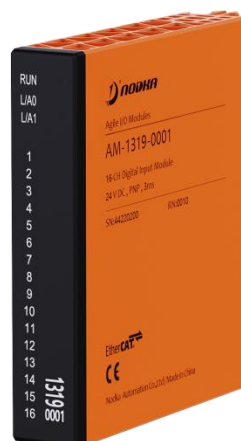


16 x DI, NPN, filter: 3ms, 24VDC

16 x DI, NPN, filter: 3ms, 24VDC, DC Sync

Model Name	AM-1019-0000	AM-1019-0001
Field bus	EtherCAT	
Number of Inputs	16	
Nominal voltage of the inputs	24VDC(-15%/20%)	
Signal Type	NPN	
Signal voltage "0"	18V..30V	
Signal voltage "1"	0V..7V	
Input current	Typically 3mA	
Input filter	Typically 3ms	
Distributed Clocks	-	Yes
Module current consumption	Typically 145mA	
Electrical isolation	500V(EtherCAT/field voltage)	
Operating temperature range	-25°C .. +60°C	
Storage temperature range	-40°C .. +85°C	
Relative humidity	95%, no condensation	
Dimensions(W x H x D)	12mm x 62mm x 55mm	
Weight	Approx. 23 g	
Mounting	On signal distribution board	
Approvals	CE	
Degree of protection	AM module: IP20 AM system: depend on signal distribution board and housing	

■ Digital Input: AM-1319-0000, AM-1319-0001

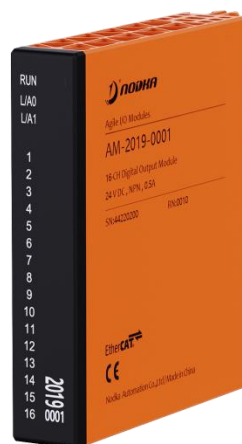


16 x DI, PNP, filter: 3ms, 24VDC

16 x DI, PNP, filter: 3ms, 24VDC, DC Sync

Model Name	AM-1319-0000	AM-1319-0001
Field bus	EtherCAT	
Number of Inputs	16	
Nominal voltage of the inputs	24VDC(-15%/20%)	
Signal Type	PNP	
Signal voltage "0"	-3V..5V(EN61131-2, type 1/3)	
Signal voltage "1"	11V..30V	
Input current	Typically 3mA	
Input filter	Typically 3ms	
Distributed Clocks	-	Yes
Module current consumption	Typically 155mA	
Electrical isolation	500V(EtherCAT/field voltage)	
Operating temperature range	-25°C .. +60°C	
Storage temperature range	-40°C .. +85°C	
Relative humidity	95%, no condensation	
Dimensions(W x H x D)	12mm x 62mm x 55mm	
Weight	Approx. 23 g	
Mounting	On signal distribution board	
Approvals	CE	
Degree of protection	AM module: IP20 AM system: depend on signal distribution board and housing	

■ Digital Output: AM-2019-0000, AM-2019-0001

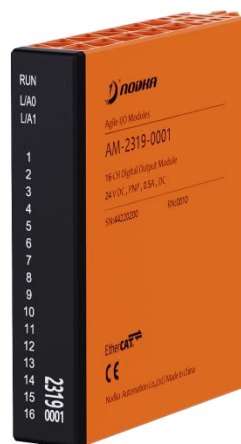


16 x DO, NPN, I_{max}: 0.5A, 24VDC

16 x DO, NPN, I_{max}: 0.5A, 24VDC, DC Sync

Model Name	AM-2019-0000	AM-2019-0001
Field bus	EtherCAT	
Number of Outputs	16	
Signal Type	NPN	
Load Type	Ohmic, inductive, lamp load	
Related load voltage	24VDC(-15%/20%)	
Output current per channel	Max. 0.5A (short-circuit proof)	
Reverse voltage protection	Yes	
Switching times	T _{ON} : typically 15us; T _{OFF} : typically 300us	
Distributed Clocks	-	Yes
Module current consumption	Typically 145mA	
Electrical isolation	500V(EtherCAT/field voltage)	
Operating temperature range	-25°C .. +60°C	
Storage temperature range	-40°C .. +85°C	
Relative humidity	95%, no condensation	
Dimensions(W x H x D)	12mm x 62mm x 55mm	
Weight	Approx. 23 g	
Mounting	On signal distribution board	
Approvals	CE	
Degree of protection	AM module: IP20 AM system: depend on signal distribution board and housing	

■ Digital Output: AM-2319-0000, AM-2319-0001



16 x DO, PNP, I_{max}: 0.5A, 24VDC

16 x DO, PNP, I_{max}: 0.5A, 24VDC, DC Sync

Model Name	AM-2319-0000	AM-2319-0001
Field bus	EtherCAT	
Number of Outputs	16	
Signal Type	PNP	
Load Type	Ohmic, inductive, lamp load	
Related load voltage	24VDC(-15%/20%)	
Output current per channel	Max. 0.5A (short-circuit proof)	
Reverse voltage protection	Yes	
Switching times	T _{ON} : typically 15us; T _{OFF} : typically 300us	
Distributed Clocks	-	Yes
Module current consumption	Typically 155mA	
Electrical isolation	500V(EtherCAT/field voltage)	
Operating temperature range	-25°C .. +60°C	
Storage temperature range	-40°C .. +85°C	
Relative humidity	95%, no condensation	
Dimensions(W x H x D)	12mm x 62mm x 55mm	
Weight	Approx. 23 g	
Mounting	On signal distribution board	
Approvals	CE	
Degree of protection	AM module: IP20 AM system: depend on signal distribution board and housing	

■ Analog Voltage Input: AM-3224-0000, AM-3228-0000 (-10V..+10V)



4 x AI(Single-ended), $\pm 10V$, 16 bit

8 x AI(Single-ended), $\pm 10V$, 16 bit

Model Name	AM-3224-0000		AM-3228-0000
Field bus	EtherCAT		
Analog inputs	4 (single-ended)		8 (single-ended)
Power supply	24VDC(-15%/+20%)		
Signal voltage	-10V..+10V		
Resolution	16 bit		
Internal resistance	$\sim 10M\Omega$		
Input filter cut-off frequency	10KHz		
Conversion time	$\sim 200\mu s$		$\sim 400\mu s$
Bit width in process image	Input 16 bits		
Measure error	< 0.1% (at 0°C .. +55°C, relative to the full scale value)		
Module current consumption	Typically 165mA		
Distributed Clocks	Yes		Yes
Electrical isolation	500V(EtherCAT/field voltage)		
Operating temperature range	-25°C .. +60°C		
Storage temperature range	-40°C .. +85°C		
Relative humidity	95%, no condensation		
Dimensions(W x H x D)	12mm x 62mm x 55mm		
Weight	Approx. 25 g		
Mounting	On signal distribution board		
Approvals	CE		
Degree of protection	AM module: IP20 AM system: depend on signal distribution board and housing		

■ Analog Current Input: AM-3424-0000, AM-3428-0000 (0mA..20mA)



4 x AI(Single-ended), 0mA..20mA, 16 bit

8 x AI(Single-ended), 0mA..20mA, 16 bit

Model Name	AM-3424-0000		AM-3428-0000
Field bus	EtherCAT		
Analog inputs	4 (single-ended)		8 (single-ended)
Power supply	24VDC(-15%/+20%)		
Signal current	0mA..20mA		
Resolution	16 bit		
Internal resistance	~200Ω		
Input filter cut-off frequency	10KHz		
Conversion time	~200us		~400us
Bit width in process image	Input 16 bits		
Measure error	< 0.1% (at 0°C .. +55°C, relative to the full scale value)		
Module current consumption	Typically 165mA		
Distributed Clocks	Yes		Yes
Electrical isolation	500V(EtherCAT/field voltage)		
Operating temperature range	-25°C .. +60°C		
Storage temperature range	-40°C .. +85°C		
Relative humidity	95%, no condensation		
Dimensions(W x H x D)	12mm x 62mm x 55mm		
Weight	Approx. 25 g		
Mounting	On signal distribution board		
Approvals	CE		
Degree of protection	AM module: IP20 AM system: depend on signal distribution board and housing		

■ Analog Current Input: AM-3524-0000, AM-3528-0000 (4mA..20mA)



4 x AI(Single-ended), 4mA..20mA, 16 bit

8 x AI(Single-ended), 4mA..20mA, 16 bit

Model Name	AM-3524-0000		AM-3528-0000
Field bus	EtherCAT		
Analog inputs	4 (single-ended)		8 (single-ended)
Power supply	24VDC(-15%/+20%)		
Signal current	4mA..20mA		
Resolution	16 bit		
Internal resistance	~200Ω		
Input filter cut-off frequency	10KHz		
Conversion time	~200us		~400us
Bit width in process image	Input 16 bits		
Measure error	< 0.1% (at 0°C .. +55°C, relative to the full scale value)		
Module current consumption	Typically 165mA		
Distributed Clocks	Yes		Yes
Electrical isolation	500V(EtherCAT/field voltage)		
Operating temperature range	-25°C .. +60°C		
Storage temperature range	-40°C .. +85°C		
Relative humidity	95%, no condensation		
Dimensions(W x H x D)	12mm x 62mm x 55mm		
Weight	Approx. 25 g		
Mounting	On signal distribution board		
Approvals	CE		
Degree of protection	AM module: IP20 AM system: depend on signal distribution board and housing		

■ Analog Voltage Output: AM-4224-0000 (-10V..+10V)



4 x AO(Single-ended), -10V..+10V, 16 bit

Model Name	AM-4224-0000
Field bus	EtherCAT
Analog outputs	4 (single-ended)
Power supply	24VDC(-15%/+20%)
Signal voltage	-10V..+10V
Resolution	16 bit
Load	>2KΩ(short-circuit proof)
Conversion time	~200us
Measure error	< 0.1% (at 0°C .. +55°C, relative to the full scale value)
Module current consumption	Typically 165mA
Distributed Clocks	Yes
Electrical isolation	500V(EtherCAT/field voltage)
Operating temperature range	-25°C .. +60°C
Storage temperature range	-40°C .. +85°C
Relative humidity	95%, no condensation
Dimensions(W x H x D)	12mm x 62mm x 55mm
Weight	Approx. 24 g
Mounting	On signal distribution board
Approvals	CE
Degree of protection	AM module: IP20 AM system: depend on signal distribution board and housing

■ Analog Current Output: AM-4424-0000 (0mA..20mA)



4 x AO(Single-ended), 0mA..20mA, 16 bit

Model Name	AM-4424-0000
Field bus	EtherCAT
Analog outputs	4 (single-ended)
Power supply	24VDC(-15%/+20%)
Signal current	0mA..20mA
Resolution	16 bit
Load	<500Ω(short-circuit proof)
Conversion time	~200us
Measure error	< 0.1% (at 0°C .. +55°C, relative to the full scale value)
Module current consumption	Typically 165mA
Distributed Clocks	Yes
Electrical isolation	500V(EtherCAT/field voltage)
Operating temperature range	-25°C .. +60°C
Storage temperature range	-40°C .. +85°C
Relative humidity	95%, no condensation
Dimensions(W x H x D)	12mm x 62mm x 55mm
Weight	Approx. 24 g
Mounting	On signal distribution board
Approvals	CE
Degree of protection	AM module: IP20 AM system: depend on signal distribution board and housing

■ Analog Current Output: AM-4524-0000 (4mA..20mA)



4 x AO(Single-ended), 4mA..20mA, 16 bit

Model Name	AM-4524-0000
Field bus	EtherCAT
Analog outputs	4 (single-ended)
Power supply	24VDC(-15%/+20%)
Signal current	4mA..20mA
Resolution	16 bit
Load	<500Ω(short-circuit proof)
Conversion time	~200us
Measure error	< 0.1% (at 0°C .. +55°C, relative to the full scale value)
Module current consumption	Typically 165mA
Distributed Clocks	Yes
Electrical isolation	500V(EtherCAT/field voltage)
Operating temperature range	-25°C .. +60°C
Storage temperature range	-40°C .. +85°C
Relative humidity	95%, no condensation
Dimensions(W x H x D)	12mm x 62mm x 55mm
Weight	Approx. 24 g
Mounting	On signal distribution board
Approvals	CE
Degree of protection	AM module: IP20 AM system: depend on signal distribution board and housing

■ System Config: AM-9xxx



Us power supply,
24VDC IN, 3.3V/3A OUT



Slot dummy Module



Slave dummy Module

Model Name	AM-9403-0000	AM-9000-0000	AM-9001-0000
Voltage input	24VDC(-15%/+20%)	-	
Current input	< 1mA + load	-	
Short circuit proof	Yes	-	
Current output	3A	-	
Short circuit current	4A	-	
Electrical isolation	-	-	
Operating temperature range	-25°C .. +60°C		
Storage temperature range	-40°C .. +85°C	-	
Relative humidity	95%, no condensation	-	
Dimensions(W x H x D)	12mm x 62mm x 55mm		
Weight	Approx. 28 g	Approx. 15 g	Approx. 15 g
Mounting	On signal distribution board		
Approvals	CE		
Degree of protection	AM module: IP20 AM system: depend on signal distribution board and housing		

Design for Your Automation

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