



X20 Bus Controller



X67 Bus Controller



X20 Interface Module

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System Overview
I/O, Fieldbus, and Control SystemsPerfection in Automation
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X20 Standard CPU



X20 Compact CPU



X20 Fieldbus CPU

X20	Standard CPU								
	X20CP1485		X20CP3485		X20CP1484		X20CP3484		
Processor	Celeron 650 2x 16 KB L1 cache 256 KB L2 cache			Celeron 400 2x 16 KB L1 cache 256 KB L2 cache			Celeron 286 comp. 2x 16 KB L1 cache L2 cache		
Standard Memory	64 MB SDRAM 1 MB SRAM			32 MB SDRAM 1 MB SRAM			32 MB SDRAM 1 MB SRAM		
Remanent Variables	256 KB			256 KB			64 KB		
RTC	yes			yes			yes		
Fastest Cycle Time	200 µs			400 µs			800 µs		
Integr. I/O Processor	yes			yes			yes		
CompactFlash Slot	1	1	1	1	1	1	1	1	
Modular Interface Slot	1	3	1	3	1	3	1	3	
Onboard Interfaces	Ethernet 10/100 Mbps, POWERLINK 100 Mbps, RS232, 2x USB 1.1			Ethernet 10/100 Mbps, POWERLINK 100 Mbps, RS232, 2x USB 1.1			Ethernet 10/100 Mbps, POWERLINK 100 Mbps, RS232, 2x USB 1.1		
Power Supply	24 VDC			24 VDC			24 VDC		
Battery	yes			yes			yes		
Cooling	Fan-free with derating, exchangeable fan for full temperature range			Fan-free			Fan-free		

X20	Compact CPU		Fieldbus CPU		
	X20CP0292	X20CP0291	X20CP0201	X20XC0202	X20XC0201
Processor	Embedded µP25		Embedded µP16		Embedded µP16
Standard Memory	750 KB SRAM 3 MB FlashPROM		100 KB SRAM 1 MB FlashPROM		750 KB SRAM 3 MB FlashPROM
Remanent Variables	2,75 KB FRAM		2,75 KB FRAM		2,75 KB FRAM
RTC	yes		yes		yes
Fastest Cycle Time	1 ms (typ. 2 ms)		2 ms (typ. 5 ms)		2 ms (typ. 5 ms)
Integr. I/O Processor	yes		yes		yes
Fieldbus Interface Slot	-		-		Profibus DP Slave, CANopen, DeviceNet Slave
Onboard Interfaces	RS232, CAN, Ethernet 100 Mbps	RS232, CAN, Ethernet 100 Mbps	RS232, CAN	RS232	RS232
Power Supply	24 VDC		24 VDC		24 VDC
Battery	no		no		no
Cooling	Fan-free		Fan-free		Fan-free

X20	Bus Controller								
	X20BC0043	X20BC0053	X20BC0063	X20BC0073	X20BC0083	X20BC0087	X20BC0088	X20BC0089	X20BC1083
Fieldbus	CANopen	DeviceNet	Profibus DP	CAN I/O	POWERLINK	Modbus/TCP	Ethernet/IP	Profinet RT	POWERLINK
Baudrate max.	1 Mbps	500 kbps	12 Mbps	1 Mbps	100 Mbps	100 Mbps	100 Mbps	100 Mbps	100 Mbps
Connector	5-pin multipoint connector	5-pin multipoint connector	9-pin D-sub	5-pin multipoint connector	2x RJ45 integrated hub	2x RJ45 integrated switch	2x RJ45 integrated switch	2x RJ45 integrated switch	2x RJ45 integrated hub
Modular Interface Slot	-	-	-	-	-	-	-	-	1
Node Number Switches	yes	yes	yes	yes	yes	yes	yes	yes	yes
Power Supply	24 VDC	24 VDC	24 VDC	24 VDC	24 VDC	24 VDC	24 VDC	24 VDC	24 VDC

X67	Bus Controller						
	X67BC4321	X67BC5321	X67BC6321	X67BC6321-L08	X67BC6321-L12	X67BC7321-1	X67BC8321-1
Fieldbus	CANopen	DeviceNet	Profibus DP	Profibus DP	Profibus DP	CAN I/O	ETHERNET Powerlink
Baudrate max.	1 Mbps	500 kbps	12 Mbps	12 Mbps	12 Mbps	1 Mbps	100 Mbps
Connector	M12, A-coded	M12, A-coded	M12, B-coded	M12, B-coded	M12, B-coded	M12, A-coded	M12, D-coded
Onboard I/O	8 dig. Mix / MB			16 dig. Mix / MB	16 dig. Mix / M12	8 dig. Mix / MB	
Node Number Switches	yes	yes	yes	yes	yes	yes	yes
Power Supply	24 VDC	24 VDC	24 VDC	24 VDC	24 VDC	24 VDC	24 VDC

X20	Interface								
	X20IF1020	X20IF1030	X20IF1061	X20IF1063	X20IF1072	X20IF1082	X20IF1091	X20IF2772	X20IF2792
Interfaces	RS232	RS422/RS485	Profibus DP Master	Profibus DP Slave	CAN	POWERLINK	X2X Link	2x CAN	CAN, X2X Link
Baudrate max.	115.2 kbps	115.2 kbps	12 Mbps	12 Mbps	1 Mbps	100 Mbps	-	1 Mbps	1 Mbps
Electrical Isolation	yes	yes	yes	yes	yes	yes	yes	yes	yes
Connector	9-pin D-sub	9-pin D-sub	9-pin D-sub	9-pin D-sub	5-pin multipoint connector	2x RJ45 integrated hub	4-pin multipoint connector	2x 5-pin multipoint connectors	4 + 5-pin multipoint connector

X20



X20		Digital Input										Digital Output																				
	X30D0371	X30D0372	X30D0373	X30D0374	X30D0375	X30D0376	X30D0377	X30D0378	X30D0379	X30D0380	X30D0381	X30D0382	X30D0383	X30D0384	X30D0385	X30D0386	X30D0387	X30D0388	X30D0389	X30D0390	X30D0391	X30D0392	X30D0393	X30D0394	X30D0395	X30D0396	X30D0397	X30D0398	X30D0399	X30D0400		
Digital Inputs	2	2	2	4	4	6	6	12	12	2	4	6	4																			
Digital Outputs																																
Voltage (V)	24	24	24	24	24	24	24	24	24	24	100-240	100-240	100-120	8.05	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24		
Current per Channel (A)															0.5	0.5	0.5	0.5	2	2	0.5	0.5	2	2	0.5	1	1	5/5	24/230	24/115	24/115	
I/O Circuit	Sink	Source	Sink	Sink	Source	Sink	Source	Sink	Source	Snk/Src	Snk/Src	Snk/Src			Sink	Source	Sink	Source	Sink	Source	Sink	Source	Sink	Source	Sink	Source	Snk/Src	Snk/Src				
SW Filter	✓	✓	✓	✓	✓	✓	✓	✓	✓																							
Special Features			Event-Counter												Namur													Triac	Triac	Relay change over	Relay change over	Relay norm. op.

X20

X20	Analog Input					Analog Output				Temperature			
	X20AI022	X20AI032	X20AI042	X20AI052	X20AI174	X20AO032	X20AO033	X20AO039	X20AO032	X20AT022	X20AT022	X20AT032	X20AT042
Analog Inputs	2	2	4	4	1								
Analog Outputs						2	2	4	4				
Temperature Inputs										2 R	4 R	2 TC	6 TC
± 10 V	✓	✓	✓	✓		✓	✓	✓	✓				
0...20 mA	✓	✓	✓	✓		✓	✓	✓	✓				
Resolution [Bit] Special Features	12	16	12	16	Strain Gauge	12	16	12	16	16	16	16	16

X20

X20	Counting									
	X00C:110	X00C:118	X00C:130	X00C:138	X00C:210	X00C:218	X00C:230	X00C:410	X00C:418	
ABR Incremental Encoder	1		1		(2)	2			(4)	
SSI Absolute Encoder		1		1	(1)		2		(2)	
Event Counter					(4)				(8)	
Ultrasonic Transducer										2
Voltage [V]	5	5	24	24	24	24	24	24	24	

X20

X20	Communication					
	X20-0100	X20-0100	X20-0100	X20-0100	X20-0100	X20-0100
X2X Link	Receiver	Transmitter	Transmitter + X67 PS	1 / 115, 2 kbps		
RS232						
RS422/485				1 / 115, 2 kbps		
CAN					1 / 1 Mbps	2 / 500 kbps

Table 1: Comparison of the impact of the proposed changes on the system's performance															
Scenario 1		Scenario 2		Scenario 3		Scenario 4		Scenario 5		Scenario 6		Scenario 7		Scenario 8	
Source	Sink	Source	Sink	Source	Sink	Source	Sink	Source	Sink	Source	Sink	Source	Sink	Source	Sink
2	4	4	4	4	4	6	6	8	8	12	12	2	4	2	4
24	24	24	24	24	24	24	24	24	24	24	24	100-240	100-240	24/230	24/115
0.5	0.5	0.5	2	2	0.5	0.5	2	2	0.5	0.5	1	1	5/5	1/0.5	24/115
Source	Sink	Source	Sink	Source	Sink	Source	Sink	Source	Sink	Source	Sink	Src/Src	Sink/Src		
												Triac	Triac	Relay change over	Relay norm. opn
														Relay norm. opn	Relay norm. opn

X20

X20	Combination					Signal Processing / Motor Control					
	X20PM334	X20-3005	X20P1031	X20PM1	X20-3001	X20-3003	X20S1118	X20M205	X20M4118	X20-3006	X20P1138
Digital Inputs	8		3			4		(4)8	(4)	(4)	(4)
Digital Outputs	4	6	3			2		(4)			
Analog Inputs		13				1					
Analog Outputs						1					
Stepper motor control										1/24V	1/18-48V
Pulse/Direction output								(1)			
PWM Output							8		1/24V	1/18-48V	
Event Counter								(8)			
AB Incremental Encoder			1					(4)	(2)	(2)	(2)
ABR Emulator / UserOwn Cnt				✓				(1)			
Resolver Input				✓							
Energy Measurement		✓									
Digital Control Logic			✓								
Multi-functional		✓	✓				✓				

X20

X20		Power Supply / Power Distribution									
	X2P03305	X2P03310	X2P03305	X2P03310	X2P0448.1	X2P0440	X2P05505	X2P06011	X2P06012	X2P06016	X2P03313
X20 I/O Supply	✓	✓	✓	✓		✓	✓				✓
X2X Link Supply			✓	✓			✓	✓			
Supply for					Potentiometer	BC	CPU				
Power Distribution								✓	✓	✓	✓
Internal Micro Fuse		✓		✓				✓	✓	✓	✓

X67 / XV

[illegible]

X67

X67	Analog Input			Analog Output		Analog Mixed		Temperature		Comb.
	X6AI021	X6AI022	X6AO04H	X6AO023	X6AO028	X6AM022	X6AM023	X6MT021	X6MT022	X6LM023
Analog Input	4 / M12		4 / M12	2 / M12		2 / M12		2 / M12		1 / M12
Analog Output				4 / M12	4 / M12	2 / M12	2 / M12			
Temperature Input							4 R / M12		4 TC / M12	
Digital Channels										6 / M12
± 10 V	✓			✓		✓				
0.20 mA		✓			✓		✓			
Resolution [Bit] Special Features	12	12	Strain Gauge	12	12	12	12	16	16	Strain Gauge

X67

X67		Miscellaneous	
	ADP3121	ADP3100	
Digital Input	(4)		
Digital Output	(2)		
RS232 / RS485	1 / 115.2 kbps		
X2X Link Supply			✓

XV

XV		IP20 Valve Control						IP67 Valve Control					
		7x0.080 -11	7x0.080 -12	7x0.110 -11	7x0.110 -12	7x0.150 -11	7x0.150 -12	7x0.080 -11	7x0.080 -12	7x0.110 -11	7x0.110 -12	7x0.150 -11	7x0.150 -12
Digital Output for Valve Control		8		16		16		24		16		16	
Voltage [V]		24	24	24	24	24	24	24	24	24	24	24	24
GND Pins		23,25	13,22,25	23,25	13,22,25	23,25	25	13	13,22,25	13,22,25	13	22,25	22,25
Protection		IP20	IP20	IP20	IP20	IP20	IP20	IP67	IP67	IP67	IP67	IP67	IP67

X67

X67		Counting / Motor Control			
	X67DCT198	X67MM43 V	X67DMM43 QH	X67DMM43 QV	
Digital Input	(8)	(8)	(8)		
Digital Output	(8)				
SSI Absolute Encoder 5 V	(2)				
ABR Incr. Encoder 5 V	(2)				
ABR Incr. Encoder 24 V		(2)	(2)		
AB Incr. Encoder 24 V	(4)	(2)			
Stepper Motor Control			2 / 18-48V		4 / 24V
PWM Output	(2)	2 / 18-48V			