

# The essential guide Interfaces and I/Os

helping you easily  
select the right product

## 2010



# Interfaces and I/Os

## Advantys AS-Interface cabling system:

*Take the direct route for simplicity and security by connecting all the components of an automation system on the yellow cable.*



## Modicon Momentum distributed inputs/outputs:

*Simplify machine architectures by connecting the sensors and actuators distributed throughout your machines via a fieldbus.*



## Advantys Telefast pre-wired system:

*Simplify your cabling by replacing long and difficult cable runs incorporating traditional terminals by Telefast sub-bases.*



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### Distributed I/O solution Advantys STB

- **The intelligence** integrated in Advantys STB and its software responds perfectly to your needs by simplifying the implementation of your automation systems. She offer too a simple integration solution of human/machine dialog, motor starter, speed drives, electronic valves,...through a simple «drad&drop»
- **Simplicity:** connectors and sockets simplify installation and commissioning; removable memory card enable island

configuration to be copied in a few seconds.

- **Adaptability:** The modular and evolutionary design of the range, I/O modules, network interfaces and options available enable you to design a system suited to your needs.
- **Open:** Advantys STB can be interfaced with the main fieldbuses: CANopen, DeviceNet, Ethernet, Fipio, INTERBUS, Modbus Plus, Profibus DP.

### Also see:

- Advantys AS-Interface IP 20 and IP 67 cabling system





Discrete Type of bus	CANopen Machine bus	Ethernet TCP/IP network (2)	Modbus Series network
Number of I/Os	20 I/O		
Number of inputs	12 inputs 24 VDC IEC type 1		
Number of outputs	6 relay outputs and 2 solid state 24 VDC outputs		
Connection method	Removable terminal block		
Number of I/O expansion modules (1)	7 discrete or analogue input/output modules, or connection accessories		
Maximum I/O configuration	With interface module base: 132 with screw terminal I/O expansion; 244 with HE10 connector I/O expansion; up to 48 analogue channels		
Supply voltage	24 VDC		
Counting	5 kHz	2 channels, 32 bits (0...4 294 967 295 points) dedicated discrete inputs -up counting/down counting with preset	
	20 kHz	2 channels, 32 bits (0...4 294 967 295 points) up/down counting, up counting, down counting, frequency meter	
Pulse generator, 7 kHz	2 PWM function channels (output with pulse width modulation) or PLS function (pulse generator output)		
Dimension (WxDxH)	55x70x90 mm		
References	OTB1C0DM9LP	OTB1E0DM9LP	OTB1S0DM9LP

(1) for the references of discrete I/O and analogue expansion modules, refer to the Twido or Advantys OTB catalogue

(2) Transparent Ready : Class A10

## Accessories

Type of accessory	Commoning modules	Documentation
Usage	For grouping input or output commons, max 8 A	User guides for Advantys hardware and software, and Advantys Configuration Software for Advantys OTB/FTB/FTM. Provided on CD.
Positioning	Inter-module	–
Référence	OTB9ZZ61JP	FTXES01



Type of module NIM		EtherNet TCP/IP network	EtherNet/IP network
<b>Binary speed</b>		10 Mbps	10/100 Mbps
<b>Protocol</b>		Modbus TCP/IP	EtherNet/IP
<b>Transparent Ready</b>	Class	B20	N/A
	Embedded Web server	Standard services	Standard services
	Ethernet services	SNMP agent, FDR client (replacement of faulty equipment), BOOTP (allocation of IP addresses by a server)	
<b>Max. number of addressable I/O modules</b>		32 per island	32 per island
<b>Dimensions (WxDxH)</b>		40x70x128,3 mm	40x70x128,3 mm
<b>Reference</b>	Standard	<b>STBNIP2212</b>	<b>STBNIC2212</b>



Type of module NIM		Machine bus CANopen	Fieldbus Fipio	INTERBus	Profibus DP
<b>Max. number of addressable I/O modules</b>		32 per island (1) (2)	32 per island (1)	32 per island (1) (2)	32 per island (1) (2)
<b>Binary speed</b>		10 K...1 Mbps	1 Mbps	0.5 Mbps	9.6 K...12 Mbps
<b>Dimensions (WxDxH)</b>		40x70x128,3 mm			
<b>Reference</b>	Standard	<b>STBNCO2212</b>	<b>STBNFP2212</b>	<b>STBNIB2212</b>	<b>STBNDP2212</b>
	Basic	<b>STBNCO1010</b>	–	<b>STBNIB1010</b>	<b>STBNDP1010</b>

(1) On 7 segments max.

(2) 12 per island on 1 segment max for basic versions.



Type of module		Other networks	
		Modbus Plus	DeviceNet
<b>Max. number of addressable I/O modules</b>		32 per island	32 per island 12 per island
<b>Speed</b>		1 Mbps	125, 250 or 500 Kbps
<b>Dimensions (WxDxH)</b>		40x70x128,3 mm	
<b>Reference</b>	Standard	<b>STBNMP2212</b>	<b>STBNDN2212</b>
	Basic	–	<b>STBNDN1010</b>

## Connection accessories

Type of accessory		Removable terminals for 24 VDC power supply	DeviceNet
<b>Use</b>		All communication modules	Network link DeviceNet module
<b>Reference</b>	Screw terminals	<b>STBXTS1120</b> (1)	<b>STBXTS1111</b>
	Spring terminals	<b>STBXTS2120</b> (1)	<b>STBXTS2111</b>

(1) To be ordered separately, sold in lots of 10 only for spares parts. (STBXTS1120 are delivered systematically with STBN●●●●●●)

<b>Marking label sheets</b>	<b>STBXMP6700</b>
<b>Screwdriver</b>	<b>STBXTT0220</b>



Type of module		PDM				Auxiliary Power supply
Connection by removable terminals		Screw STBXTS1130 (2) (3) Spring STBXTS2130 (2) (3)				Screw STBXTS1120 (2) Spring STBXTS2120 (2)
Supply voltage		24 VDC				115...230 VAC
Maximum current	Inputs (4)	4 A at 30°C, 2.5 A at 60°C		–		5 A at 30°C, 2.5 A at 60°C
	Outputs (4)	8 A at 30°C, 5 A at 60°C		–		10 A at 30°C, 2.5 A at 60°C
	Inputs/Outputs (4)	–		4 A at 30°C, 2.5 A at 60°C		–
	Logique interne 5 V	–		–		5 A at 30°C, 2.5 A at 60°C
Sensor/actuator bus voltage range		19.2...30 VDC				85...265 VAC
Dimensions (WxDxH)		18.4x70x128.3 mm				
Reference	Module	Standard	STBPDT3100	–	STBPDT2100	–
		Basic	–	STBPDT3105	–	STBPDT2105
	Base		STBXBA2200		STBXBA2200	STBCPS2111

(1) Process power supplies see chapter 6 "Power supply"

(2) To be ordered separately, sold in lots of 10.

(3) PDM connector keying pin kit STBXMP7810.

(4) PDM fuse kit STBXMP5600.

## Bus extension modules for standard range



Type of module		"EOS" End of segment	"BOS" Beginning of segment	Extension for CANopen connection devices
Connection by removable terminals		–	Screw STBXTS1120 (2) Spring STBXTS2120 (2)	Screw STBXTS1110 (3) Spring STBXTS2110 (3)
Use		For placing at end of segment (except for the last)	For placing at head of each extension segment	For placing at end of last segment
Dimensions (WxDxH)		18.4x70x128.3 mm		
Reference	Module	Standard	STBXBE1100	STBXBE1300
	Base		STBXBA2300	STBXBA2300
				STBXBE2100
				STBXBA2000

(2) To be ordered separately, sold in lots of 10.

(3) To be ordered separately, sold in lots of 20.

## Software and memory card



Type	Advantys STB, OTB, FTM, FTB configuration software (PC connection cable supplied)					Removable memory card
Software User Guide	Single station	3 pack	10 pack	Unlimited Site	System Alliance Integrator	–
Memory size	–					32 Ko
Reference	STBSPU1000	STBSPU1003	STBSPU1011	STBSPU1130	STBSPU1010	STBXMP4440
	Hardware User Guide					STBSUS8800

## Connection accessories

Type of accessory	Câble d'extension de bus d'ilot				
Length	0.3 m	1 m	4.5 m	10 m	14 m
Reference	STBXCA1001	STBXCA1002	STBXCA1003	STBXCA1004	STBXCA1006
	Bus termination module or plug		Programmation connection cable L= 2 m		
Reference	STBXMP1100		STBXCA4002		

Connection accessories: See [www.schneider-electric.com](http://www.schneider-electric.com)

## Discrete modules



Type of module			Discrete inputs						
Connection by removable terminals (1)	Screw (2)		STBXTS1100			STBXTS1180	STBXTS1110		
		Spring (2)	STBXTS2100			STBXTS2180	STBXTS2110		
Number of channels			2	4	6	16	2	2 (isolated)	2
Input voltage			24 VDC				115 VAC		230 VAC
Dimensions (WxDxH)			13.9x70x128.3 mm				18.4x70x128.3 mm		
Reference	Module	Standard	STBDDI3230	STBDDI3420	STBDDI3610	–	STBDAI5230	STBDAI5260	STBDAI7220
		Basic	–	STBDDI3425	STBDDI3615	STBDDI3725 (4)	–	–	–
	Base (3)		STBXBA1000			STBXBA3000	STBXBA2000		



Type of module			Discrete solid state outputs						
Connection by removable terminals (1)	Screw (2)		STBXTS1100				STBXTS1180		
		Spring (2)	STBXTS2100				STBXTS2100		
Number of channels			2		4		6		16
Output voltage			24 VDC		24 VDC		24 VDC		24 VDC
Output current			0.5 A	2 A	0.25 A	0.5 A	0.25 A	0.5 A	0.5 A
Dimensions (WxDxH)			13.9x70x128.3 mm						
Reference	Module	Standard	STBDDO3200	STBDDO3230	–	STBDDO3410	–	STBDDO3600	–
		Basic	–	–	STBDDO3415	–	STBDDO3605	–	STBDDO3705 (5)
	Base (3)		STBXBA1000						STBXBA3000



Type of module			Discrete outputs				
			Triac		Relay		
Connection by removable terminals (1)	Screw (2)		STBXTS1100				
		Spring (2)	STBXTS2100				
Number of channels			2	2 (isolated)	2 "OF"	2 "O+F"	
Output voltage			115...230 VAC		115 VAC	24 VDC ou 115...230 VAC	
Output current			2 A à 30°C, 1 A à 60°C			2 A par contact	7 A par contact
Dimensions (WxDxH)			18.4x70x128.3 mm		28.1x70x128.3 mm		
Reference	Module	Standard	STBDAO8210		STBDAO5260	STBDRC3210	STBDRA3290
		Base (3)	STBXBA2000		STBXBA3000		

(1) To be ordered separately, sold in lots of 20.

(2) I/O connector keying pin kit STBXMP7800

(3) Module keying pin kit STBXMP7700

(4) if connection on Telefast2 order STBXTS6510 or connection on Telefast Twido order STBXTS5510

(5) if connection on Telefast2 order STBXTS6610 or connection on Telefast Twido order STBXTS5610

Connection accessories: See [www.schneider-electric.com](http://www.schneider-electric.com)



Type of module (1)		Analog inputs								
Connection by removable terminals		Screw STBXTS1100 (2) / Spring STBXTS2100 (2)								
Number of channels		2				4		8	2	
Input signal		- 10...+10 V	0...+10 V	0...20 mA	4...20 mA	4...20 / 0...20 mA	Selectable	Selectable	Multigamme (3)	
Resolution		9 bits + sign	10 bits	12 bits	10 bits	15 bits + sign				
Dimensions (WxDxH) (mm)		13,9x70x128,3								
Reference	Module	Standard	-	-	STBACI1230	-	STBACI0320	STBAVI0300	STBACI1400 (5)	STBART0200
		Basic	-	-	-	-	STBACI8320 (4)	-	STBAVI1400 (6)	-
	Base	STBXBA1000					STBXBA2000			STBXBA1000



Type of module (1)		Analog outputs								
Connection by removable terminals		Screw STBXTS1100 (2) / Spring STBXTS2100 (2)								
Number of channels		1	2							
Output signal		4...20 mA	-0...+10, -10...+10V	0...+10 V	-10 V...+10 V	0...20 mA	4...20 mA	4...20 mA	Selectable (6)	
Resolution		15 bits + sign	11 bits + sign or 12 bits	10 bits	9 bits + sign	12 bits	10 bits	15 bits + sign		
Dimensions (WxDxH) (mm)		18,4x70x128,3		13,9x70x128,3		18,4x70x128,3				
Reference	Module	Standard	STBACO0120	STBAVO1250	-	-	STBACO1210	-	STBACO0220	STBAVO0200
		Basic	-	-	STBAVO1255	STBAVO1265	-	STBACO1225	-	-
	Base	STBXBA2000		STBXBA1000				STBXBA2000		

## Application-specific modules



Type of module (1)		For motor starters TeSys model U		Counter
Connection by connector		4 RJ45		Spring STBXTS2150 (2)
Number of inputs/outputs		12 E / 8 S		4 E / 2 S
Input voltage		24 VDC		24 VDC
Output voltage/current		24 VDC/0.1 A per channel		24 VDC/0.5 A
Number of channels		4 starters-controllers		1 counter channel 40 kHz
Dimensions (WxDxH) (mm)		28.1x70x128.3		
Reference	Module	Standard	STBEPI2145	
	Base	STBXBA3000		
	Connection cables	(7)		-
		(7)		-

(1) Grounding kit (conseilled for counter > 40 kHz): STBXSP3000 (connecting support) + STBXSP3010 (1.5...6 mm<sup>2</sup> cables) + STBXSP3020 (5...11 mm<sup>2</sup> cables)

(2) To be ordered separately, sold in lots of 20.

(3) Multirange temperature probe thermocouples B, E, J, K, R, S, T. Thermal probe Pt 100, Pt 1000, Ni 100, Ni 1000, cu 10, ± 80 mV.

(4) 4 HART-tolerant channels (5) Input signal selectable / channel 0...20 mA and 4...20 mA (6) Input signal selectable / channel 1...5 VDC, 0...5 VDC, 0...10 VDC, ± 5 VDC and ± 10 VDC

(7) LU9R03 (0,3 m), LU9R10 (1 m), 490NTW00002 (2 m), LU9R30 (3 m), 490NTW00005 (5 m), 490NTW00012 (12 m)



# Advantys FTB IP 67 distributed I/O, optimised block Interface modules, plastic enclosure



Type of module	CANopen machine bus	DeviceNet Fieldbus	ProfiBus Fieldbus	InterBus Fieldbus	
Number of channels	16				
Type of female connector	M12, 5-pin				
Max. voltage / current of inputs	24 VDC type 2/200 mA				
Max. voltage / current of outputs	24 VDC/1.6 A				
Max. current per splitter box	8 A				
Product certification	cULus				
Dimensions, W X D x H	63 x 50.5 x 220 mm			63 x 69 x 220 mm	
Diagnostics	Splitter boxes	By LED for: bus and I/O undervoltage + I/O short-circuit + I/O power supply			
	Channels	By LED for: I/O short-circuit + wire breakage fault + I/O fault			
References	16 inputs	FTB1CN16EP0	FTB1DN16EP0	FTB1DP16EP0	FTB1IB16EP0
	8 inputs/8 outputs	FTB1CN08E08SP0	FTB1DN08E08SP0	FTB1DP08E08SP0	FTB1IB08E08SP0
	12 inputs/4 outputs	FTB1CN12E04SP0	FTB1DN12E04SP0	FTB1DP12E04SP0	FTB1IB12E04SP0
	16 configurable inputs/outputs	FTB1CN16CP0	FTB1DN16CP0	FTB1DP16CP0	FTB1IB16CP0

## Interface modules, metal enclosure



Type of module	CANopen	DeviceNet	ProfiBus	
Number of channels	8			
Type of female connector	M12, 5-pin			
Max. voltage / current of inputs	24 VDC type 2/200 mA			
Max. voltage / current of outputs	24 VDC/1.6 A			
Max. current per splitter box	8 A			
Product certification	cULus			
Dimensions (WxDxH)	62.7 x 38.9 x 224.7 mm			
Diagnostics	Splitter boxes	By LED for: bus and I/O undervoltage + I/O short-circuit + I/O power supply		
	Channels	By LED for: I/O short-circuit + wire breakage fault + I/O fault		
References	16 inputs	FTB1CN16EM0	FTB1DN16EM0	FTB1DP16EM0
	8 inputs/8 outputs/configurable outputs	FTB1CN08E08CM0	FTB1DN08E08CM0	FTB1DP08E08CM0
	16 configurable inputs/outputs	FTB1CN16CM0	FTB1DN16CM0	FTB1DP16CM0

# Advantys FTM IP 67 distributed I/O, modular system Interface modules



Type of bus module	CANopen machine bus	DeviceNet fieldbus	Profibus fieldbus
Max. number of Discrete I/O	256		
Max. number of splitter boxes	16		
Bus module supply voltage	24 V DC		
Bus module max. supply current	9 A		
Product certification	UL/CSA	CULus	
Dimensions (WxDxH)	50 x 50.3 x 151 mm		
References	FTM1CN10	FTM1DN10	FTM1DP10

## Splitter boxes



Type of splitter box	Discrete inputs/outputs				
	Compact		Expandable		
Input voltage	24 V DC/type 2/200 mA		24 V DC/type 2/200 mA		
Output voltage	24 V DC		24 V DC		
Type of output	Solid-state		Solid-state		
Output current	0.5 A		0.5 A		
Maximum supply current by internal bus	4 A		4 A		
Diagnostics	Short-circuit on I/O, wire breakage fault, sensor/actuator fault				
Dimensions (WxDxH)	30 x 34.5 x 126 mm		30 x 34.5 x 151 mm		
I/O connection	M8 connector	M12 connector	M8 connector	M12 connector	
References	8 inputs	FTM1DE08C08	FTM1DE08C12	FTM1DE08C08E	FTM1DE08C12E
	8 configurable inputs/outputs	FTM1DD08C08	FTM1DD08C12	FTM1DD08C08E	FTM1DD08C12E
	16 inputs	–	FTM1DE16C12 (1)	–	FTM1DE16C12E (1)
	16 configurable inputs/outputs	–	FTM1DD16C12 (1)	–	FTM1DD16C12E (1)

(1) Dimensions: 50 x 34.5 x 126 mm.



Type of splitter box	Analogue inputs/outputs				
	Compact				
Type of inputs/outputs	Current		Voltage		
Measuring range	0...20 mA/4...20 mA		± 10 V DC/0...10 V DC		
Diagnostics	Short-circuit on I/O, wire breakage fault, sensor/actuator fault				
Conversion time	≤ 2 ms per channel				
Dimensions (WxDxH)	30 x 34.5 x 126 mm				
Resolution	16 bit	12 bit	15 bit + sign	11 bit + sign	
References	4 inputs	FTM1AE04C12C	–	FTM1AE04C12T	–
	4 outputs	–	FTM1AS04C12C	–	FTM1AS04C12T

# Modicon Momentum \_\_\_\_\_ Distributed I/O and processors

## Discrete I/O modules



Type of module	Multibus discrete inputs			
Connection	By screw terminals 170XTS00100 or spring terminals 170XTS00200 (to be ordered separately)			
Input voltage	24 VDC		120 VAC	230 VAC
Number of channels	16 (1 common point)	32 (2 common points)	16 (2 common points)	
Dimensions (WxDxH)	125 x 47.5 x 141.5 mm (with communication modules or processors) 144 x 70 x 141.5 mm (with M1/M1E processors and optional modules)			
Reference	170ADI34000	170ADI35000	170ADI54050	170ADI74050



Type of module	Multibus discrete outputs					
		Solid state		Triac		
Connection	By screw terminals 170XTS00100 or spring terminals 170XTS00200 (to be ordered separately)					
Output voltage	24 VDC		120 VAC		230 VAC	
Number of protected channels	16 (2 common pts)	32 (2 common pts)	8 (2 common pts)	16 (2 common pts)	8 (2 common pts)	16 (2 common pts)
Output current	Per channel	0,5 A	0,5 A	2 A	0,5 A	0,5 A
	Per group of channels	4 A	8 A	4 A	4 A	4 A
	Per module	8 A	16 A	8 A	8 A	8 A
Dimensions (WxDxH)	125 x 47.5 x 141.5 mm (with communication modules or processors) 144 x 70 x 141.5 mm (with M1/M1E processors and optional modules)					
Reference	170ADO34000	170ADO35000	170ADO53050	170ADO54050	170ADO73050	170ADO74050



Type of module	Multibus discrete I/O							
		Solid state			Relay		Triac	
Connection	By screw terminals 170XTS00100 or spring terminals 170XTS00200 (to be ordered separately)							
Number of channels	Inputs	16 (1 common pt)	16 (4 com. pts)	16 (1 com. pt)	10 (1 common pt)			
	Input logic	Positive	Positive (2)	Negative	Positive		-	
	Outputs	16 (1 common pt)	16 (2 common pts)		8/4 (1 com. pt)	12	8 (2 common pts)	8 (1 com. pt)
Input voltage		12...48 VDC	24 VDC					120 VAC
Output voltage		12...48 VDC	24 VDC			24...230 VAC/20...115 VDC		120 VAC
Output current	Per output	0,5 A	0,5 A		2 A	0,5 A	2 A	0,5 A
	Per group of channels	-	4 A		4 A	4/2 A	8 A	4 A
	Per module	8 A	8 A		8 A	6 A	16 A	4 A
Dimensions (WxDxH)	125 x 47.5 x 141.5 mm (with communication modules or processors) 144 x 70 x 141.5 mm (with M1/M1E processors and optional modules)							
Reference	170ADM85010	170ADM35010	170ADM35015	170ADM37010	170ADM39010	170ADM39030	170ARM37030	170ADM69051

(2) For a version with high-speed positive logic, replace **0** at the end of the reference with **1**. E.g. **170ADM35010** becomes **170ADM35011**

Connection accessories: See [www.schneider-electric.com](http://www.schneider-electric.com)

# Modicon Momentum \_\_\_\_\_ Distributed I/O and processors

## Analog I/O modules



Type of module	Multibus analog inputs		
Connection	By screw terminals 170XTS00100 or spring terminals 170XTS00200 (to be ordered separately)		
Number of channels	8 isolated	16 with common point	4 isolated
Input signal	$\pm 5\text{ V}$ , $\pm 10\text{ V}$ , $\pm 20\text{ mA}$ , 1...5 V, 4...20 mA	$\pm 5\text{ V}$ , $\pm 10\text{ V}$ , 4...20 mA	Multi-range $\pm 25\text{ mV}$ , $\pm 10\text{ mV}$ (1)
Resolution	14 bits + sign, 15 bits unipolar	12 bits + sign	15 bits + sign
Dimensions (WxDxH)	125 x 47.5 x 141.5 mm (with communication modules or processors) 144 x 70 x 141.5 mm (with M1/M1E processors and optional modules)		
Reference	<b>170AAI03000</b>	<b>170AAI14000</b>	<b>170AAI52040</b>

(1) Temperature probe: Pt 100, Pt 1000, Ni 100, Ni 1000, Thermocouple: B, E, J, K, N, R, S, T.



Type of module	Multibus analog outputs		Analog I/O and multibus discrete I/O			
Connection	By screw terminals 170XTS00100 or spring terminals 170XTS00200 (to be ordered separately)					
Number of channels	Inputs	–	4 differential + 4 discrete		6 with com pt + 8 discrete (24 VDC)	
	Outputs	4	2 + 2 discrete (24VDC)	2 + 2 discrete (12VDC)	4 with com pt + 8 discrete (24 VDC)	
Input signal	$\pm 10\text{ V}$ , 0...20 mA	$\pm 10\text{ V}$ , 4...20 mA	$\pm 5\text{ V}$ , $\pm 10\text{ V}$ , $\pm 20\text{ mA}$ , 1...5 V, 4...20 mA	0...10 V	$\pm 10\text{ V}$	
Output signal	–	–	$\pm 10\text{ V}$ , 4...20 mA	0...10 V	$\pm 10\text{ V}$	
Resolution	12 bits + sign		12...14 bits dep. on signal	14 bits	14 bits	
Dimensions (WxDxH)	125 x 47.5 x 141.5 mm (with communication modules or processors) 144 x 70 x 141.5 mm (with M1/M1E processors and optional modules)					
Reference	<b>170AAO12000</b>	<b>170AAO92100</b>	<b>170AMM09000</b>	<b>170AMM09001</b>	<b>170ANR12090</b>	<b>170ANR12091</b>

## Application-specific I/O modules



Type of module	High-speed counter	Discrete I/O with Modbus port
Connection	By screw terminals 170XTS00100 or spring terminals 170XTS00200 (to be ordered separately)	
Type of inputs for	Incremental or absolute encoders	RS 485 Modbus port
Operating voltage	24 VDC	120 VAC
Counting frequency	200 kHz	–
Number of channels	2 independent	–
Number of discrete I/O	2 x 3 inputs/2 x 2 outputs	6 inputs/3 outputs
Dimensions (WxDxH)	125 x 47.5 x 141.5 mm (with communication modules or M1/M1E processors) 144 x 70 x 141.5 mm (with M1/M1E processors and optional modules)	
Reference	<b>170AEC92000</b>	<b>170ADM54080</b>

# Modicon Momentum \_\_\_\_\_ Distributed I/O and processors

## Communication modules



Type of module	Ethernet TCP/IP network		Fipio fieldbus	INTERBUS (1) fieldbus	Profibus DP fieldbus
Speed	10 Mbps	10/100 Mbps	1 Mbps	0.5 Mbps	9.6 K...12 Mbps
Manager PLC	-		Premium	-	-
Redundancy	No		No	No	No
Standard services	Modbus TCP/IP		-	-	-
Reference	<b>170ENT11002</b>	<b>170ENT11001</b>	<b>170FNT11001</b>	<b>170INT11000 (1)</b>	<b>170DNT11000</b>

(1) Generation 4, twisted pair medium: **170INT11003**, with optical fiber medium: **170INT12000**



Type of module	Other networks Modbus Plus		DeviceNet
Speed	1 Mbps		0.5 Mbps
Manager PLC	Premium or Quantum	Quantum	-
Redundancy	No	Yes	No
Standard services	-		-
Reference	<b>170PNT11020</b>	<b>170PNT16020</b>	<b>170LNT71000</b>

## Optional modules for M1/M1E processors



Type of module (2)	Modbus Plus		Asynchronous serial link
Communication ports	1 Modbus Plus	2 redundant Modbus Plus	RJ45
Real-time clock	Integrated, ± 13 sec/day accuracy		
Connection	By 9-way SUB-D connector		
Reference	<b>172PNN21022</b>	<b>172PNN26022</b>	<b>172JNN21032</b>

(2) Include save battery of the M1/M1E processors application and data memories.

## Connection accessories

Type	RS 232C communication cable		
Length	1 m	3 m	6 m
Reference	<b>110XCA28201</b>	<b>110XCA28202</b>	<b>110XCA28203</b>

## Power supply module (3)



Type of power supply module for	Momentum processors
Input voltage	120 or 230 VAC (selected by jumper)
Output voltage	24 VDC
Output current	0.7 A
Dimensions (WxDxH)	73 x 44.5 x 146 mm
Reference	<b>170CPS11100</b>

(3) Process power supplies see chapter 6 "Power supply"

# Modicon Momentum \_\_\_\_\_ Distributed I/O and processors

## M1/M1E processors



Type of processor		M1			
Number of I/O	Discrete	2048 I/O		2048 I/2048 Q	
	Registers	2048 words		4096 words	
Integrated communication ports	Modbus	1 RS 232C	1 RS 232C + 1 RS 485	1 RS 232C	1 RS 232C + 1 RS 485
	Ethernet TCP/IP	–			
	I/O bus (1)	–		1 I/O port	–
Transparent Ready	Embedded Web server	–			
Memory capacity	RAM	64 Kb		256 Kb	
	Flash	256 Kb		256 Kb	
	User, 984 LL language (2)	2.4 K		12 K	
	User, IEC language (3)	–		160 K	
	Data	2 K		4 K	
Cycle time		1 ms/K	1 ms/K	0.63 ms/K	1 ms/K
Reference		<b>171CCS70000</b>	<b>171CCS78000</b>	<b>171CCS76000</b>	<b>171CCC78010</b>

(1) I/O bus derived from INTERBus bus.

(2) ProWORX 32 or Concept programming software.

(3) Concept programming software.



Transparent  
Ready

Type of processor		M1	M1E		
Number of I/O	Discrete	8192 I/O			
	Registers	26048 words			
Integrated communication ports	Modbus	1 RS 232C	1 RS 485	–	
	Ethernet TCP/IP	–		1 integrated Ethernet port	
	I/O bus (1)	1 I/O port	–	1 I/O port	
Transparent Ready	Embedded Web server	–	Standard services (class A10)		
Memory capacity	RAM	512 Kb		544 Kb	
	Flash	512 Kb		1 Mb	512 Kb
	User, 984 LL language (2)	18 K			
	User, IEC language (3)	240 K	–	200 K	–
	Data	24 K			
Cycle time		1 ms/K	0.3 ms/K		
Reference		<b>171CCC76010</b>	<b>171CCC98020</b>	<b>171CCC98030</b>	<b>171CCC96020</b>
				<b>171CCC96030</b>	



Type of processor		171 CBB97030
Integrated communication ports	Modbus	1 RS 232/485
	Ethernet TCP/IP	4 integrated Ethernet port
Transparent Ready	Embedded Web server	Standard services (class B)
Memory capacity	RAM	512 Kb
	Flash	1 Mb
	User, 984 LL language (2)	18 K
	User, IEC language (3)	200 K
	Data	24 K
Cycle time		0.25 ms/K
Reference		<b>171CBB97030</b>

Connection accessories: See [www.schneider-electric.com](http://www.schneider-electric.com)



Type of connection sub-base	Optimum			
Number of channels	16	16		
Max. current per channel	0.5 A	0.5 A		
Control voltage / output voltage	24 VDC / 24 VDC	24 VDC / 24 VDC		
LED per channel	–	With		
Number of terminals per channel/on row number	1/2	1/1	2/2	3/3
Dimensions (WxDxH)	55 x 59 x 67 mm	106 x 60 x 49 mm		
References	–	ABE7H16C11	ABE7H16C21	ABE7H16C31
Cable L = 1 m	ABE7H20E100 (1)	–	–	–
Cable L = 2 m	ABE7H20E200 (1)	–	–	–
Cable L = 3 m	ABE7H20E300 (1)	–	–	–
Connection cable recommended for Modicon, TSX Micro and Premium PLCs, L = 1 m (2)	ABFH20H100			

(1) Connection cable supplied for PLCs.

(2) For a 2 m length cable, replace the number 1 in the reference by 2, and for a 3 m length, by 3. (Example: ABFH20H100 becomes ABFH20H200).



Type of connection sub-base	Universal					
Number of channels	16					
Max. current per channel	0.5 A					
Control voltage / output voltage	24 VDC / 24 VDC					
LED per channel	–	With	–	–	With	With
Number of terminals per channel/on row number	1/1	1/1	1/2	2/2	2/2	3/3
Dimensions (WxDxH)	125 x 58 x 70 mm		84 x 58 x 70 mm	125 x 58 x 70 mm		
References	ABE7H16R10	ABE7H16R11	ABE7H16R50	ABE7H16R20	ABE7H16R21	ABE7H16R31
Connection cable recommended for Modicon, TSX Micro and Premium PLCs, L = 1 m: ABFH20H100 (2)						

(2) For a 2 m length cable, replace the number 1 in the reference by 2, and for a 3 m length, by 3. (Example: ABFH20H100 becomes ABFH20H200).



Type of connection sub-base	For counter and analogue channels	Passive distribution with shielding continuity	Distribution and supply of analogue channels
Number of channels	1 counter channel (3)	8	8
Max. current per channel	25 mA	25 mA	25 mA
Control voltage / output voltage	24 VDC / 24 VDC		
Number of terminals per channel	2	2 or 4	2 or 4
Dimensions (WxDxH)	143 x 58 x 70 mm	125 x 58 x 70 mm	125 x 58 x 70 mm
References	ABE7CPA01	ABE7CPA02	ABE7CPA03
Connection cable recommended for Modicon PLCs (4)	TSX Micro L = 2.5 m Premium L = 3 m	TSXCCPS15	–
		TSXCAP030	–

(3) Or 8 inputs + 2 outputs, analogue .

(4) Connection cables available for other PLCs, please refer to your Schneider Electric agency.

# Advantys ABE7 Telefast® pre-wired system Sockets with plug-in relays and terminals



Type of connection sub-base	With soldered solid-state relay inputs	With soldered solid-state relay outputs	With soldered electro-mechanical relay outputs
Number of channels	16	16	16
Max. current per channel	12 mA	0.5 A	2 A   5 A
Input voltage / output voltage	24 VDC / -   110 VAC / -	- / 24 VDC	- / 5...30 VDC, 250 VAC
Number of contacts	-	-	1 N/O
Polarity distribution	-	-	(1)   Volt-free
Number of terminals per channel	2		
Dimensions (WxDxH)	206 x 58 x 77 mm		
References	ABE7S16E2B1   ABE7S16E2F0	ABE7S16S2B0(2)   ABE7S16S1B2	ABE7R16S111   ABE7R16S210

Connection cable recommended for Modicon, TSX Micro and Premium PLCs, L = 1 m: **ABFH20H100** (3)

- (1) Contact common per group of 8 channels.
- (2) With fault detection signal (can only be used with modules with protected outputs).
- (3) For a 2 m length cable, replace the number 1 in the reference by 2, and for a 3 m length, by 3. (Example: ABFH20H100 becomes ABFH20H200).



Type of connection sub-base	With plug-in electromechanical relays				
Number of channels	16				
Max. current per channel	5 A	2.5 A		4 A	5 A
Control voltage / output voltage	24 VDC / 5...24 VDC, 230 VAC				
Number of contacts	1 N/O		1 C/O		2 C/O
Polarity distribution	(4)	(5)	Volt-free		
Number of terminals per channel	2	2 or 3		2 to 6	
Dimensions (WxDxH)	110x54x89 mm	211 x 64 x 89 mm		272 x 74 x 89 mm	
References	ABE7R16T111	ABE7R16T212	ABE7R16T210	ABE7R16T230	ABE7R16T330   ABE7R16T370

Connection cable recommended for Modicon, TSX Micro and Premium PLCs, L = 1 m: **ABFH20H100** (6)

- (4) Contact common per group of 4 channels.
- (5) Common on both poles.
- (6) For a 2 m length cable, replace the number 1 in the reference by 2, and for a 3 m length, by 3. (Example: ABFH20H100 becomes ABFH20H200).

## Connection cables for PLCs <sup>(7)</sup>



Input/Output functions	Discrete	Analogue	Analogue and counter	Counter	Axis control
References					
Cable L = 1 m	ABFH20H100	-	-	-	-
Cable L = 2 m	ABFH20H200	ABFY25S200	-	-	TSXCXP213
Cable L = 2.5 m	-	-	TSXCCPS15	TSXCCPH15	-
Cable L = 3 m	ABFH20H300	TSXCAP030	-	-	-
Cable L = 6 m	-	-	-	-	TSXCXP613

(7) Modicon, TSX Micro and Premium PLCs.

For other connection cables and accessories, please refer to your Schneider Electric agency.



# Advantys ABE7 Telefast® connection interfaces Sub-bases for input/output module



Type of connection sub-base	Discrete outputs			Relay
	Number of channels	16	16	16
Type of outputs	16 I (1 common for 16 channels)	16 O (1 common for 16 channels)	16 O, fuse protected (1 common for 16 channels)	16 O (1 common for 4 channels)
Voltage / current of outputs	24 VDC / 5 mA	24 VDC / 0.1 A		Relay: 5...30 VDC, 250 VAC / 3 A
LED per channel	–		With	–
Number of terminals per channel/row number	2/2			
Dimensions (WxDxH)	106 x 60 x 49 mm		130 x 62.5 x 83 mm	
References	<b>ABE7E16EPN20</b>	<b>ABE7E16SPN20</b>	<b>ABE7E16SPN22</b>	<b>ABE7E16SRM20</b>

## Connection cables for Twido



Type of cable	For linking Twido and Telefast sub-base	
For use with	TWDLMDA20DTK/40DTK	
Type of connectors	HE10, 26-pin, at either end	
References	Cable	
	L = 0.5 m	<b>ABFT26B050</b>
	L = 1 m	<b>ABFT26B100</b>
	L = 2 m	<b>ABFT26B200</b>
		<b>ABFT20E050</b>
		<b>ABFT20E100</b>
		<b>ABFT20E200</b>

## Accessories

Type of accessory	Optional clip-in terminals	
Number of linked terminals	20	12 + 8
References	<b>ABE7BV20</b>	<b>ABE7BV20TB</b>



Type of connection		To PLC using multicore cable		
Number of channels		4	8	
Type of female connector		M12, 5-pin	M12, 5-pin	
Max. number of signals		8	16	
Max. current per channel		4 A		
Max. current per splitter box		16 A (1 mm <sup>2</sup> )		
Product certification		cULus		
Dimensions (WxDxH)		50.2 x 42 x 92.2 mm	50.2 x 42 x 149.2 mm	
References	Without LEDs	Cable L = 5 m	ABE9C1240L05	ABE9C1280L05
		Cable L = 10 m	ABE9C1240L10	ABE9C1280L10
	With LEDs (1)	Cable L = 5 m	ABE9C1241L05	ABE9C1281L05
		Cable L = 10 m	ABE9C1241L10	ABE9C1281L10

(1) Green LED: power supply status, yellow LED: channel status.



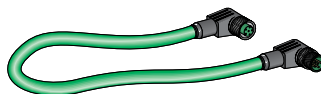
Type of connection		To PLC using M23 connector	
Number of channels		4	8
Type of female connector		M12, 5-pin	M12, 5-pin
Max. number of signals		8	16
Max. current per channel		4 A	
Max. current per splitter box		16 A	
Product certification		cULus	
Dimensions, W X D x H		50.2 x 36.5 x 92.2 mm	50.2 x 36.5 x 149.2 mm
References	Without LEDs	ABE9C1240C23	ABE9C1280C23
	With LEDs (1)	ABE9C1241C23	ABE9C1281C23

(1) Green LED: power supply status, yellow LED: channel status.

## Accessories



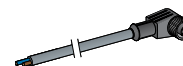
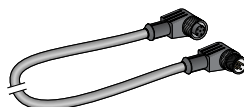
Type of accessory		Splitter boxes w/o cable		Terminal connectors		Sealing plugs (sold in lots of 10)
		Without LEDs	With LEDs	Cable L = 5 m	Cable L = 10 m	
References	4-channel	ABE9C1240M	ABE9C1241M	ABE9XCA1405	ABE9XCA1410	–
	8-channel	ABE9C1280M	ABE9C1281M	ABE9XCA1805	ABE9XCA1810	–
	for Ø12 connector	–	–	–	–	FTXCM12B



(1) For sensor/actuator cabling accessories, see page 7/13

Type of cable			For linking bus module and splitter boxes
Type of connector			Elbowed M12, 6-pin, at either end
References	Cable	L = 0.3 m	FTXCB3203
		L = 0.6 m	FTXCB3206
		L = 1 m	FTXCB3210
		L = 2 m	FTXCB3220
		L = 3 m	FTXCB3230
		L = 5 m	FTXCB3250

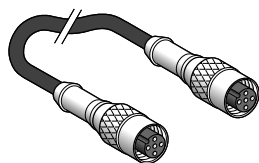
## Auxiliary power supply connection cables



Type of cable			For connection of 24 V DC auxiliary power supply	
Type of connector			Elbowed M12, 6-pin, at either end	Elbowed M12, 6-pin, at one end (other end free)
References	Cable	L = 0.3 m	FTXCA3203	FTXCA3103
		L = 0.6 m	FTXCA3206	FTXCA3106
		L = 1 m	FTXCA3210	FTXCA3110
		L = 2 m	FTXCA3220	FTXCA3120
		L = 3 m	FTXCA3230	FTXCA3130
		L = 5 m	FTXCA3250	FTXCA3150

## Accessories

Type		Line terminator for end of internal bus
Type of connector		M12
References		FTXCBTL12



(1) For sensor and actuator cabling accessories:  
see page 7/17

Type of bus			CANopen machine bus	DeviceNet fieldbus	ProfiBus fieldbus	INTERBUS fieldbus
Type of female connector			M12, 5-pin, at either end			–
Connector coding			A encoded			B encoded
References	Cable	L = 0.3 m	FTXCN3203		FTXDP3203	–
		L = 0.6 m	FTXCN3206		FTXDP3206	FTXIB1206 (2)
		L = 1 m	FTXCN3210		FTXDP3210	FTXIB1210 (2)
		L = 2 m	FTXCN3220		FTXDP3220	FTXIB1220 (2)
		L = 3 m	FTXCN3230		FTXDP3230	–
		L = 5 m	TXCN3250		FTXDP3250	FTXIB1250 (2)

(2) Reference includes the Bus connection cable + the power supply cable.

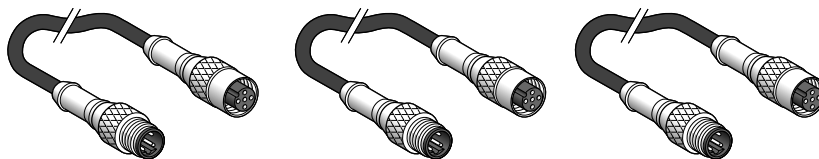
## Power supply connection cables



Type of bus			CANopen machine bus	DeviceNet fieldbus	ProfiBus fieldbus
Type of female connector			Type 7/8, 5-pin, at either end		
References	Cable	L = 0.6 m	FTXDP2206		
		L = 1 m	FTXDP2210		
		L = 2 m	FTXDP2220		
		L = 5 m	FTXDP2250		
Type of female connector			Type 7/8, 5-pin, at one end (other end free)		
References	Cable	L = 1.5 m	FTXDP2115		
		L = 3 m	FTXDP2130		
		L = 5 m	FTXDP2150		

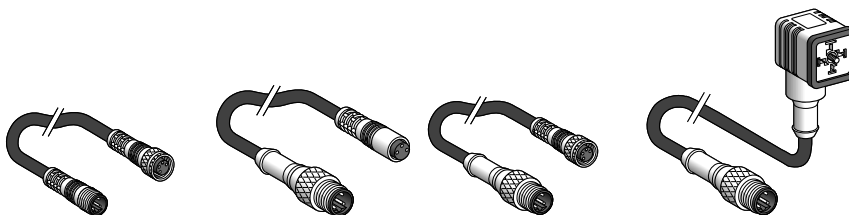
## Accessories

Type of bus			CANopen machine bus	DeviceNet fieldbus	ProfiBus fieldbus	INTERBUS fieldbus
References	Configuration CD-ROM		FTXES00			
	Diagnostics M12 adaptor		FTXDG12			
	Power supply T-connector		FTXCNCT1			–
	Line terminator		FTXCNTL12			FTXDPTL12



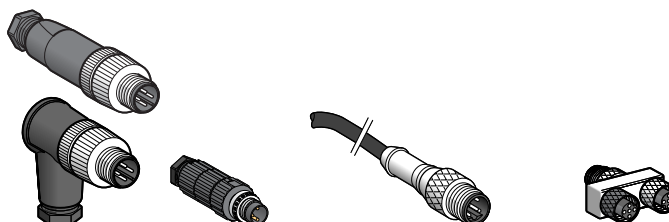
Type			Male / Female jumper cables		
Type of male connector, interface side			M12, 4-pin, straight, screw thread	M12, 4-pin, straight, screw thread	M12, 5-pin, straight, screw thread
Type of female connector, sensor side			M12, 3-pin, straight, screw thread	M12, 4-pin, straight, screw thread	M12, 5-pin, straight, screw thread
Cable			PUR, black	PUR, black	PUR, black
References	Cable	L = 1 m	XZCR1511040A1	XZCR1511041C1	XZCR1511064D1
		L = 2 m	XZCR1511040A2	XZCR1511041C2	XZCR1511064D2

## M8/M8, M8/M12 and M12/DIN jumper cables



Type			Male / Female jumper cables			
Type of male connector, interface side			M8, 3-pin straight, screw thread	M12, 3-pin straight, screw thread	M12, 3-pin straight, screw thread	M12, 3-pin straight, screw thread
Type of female connector, sensor side			M8, 3-pin straight, screw thread	M8, 3-pin straight, clip together	M8, 3-pin straight, screw thread	DIN 43650A elbowed, screw thread
Cable			PUR, black	PUR, black	PUR, black	PUR, black
References	Cable	L = 1 m	XZCR2705037R1	XZCR1501040G1	XZCR1509040H1	XZCR1523062K1
		L = 2 m	XZCR2705037R2	XZCR1501040G2	XZCR1509040H2	XZCR1523062K2

## Pre-wired connectors and splitter box



Type			Connectors		Pre-wired connectors	Splitter box "Y"	
Type of male connector, interface side			M12, 4-pin	M8, 3-pin	M12, 5-pin, straight, screw thread	1 x M12	1 x M12
Type of female connector, sensor side			-	-	-	2 x M12	2 x M8
Cable			-	-	PUR, black	-	-
References	Straight connector, screw thread		XZCC12MDM40B	XZCC8MMDM30V	-	FTXCY1212	FTXCY1208
	Elbowed connector, screw thread		XZCC12MCM40B	-	-	-	-
	Cable	L = 0.5 m	-	-	XZCP1564L05	-	-
		L = 2 m	-	-	XZCP1564L2	-	-

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