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Cube20

- Application-oriented
- Installation-friendly
- Efficient

Cube20

Universal and flexible
combined with Cube67

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CUBE20
FIELDBUS I/Os FOR CONTROL CABINETS

Application: Control cabinets

- **Plant construction**
  - Logistics
  - Materials handling technology
  - Palletizing systems
- **Machine tools**
  - Sheet metal working
  - Handling robotics
  - Woodworking machines
  - Transfer equipment

FOCUSED ON THE ESSENTIALS

Every Murrelektronik product is focused on optimizing customer benefits. This has been successfully accomplished with the fieldbus I/O station Cube20. Cube20 is designed for the basic requirements of control cabinet wiring and intended to reduce costs in the field of mechanical engineering and plant construction.

↘ Slim design with high channel density
Save space and costs

↘ Modular design
Stay flexible

↘ Analog and digital I/O signals
Universal application

↘ I/O connection with maintenance free connecting terminals
Reliable connections

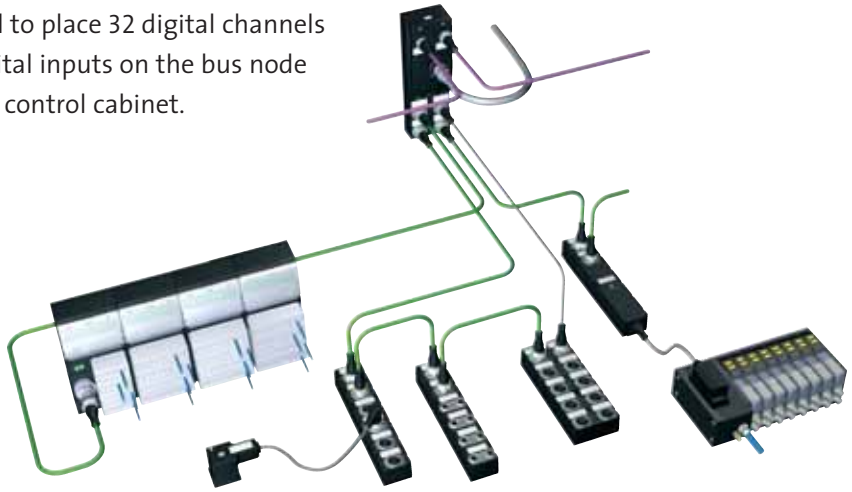
EFFICIENT SUPPORT FOR MAXIMUM I/O STATION REQUIREMENTS

Cube20 is a fieldbus I/O station with modular expandability for modern control cabinet wiring based on overall rationalization considerations. It simply runs hand in hand within a Cube67 I/O system. This leverages existing Cube67 bus node resources to achieve even greater efficiency.

OUTSTANDING COMPACTNESS

With cube20 I/O modules we managed to place 32 digital channels per module in a very small space. 8 digital inputs on the bus node provide additional space savings in the control cabinet.

- **Small space required**
  on DIN rail
- **High channel density**
  up to 488 I/Os on 90 cm
- **Plug terminals**
  for typical control cabinet



CUBE20-SYSTEM OVERVIEW

Nodes	Cube67	Profibus DP				
Expansion	4 modules	16 modules				
Digital	DI32	DO32	DI16 DO16			
Analog	AI4	AO4	AI2 AO2	AI4 RTD	AI4 TH	
Diagnostic	Module-diag	Channel-diag				

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PRACTICAL APPLICATIONS

Cube20 I/O modules are galvanically separated and have an integrated power-supply terminal. This simplifies the implementation of different potential groups. The power-monitored actuator supply provides special benefits during start-up and helps localizing peripheral faults.

CONVENIENT DIAGNOSTICS REDUCE DOWN-TIMES

All modules are equipped with a continuous, convenient diagnostic system as standard with channel-related status displays. This reduces unscheduled down-time – an important contribution to increased productivity.

CONVENIENT DIAGNOSTICS

- Signal status and error display directly at the connecting terminal
- Rapid failure localization
- Single channel diagnostics at outputs

➔ Increased productivity

NEWS CONCEPTS FOR RATIONAL INSTALLATIONS

- Even greater utilization of existing Cube67 resources
- Space savings due to high channel density and compact design
- I/O connections with maintenance-free connecting terminals
- Integrated power-supply terminals for practical applications

CUBE20 – MODULARE I/O-STATION

Bus node

Cube20 BN-P DI8
Profibus-DP

Ordering data		Art.-No.
		56001
Fieldbus		
Nominal voltage		24 V DC (18 ...30,2 V), acc. to EN61131-2
Current consumption		max. 150 mA
Type		Profibus-DP Slave
Transfer rate		up to 12 MBit/s
Addressing		1...99 by rotary switch
I/O capacity		modular expandability up to max. 16 Cube20 I/O modules
Inputs/Outputs		
Nominal voltage		24 V DC (18 ... 30,2 V), acc. to EN61131-2
Connection		Spring clamp plug-in terminals; ≤ 12 A, max. 2,5 mm²
Galvanic isolation		yes
Digital inputs		8
Sensor supply U_S		24 V DC (18 ... 30,2 V), acc. to EN61131-2 ≤ 700 mA per module, short-circuit and overload protected
Diagnostics		module related monitoring of the actuator supply with diagnostic via the fieldbus and LED status display
General data		
Dimensions	H x W x D	117 x 56 x 47 mm

Bus node

– multifunctional I/Os

Cube20 BN-C DIO8
Cube67 system connection

Ordering data		Art.-No.
		56450
Fieldbus		
Nominal voltage		24 V DC (18 ...30,2 V), acc. to EN61131-2
Current consumption		max. 80 mA
Type		Cube67 I/O module
Addressing		automatic
I/O capacity		modular expandability up to max. 4 Cube20 I/O modules
Inputs/Outputs		
Nominal voltage		24 V DC (18 ... 30,2 V), acc. to EN61131-2
Connection		spring clamp plug-in terminals; ≤ 12 A, max. 2,5 mm²
Galvanic isolation		yes
Multifunctional channels		8 channels optional in-/output acc. EN61131-2, current carrying capacity of outputs up to 0.5 A/channel, short-circuit and overload protection
Sensor supply U_S		24 V DC (18 ... 30,2 V), acc. to EN61131-2 ≤ 700 mA per module
Diagnostic output		single channel diagnostic via the fieldbus and LED
Diagnostic input		module related monitoring of the actuator supply with diagnostic via the fieldbus and LED status display
General data		
Dimensions	H x W x D	117 x 56 x 47 mm

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Input modules

– digital I/Os

Cube20 DI32

Ordering data		Art.-No.
		56112
Internal communication		
Module supply		via system connection
Current consumption		max. 25 mA
Inputs		
Number of channels		32
Sensor voltage U_I		24 V DC (18 ... 30,2 V), acc. to EN61131-2 via spring clamp plug-in terminals, max. 2,5 mm²
Galvanic isolation		yes
Sensor supply U_S		24 V DC (18 ... 30,2 V), acc. to EN61131-2 ≤ 700 mA per module, short-circuit and overload protected
Type		PNP acc. to EN61131-2
Status indicator		yellow LED per input
Input filter		1 ms
Diagnostics		module related monitoring of the actuator supply with diagnostic via the fieldbus and LED status display
General data		
I/O connector		spring clamp plug-in terminals, max. 2,5 mm²
Dimensions	H x W x D	117 x 56 x 47 mm

Output modules

– digital I/Os

Cube20 DO32

Ordering data		Art.-No.
		56118
Internal communication		
Module supply		via system connection
Current consumption		max. 25 mA
Outputs		
Number of channels		32
Actuator voltage U_A		24 V DC (18 ... 30,2 V), acc. to EN61131-2 via spring clamp plug-in terminals ≤ 12 A, max. 2,5 mm²
Galvanic isolation		yes
Load per output		0,5 A, short-circuit and overload protected
Lamp load		10 W
Max. switching frequency		resistive load 50 Hz, inductive load 5 Hz
Diagnostics		single channel diagnostic via the fieldbus and LED
General data		
I/O connector		spring clamp plug-in terminals, max. 2,5 mm²
Dimensions	H x W x D	117 x 56 x 47 mm

CUBE20 – MODULARE I/O-STATION

Output modules
Input modules

– digital I/Os

Cube20 DI16 DO16

Ordering data		**Art.-No.**
		56168
Internal communication		
Module supply		via system connection
Current consumption		max. 25 mA
Inputs		
Number of channels		16
Sensor voltage U_I		24 V DC (18 ... 30,2 V), acc. to EN61131-2 via spring clamp plug-in terminals, max. 2,5 mm²
Galvanic isolation		yes
Sensor supply U_S		24 V DC (18 ... 30,2 V), acc. to EN61131-2 ≤ 700 mA per module, short-circuit and overload protected
Type		PNP acc. to EN61131-2
Input filter		1 ms
Diagnostics input		module related monitoring of the actuator supply with diagnostic via the fieldbus and LED status display
Outputs		
Number of channels		16
Actuator voltage U_A		24 V DC (18 ... 30,2 V), acc. to EN61131-2 via spring clamp plug-in terminals, max. 2,5 mm²
Galvanic isolation		yes
Load per output		0,5 A, short-circuit and overload protected
Lamp load		10 W
Max. switching frequency		resistive load 50 Hz, inductive load 5 Hz
Diagnostics		single channel diagnostic via the fieldbus and LED
General data		
I/O connector		spring clamp plug-in terminals, max. 2,5 mm²
Dimensions	H x W x D	117 x 56 x 47 mm

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Input module
Input/output module
Output module

– analog I/Os

	Cube20 AI4 U/I	**Cube20 AI2 AO2 U/I**	**Cube20 AO4 U/I**
	Input module	Input/output module	Output module
			
Ordering data	**Art.-No.**	**Art.-No.**	**Art.-No.**
	56200	**56210**	**56220**
Internal communication			
Module supply	via system connection		
Current consumption	30 mA from system, 50 mA external (U_l)		
Inputs/Outputs			
Number of channels	4 analog IN	2 analog IN/2 analog OUT	4 analog OUT
Galvanic isolation	yes		
Supply voltage	24 V DC (18 ... 30,2 V), acc. to EN61131-2 via spring clamp plug-in terminals, max. 2,5 mm²		
Sensor supply	24 V DC (18 ... 30,2 V), acc. to EN61131-2 via spring clamp plug-in terminals, max. 2,5 mm²		
Input type	differencial voltage/current input		–
Voltage inputs			
Input resistance	≥ 1 MOhm acc. to EN 61131-2		–
Input range/resolution	-12 V...+12 V/ 15 bit + sign		–
Conversion time	≤ 2 ms per channel		–
Current inputs			
Load	≤ 300 Ohm acc. to EN 61131-2		–
Input range/resolution	0...23 mA, 4...23 mA/ 15 bit + sign		–
Conversion time	< 2 msper channel		–
Voltage outputs			
Load resistance	–	≥ 1000 Ohm acc. to EN 61131-2	
Input range/resolution	–	-10 V ... +10 V/ 11 bit + sign	
Conversion time	–	≤ 1 ms per channel	
Current outputs			
Load	–	≤ 300 Ohm acc. to EN 61131-2	
Input range/resolution	–	0...20 mA, 4...20 mA/ 15 bit + sign	
Conversion time	–	≤ 1 ms per channel	
General data			
I/O connector	spring clamp plug-in terminals, max. 2,5 mm²		
Dimensions H x W x D	117 x 56 x 47 mm		

CUBE20 – MODULARE I/O-STATION

Input modules

– Temperature converter
– analog I/Os

Cube20 AI4 RTD
resistance temperature detectors

Cube20 AI4 TH
thermocouple

Ordering data		Art.-No.	Art.-No.
		56230	56240
Internal communication			
Module supply		via system connection	
Current consumption		30 mA from system, 50 mA external U_I	
Analog Inputs			
Number of channels		4	
Resolution		15 bit + sign	
Inputs			
Measuring resistors		Pt100, 200, 500; Ni100, 120, 200, 500, 1000, R 0...3000 Ohm	–
Conversion time		max. 60 ms per channel	max. 65 ms per channel
Input type		3-wire; +Rx, RLx, -Rx	2-wire, integrated cold junction compensation
Thermocouple		–	K, N, E, J, R
Galvanic isolation		yes	
Supply voltage		24 V DC (18 ... 30,2 V), acc. to EN61131-2 via spring clamp plug-in terminals, max. 2,5 mm²	
General data			
I/O connector		spring clamp plug-in terminals, max. 2,5 mm²	
Dimensions	H x W x D	117 x 56 x 47 mm	

ACCESSOIRES

Ordering data			Art.-No.
	Cube20 Common terminal block	brown/blue	56109
		blue/yellow	56110
		blue/yellow/brown/blue	56111
	Sheet with labels	40 labels per sheet	56113
	Cube20 Klemmenwerkzeug		56114
	Profibus-plug	Insulation displacement technology	55587
		with PG connection, Insulation displacement technology	55588

Cables for field bus, system and power, terminators and further accessories
see in “Connection technology for field bus systems”

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