

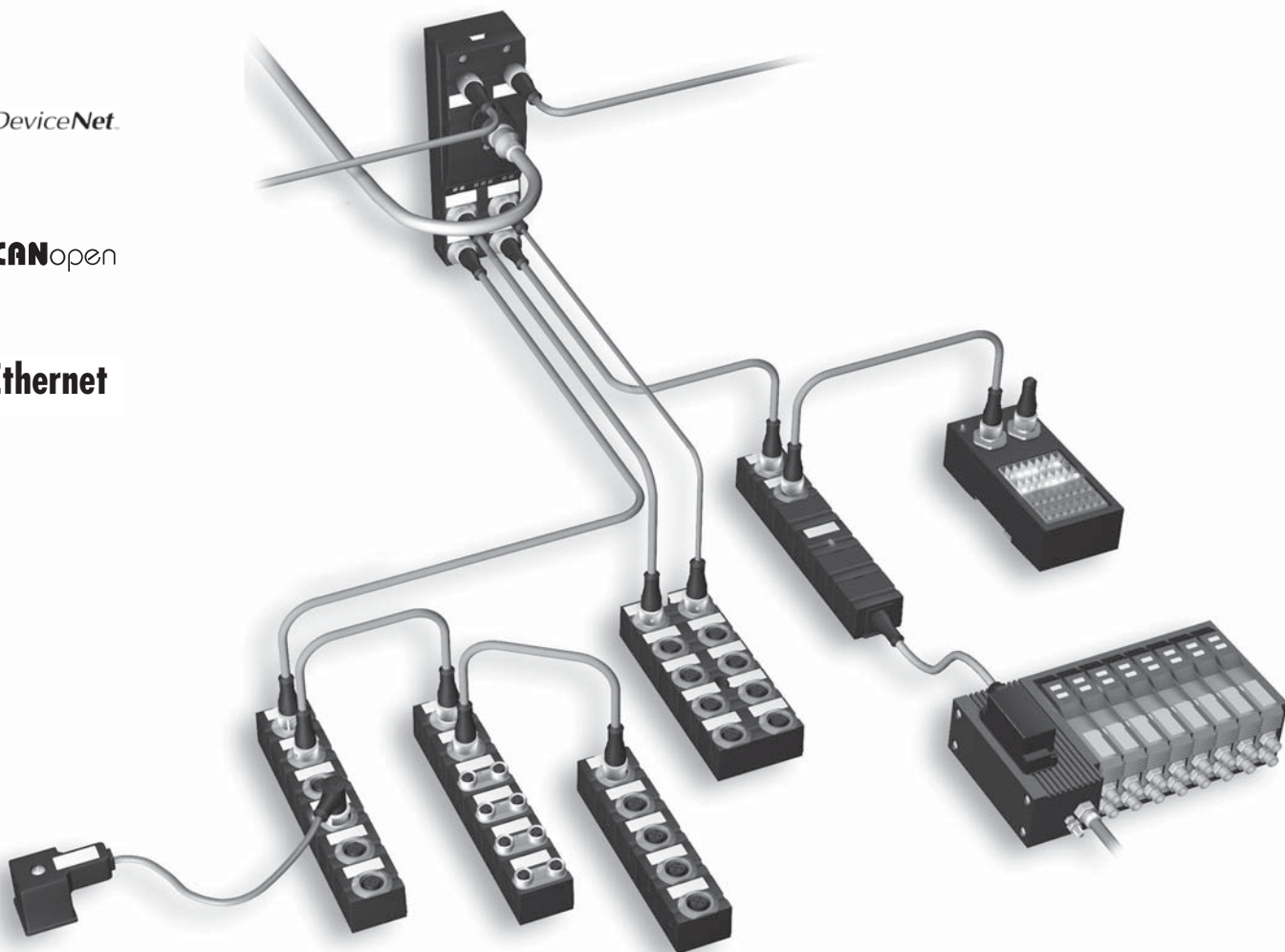
PROFI
BUS

Cube67

DeviceNet

CANopen

Ethernet



Cube67 – the modular bus system

Cube67 is a decentral I/O system which combines the protection of IP20 and IP67 with the help of its I/O modules – plug connected, robust and fully potted. Starting at the bus coupler, the I/O layer spreads radially throughout the application – connected via hybrid cable. Digital, analog and serial signals, temperature sensing, counters, valve cluster, drive or service panel coupling are available. The system offers end-to-end, channel-specific debugging right down to the sensor/actuator. The digital channels are freely programmable, so that the plug position or the signal terminal can be used as an input or output (multifunctional).

Cube67 – new reflection for an efficient installation

- Simplified planning
- Reduced cost of installation
- Quicker set-up
- Simplifies fault searches
- Higher productivity



Winner of Automation Award 2004

Economical distribution...

... modular, compact and robust

- The I/O layer is where you need it – right in the machine, and close to the sensors and actuators, instead of occupying one large area, or being concentrated in the control cabinet
 - The minimal dimensions allow compact construction of the machine – Space problems are past
 - LED close to the affected sensor/actuator
 - Flexible extendibility
 - The shortest of I/O cables
- Lowers cable costs
→ Saves space in the machine or the control cabinet
→ Switching matrices are no longer needed

Highest flexibility ...

... reduces unused sources with multifunctional I/Os

That means free parameterization of the two signals on each plug position, whether input, debugging input or output.

- Application optimized I/O modules
→ No more unused I/Os
→ No separate input and output modules
→ Reduced number of variants, minimizing the storage costs
→ Highest flexibility for system modifications
→ Exclusive-OR sensors or double valves with central plug take up only one plug position, thus lowering costs, and saving space (plug positions with blind plugs are no longer required)

“Free yourself from the controls” – Change the bus instead of the system – you change only the bus coupler

This makes the machine installation independent of the controls and the field bus, which means that the application can be adapted to the final customer’s SPC specifications without you having to modify the I/O periphery

- Standardization of the installation
- Possibility of flexible response to all specifications from end users
- Configure the machine only once
- Create the documentation only once
- System skills needed only once
- Minimizes storage costs

“Don’t look for errors – find them” –

Total diagnostic

That means detailed information on type and location of the fault or error

- Single-channel diagnostic and shut down
- Detailed message to controls
- Monitoring and shut down of the Cube67 system connection

- Errors are found more quickly, systems may be able to continue operation
→ Minimizes system down times
→ Shortens time for commissioning
→ Makes remote maintenance possible for the first time
→ Only the „affected“ plug position shuts down, not the whole module

Quicker set-up...

...Assemble and plug in – that’s all!

- Elaborate parallel and single-core wiring replaced by quick, simple plugging
- Only one hybrid cable instead of wide cable conduits
- No addressing or separate parameterization of individual I/O modules
- Pre-wired cables in different lengths

- Shortens commissioning time
→ Reduces cable costs
→ Avoids wiring errors
→ Quick swapping of cables

Integrated Machine Variant Management

As a rule, each machine variant or optional enhancement requires an individual hardware configuration, and with it a separate software version.

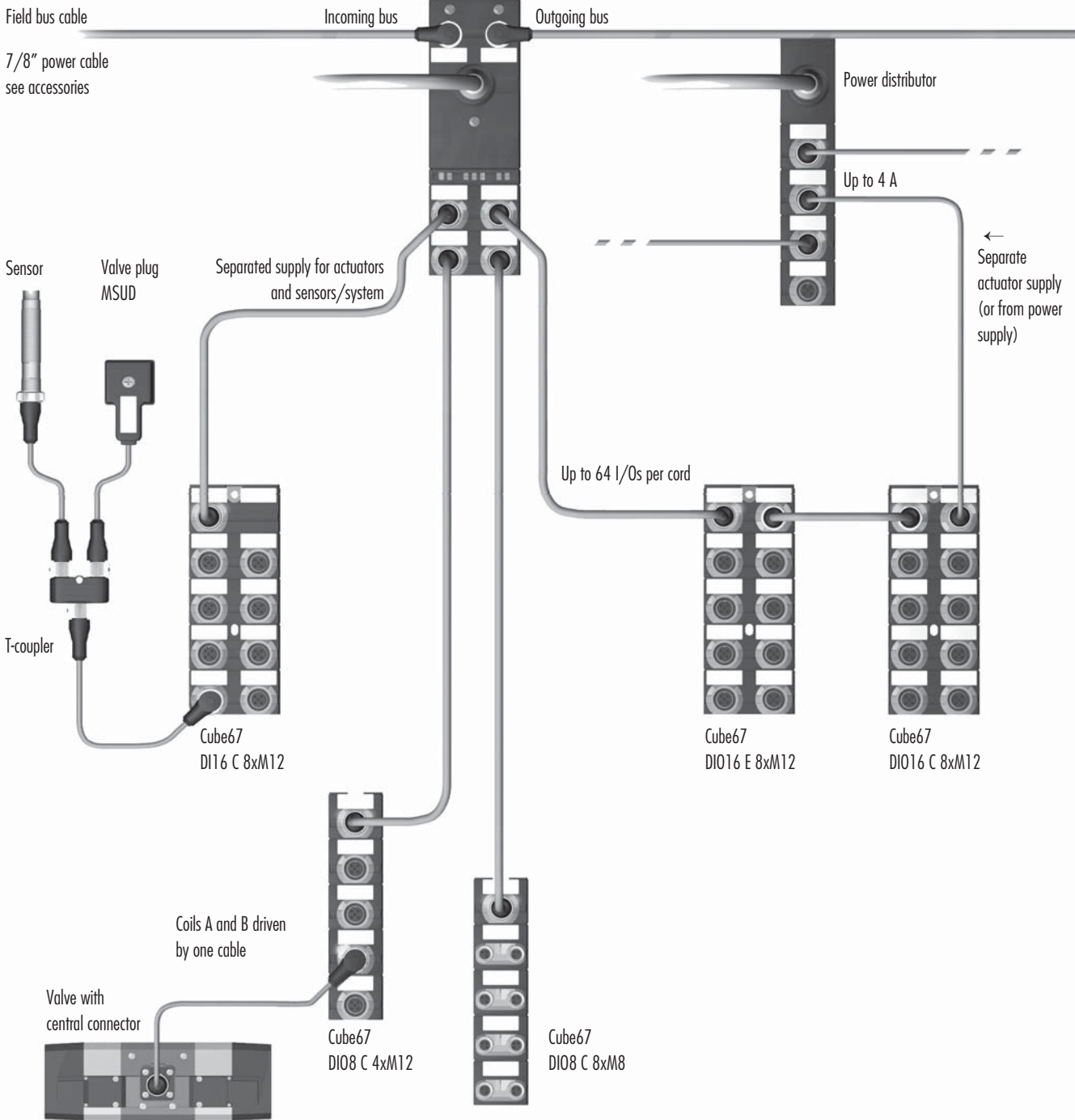
With Integrated Machine Variant Management (IMVM), you configure the potential fully enhanced version virtually – the system automatically adapts to the actual hardware structure in the real machine. Elaborate software adaptation and administration for each type of machine are no longer necessary. The variety of software is reduced to one version per machine series.

Optional retro-fitting made easy – at the touch of a button.

Cube67 - Modular I/O station



DeviceNet CANopen Ethernet



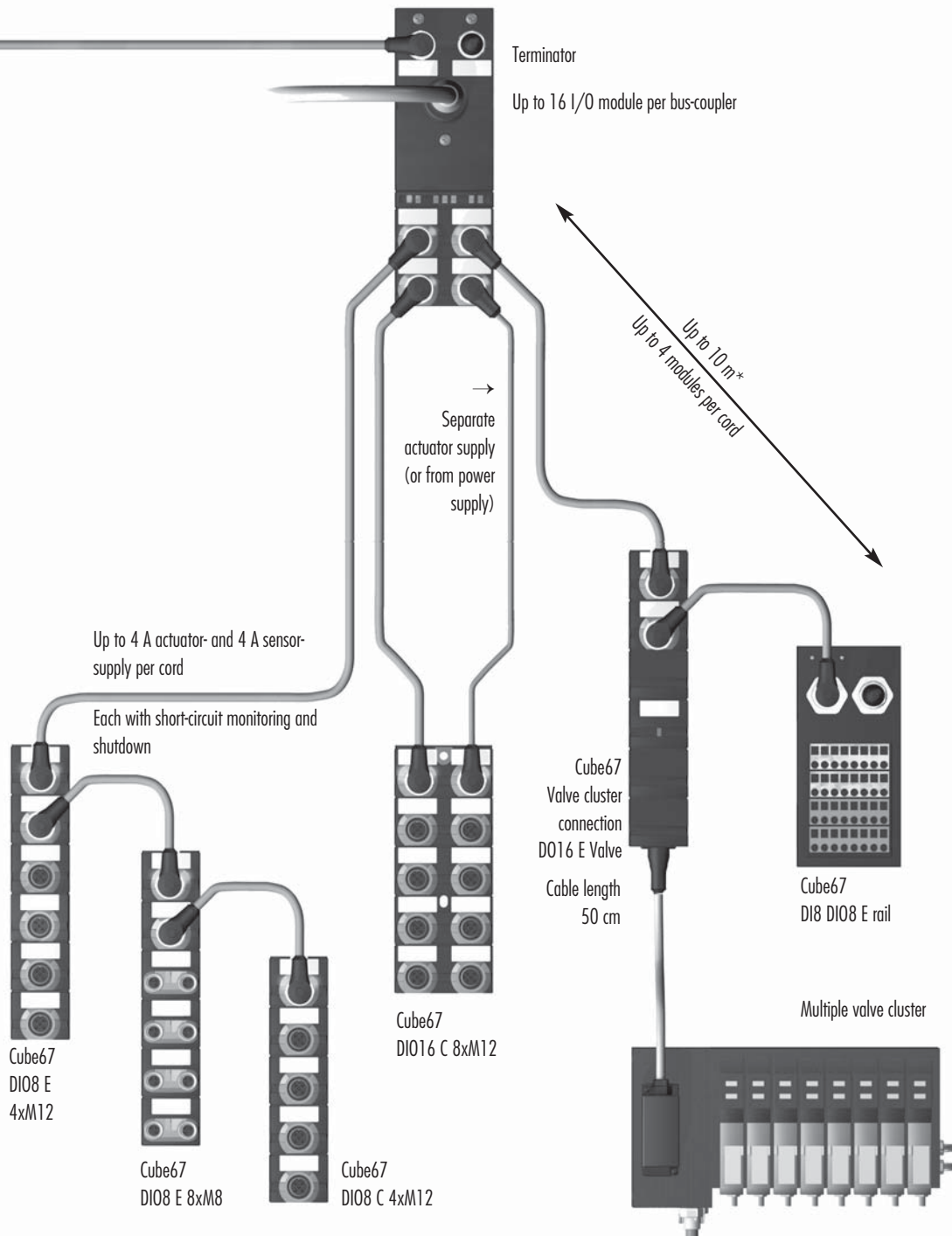
Explanation

To make it easier for you to find your way through, we have structured the product designations in our Cube67 range “mnemonically”

Example : **Cube67** **DI016** **C** **8xM12**



8 x M12 plugs
 C = compact module, E = expansion module
 16 channels freely parameterizable (input, output and debugging input)
 product family



System description		Single-channel diagnostic	
<ul style="list-style-type: none"> ■ Number of modules per bus node ■ Number of modules per cord ■ Addressing ■ Connection ■ Max. distance between bus coupler and end of cord ■ Topology ■ Data security ■ Transmission type 	<ul style="list-style-type: none"> 16 4 automatically one cable 10 m * star/line Hamming – distance 6 change of state 	<ul style="list-style-type: none"> Display per PIN – Sensor short-circuit – Actuator short-circuit – Undervoltage – Wrong connection – DESINA®-Diagnostic 	<ul style="list-style-type: none"> = green = green flashing = red = yellow
<ul style="list-style-type: none"> *follow project advice 	<ul style="list-style-type: none"> ■ Module OK ■ Initialization/no data exchange ■ Diagnostic ■ Signal status 		

Bus nodes

With compact form and plug connection in protection IP67



DeviceNet

Ethernet

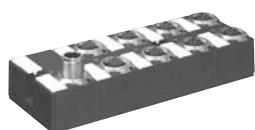
CANopen



from page 2.1.7

Compact module

Single and 2-row digital modules M8/M12 in protection IP67



digital inputs	– DI8	C	4xM12	page 2.1.9
	– DI16	C	8xM12	page 2.1.9
	– DI8	C	8xM8	page 2.1.9
multifunctional inputs/outputs	– DIO8	C	4xM12	page 2.1.12
	– DIO16	C	8xM12	page 2.1.11
	– DIO8	C	8xM8	page 2.1.12
counter module	– CNT2	C	4xM12	page 2.1.17

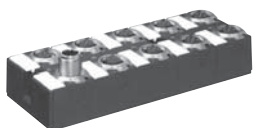
Single-row analog modules M12 in protection IP67



analog inputs	– AI4	C	4xM12 RTD (PT100, resistance)	page 2.1.20
	– AI4	C	4xM12 TH (thermo-coupler)	page 2.1.20
	– AI4	C	4xM12 (I)	page 2.1.21
	– AI4	C	4xM12 (U)	page 2.1.21
analog outputs	– AO4	C	4xM12 (I)	page 2.1.21
	– AO4	C	4xM12 (U)	page 2.1.21

Expansion modules

Single and 2-row digital modules M8/M12 in protection IP67



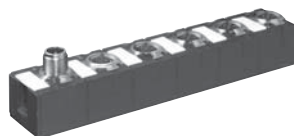
digital inputs	– DI8	E	4xM12	page 2.1.10
	– DI16	E	8xM12	page 2.1.10
	– DI8	E	8xM8	page 2.1.10
multifunctional inputs/outputs	– DIO8	E	4xM12	page 2.1.13
	– DIO16	E	8xM12	page 2.1.13
	– DIO8	E	8xM8	page 2.1.14

Single-row digital modules in protection IP67 and pre-wired I/O cable



multifunctional inputs/outputs	– DIO8	E	Cable	page 2.1.15
	– DIO8	E	Cable M12 ID	page 2.1.15
	– DIO8	E	M16	page 2.1.15
valve master type	– DO8	E	Valve	page 2.1.16
	– DO16	E	Valve	page 2.1.16
	– DO32	E	Valve	page 2.1.16

Single-row function modules M12 in protection IP67



Logic module	– Logic	E	4xM12	page 2.1.17
Interface module RS 485	– DIO4	RS	485 E 3xM12	page 2.1.18

Expansion modules

Terminal modules for field mounting in protection IP66

multifunctional inputs/outputs – DIO8/DI8 E TB box



page 2.1.19

Terminal modules for operation panels and terminal boxes in protection IP20

multifunctional inputs/outputs – DIO8/DI8 E TB rail



page 2.1.19

System accessories

Power distributor Cube67 PD 7/8"



page 2.1.22

Cube67 system connection cables

pre-wired 0.15...10 m



from page 1.4.1

Cube67 FSC

Robust quick-coupler for system cable



page 2.1.23

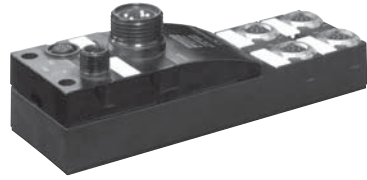
Cube67 T-coupler for additional power input into system connection cables



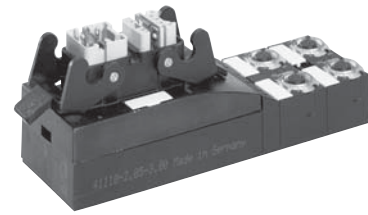
from page 1.3.49

Bus nodes

Cube67 BN-P



Cube67 BN-P for ECOFAST®



Ordering data	Art.-No.	Art.-No.
	approvals	approvals
	UL	filed for UL
	56501	56531
Field bus		
Nominal voltage	24 V DC (18...30.2 V), to EN61131-2	
Module supply	via PIN 4 sensor supply (7/8" power)	via hybrid connector
Current usage	approx. 80 mA	
Type	Profibus DP slave	
Transfer protocol	Profibus DP	
Operating modes	Sync- and freeze-mode is supported	
Transfer rate	up to 12 MBit/s	
Status indicator		
Communication to field bus	green static = OK.; green blinking = no communication red = configuration error	
Sensor supply U_s	green = OK; red = $U < 18$ V	
Actuator supply U_a	green = OK; red = $U < 18$ V	
Internal communication U_i	static = OK; blinking = no data transfer	
Supply voltage		
Sensor supply	via 7/8" power; max. 9 A	via hybrid connector; max. 9 A
Actuator supply	via 7/8" power; max. 9 A	via hybrid connector; max. 9 A
Bridge internal system connection	each female having a max. 4 A per PIN	
General data		
Connection plug	—	plastic hybrid connector (ILME or Harting) (additional on request)
Protection	IP67	IP65
Temperature range	0...+55 °C (storage temperature -20...+75 °C)	
Mounting method	2-hole screw mounting	
Dimension	H x W x D	50.7 x 151 x 50 mm
		59 x 151 x 50 mm
Dimension drawing		

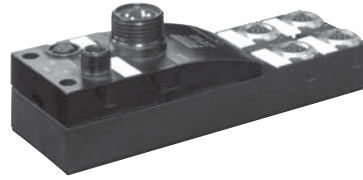
Notes
 Accessories, terminators and blind plugs see page 2.1.24. Contact layout see page 2.1.25. Connection cables can be found in chapter 1.4...
 All housings are potted. ECOFAST® is a registered trademark of Siemens

Bus nodes

Protection IP67

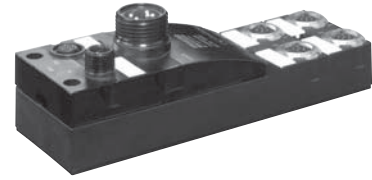
Cube67 BN-DN

DeviceNet

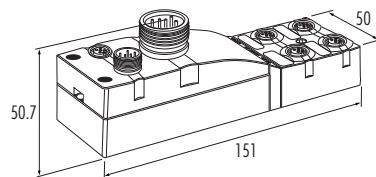


Cube67 BN-C

CANopen



Ordering data	Art.-No.	Art.-No.
	approvals	approvals
	UL	UL
	56502	56504
Field bus		
Nominal voltage	24 V DC (18...30.2 V), to EN61131-2	
Module supply	via M12 bus connection	PIN 4 sensor supply (7/8" power)
Current usage	approx. 70 mA	
Type	DeviceNet slave	CANopen slave
Transfer protocol	DeviceNet to ODVA	CANopen
Operating modes	polling; change of state; cyclic	synchron-/asynchron-/RTR support
Transfer rate	125, 250 and 500 kBit/s	10, 20, 50, 125, 250, 500, 800, 1000 kBit/s
Status indicator		
Communication to field bus	MS-module status, NS-network status LED, to ODVA	Bus-RUN, ERR-LED
Sensor supply U _S	green = OK; red = U < 18 V	
Actuator supply U _A	green = OK; red = U < 18 V	
Internal communication U _S	static = OK; blinking = no data transfer	
Supply voltage		
Sensor supply	via 7/8" power; max. 9 A	
Actuator supply	via 7/8" power; max. 9 A	
Bridge internal system connection	each female having a max. 4 A per PIN	
General data		
Temperature range	0...+55 °C (storage temperature -20...+75 °C)	
Mounting method	2-hole screw mounting	
Dimension	H x W x D	50.7 x 151 x 50 mm
Dimension drawing		



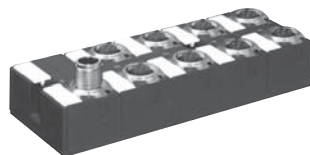
Notes
Accessories, terminators and blind plugs see page 2.1.24. Contact layout see page 2.1.25. Connection cables can be found in chapter 1.4... All housings are potted.

Compact modules

Digital inputs

Protection IP67

Cube67 DI16 C 8xM12



Cube67 DI8 C 4xM12



Cube67 DI8 C 8xM8



Ordering data	Art.-No.	Art.-No.	Art.-No.
approvals		approvals	
UL	56602	UL	56612
UL		UL	56622
Internal communication			
Module supply	via internal system connection		
Status indicator	U _S : sensor supply and internal supply voltage (green = OK.); U _A : actuator supply (green = OK.)		
Current usage	approx. 50 mA		approx. 30 mA
Terminator	integrated		
Configuration			
PIN 2	input/diagnostic		–
PIN 4	input		–
Inputs			
Sensor supply	24 V DC (18...30.2 V), to EN61131-2, ≤ 200 mA per M8/M12 female		
Type	for 3-wire sensors or mechanical switches, PNP, EN61131-2 compatible		
Status indicator	yellow LED per input		
Input filter	1 ms		
Diagnostic input			
Sensor supply	24 V DC (18...30.2 V), to EN61131-2, ≤ 200 mA per M12 female		
Type	for 3-wire sensors or mechanical switches, PNP, EN61131-2 compatible		
Status indicator	red LED per port		
Function	24 V = high = OK. (LED off); 0 V = low = error (LED red)		
Input filter	1 ms		
Diagnostic			
Under voltage sensor	U _S < 18 V (red)		
Communication to bus module	U _S blinking green if no data exchange		
Sensor short-circuit	PIN 2 and PIN 4 red LED per M12 port		PIN 4 LED (red) per input
Diagnostic to DESINA® (PIN 2)	PIN 2 diagnostic with red LED per M12 port		–
General data			
Temperature range	0...+55 °C (storage temperature -20...+75 °C)		
Mounting method	4-hole screw mounting	2-hole screw mounting	
Dimension H x W x D	34.5 x 126 x 50 mm	34.5 x 126 x 30 mm	
Dimension drawing			
Notes	Accessories, terminators and blind plugs see page 2.1.24. Contact layout see page 2.1.25. Connection cables can be found in chapter 1.4... All housings are potted.		

Cube67 - Modular I/O station

Expansion modules

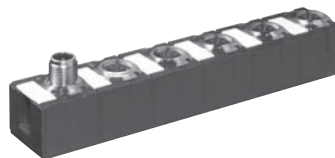
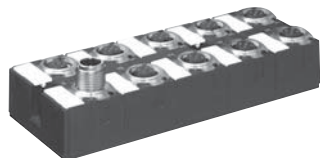
Digital inputs

Protection IP67

Cube67 DI16 E 8xM12

Cube67 DI8 E 4xM12

Cube67 DI8 E 8xM8



Ordering data	Art.-No.	Art.-No.	Art.-No.
approvals		approvals	
UL	56603	UL	56613
UL		UL	56623
Internal communication			
Module supply	via internal system connection		
Status indicator	U _S : sensor supply and internal supply voltage (green = OK.); U _A : actuator supply (green = OK.)		
Current usage	approx. 50 mA		approx. 30 mA
Configuration			
PIN 2	input/diagnostic		—
PIN 4	input		
Inputs			
Sensor supply	24 V DC (18...30.2 V), to EN61131-2, ≤ 200 mA per M8/M12 female		
Type	for 3-wire sensors or mechanical switches, PNP, EN61131-2 compatible		
Status indicator	yellow LED per input		
Input filter	1 ms		
Diagnostic input			
Sensor supply	24 V DC (18...30.2 V), to EN61131-2, ≤ 200 mA per M12 female		—
Type	for 3-wire sensors or mechanical switches, PNP, EN61131-2 compatible		
Status indicator	red LED per port		
Function	24 V DC = high = OK. (LED off); 0 V DC = low = error (LED red)		
Input filter	1 ms		
Diagnostic			
Under voltage sensor	U _S < 18 V (red)		
Communication to bus module	U _S blinking green if no data exchange		
Sensor short-circuit	PIN 2 and PIN 4 red LED per M12 port		PIN 4 red LED per input
Diagnostic to DESINA® (PIN 2)	PIN 2 diagnostic with red LED per M12 port		
General data			
Temperature range	0...+55 °C (storage temperature -20...+75 °C)		
Mounting method	4-hole screw mounting		2-hole screw mounting
Dimension H x W x D	34.5 x 126 x 50 mm		34.5 x 151 x 30 mm
Dimension drawing			
Notes			
Accessories, terminators and blind plugs see page 2.1.24. Contact layout see page 2.1.25. Connection cables can be found in chapter 1.4... All housings are potted.			

Compact modules

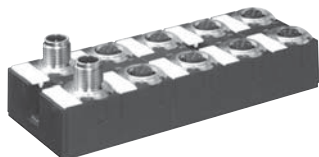
Digital inputs
Digital outputs

Multifunctional
Parameters free definable

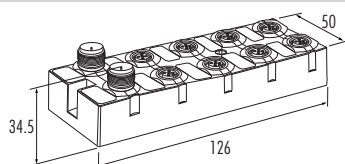
Protection IP67

Cube67 DI016 C 8xM12

Cube67 DI016 C 8xM12 1.6A



Ordering data	Art.-No.	Art.-No.
approvals		approvals
UL	56600	filed for UL 56640
Internal communication		
Module supply	via internal system connection	
Status indicator	U_S : sensor supply and internal supply voltage (green = OK.); U_A : actuator supply (green = OK.)	
Current usage	approx. 50 mA	
Terminator	integrated	
Configuration		
PIN 2	input/output/diagnostic	
PIN 4	input/output	
Inputs		
Sensor supply	24 V DC (18...30.2 V), to EN61131-2, ≤ 200 mA per M12 female	
Type	for 3-wire sensors or mechanical switches, PNP, EN61131-2 compatible	
Status indicator	yellow LED per input	
Input filter	1 ms	
Diagnostic input		
Sensor supply	24 V DC (18...30.2 V), to EN61131-2, ≤ 200 mA per M12 female	
Type	for 3-wire sensors or mechanical switches, PNP, EN61131-2 compatible	
Status indicator	red LED per port	
Function	24 V = high = OK. (LED off); 0 V = low = error (LED red)	
Input filter	1 ms	
Outputs		
Actuator supply (M12 left row)	24 V DC (18...30.2 V), to EN61131-2 via system connection (total max. 4 A)	
Actuator supply (M12 right row)	24 V DC (18...30.2 V), to EN61131-2 via separate supply (total max. 4 A)	
Switching current per output	0.5 A short-circuit and overload protected	1.6 A short-circuit and overload protected
Lamp load	10 W	
Max. switching frequency	resistive load 50 Hz, inductive load 5 Hz	
Status indicator	output activated LED yellow; output short-circuit LED red; fault connection LED red	
Diagnostic		
Under voltage sensor/system	$U_S < 18$ V (red)	
Under voltage actuator	$U_A < 18$ V (red) (if parameterized as output)	
Communication to bus module	U_S blinking green if no data exchange	
Actuator short-circuit	PIN 2 and/or PIN 4 red LED per output	
Sensor short-circuit	PIN 2 and/or PIN 4 red LED per input	
Diagnostic to DESINA® (PIN 2)	PIN 2 diagnostic with red LED per M12 port	
Actuator warning	PIN 2 and/or PIN 4 red LED per output	
General data		
Temperature range	0...+55 °C (storage temperature -20...+75 °C)	
Mounting method	4-hole screw mounting	
Dimension H x W x D	34.5 x 126 x 50 mm	
Dimension drawing		



Notes

Accessories, terminators and blind plugs see page 2.1.24. Contact layout see page 2.1.25. Connection cables can be found in chapter 1.4...
All housings are potted.

Compact modules

Digital inputs
Digital outputs

Multifunctional
Parameters free definable

Protection IP67

Cube67 DI08 C 4xM12



Cube67 DI08 C 8xM8



Ordering data	Art.-No.	Art.-No.
	approvals	approvals
	UL	UL
	56610	56620
Internal communication		
Module supply	via internal system connection	
Status indicator	U _S : sensor supply and internal supply voltage (green = OK.); U _A : actuator supply (green = OK.)	
Current usage	approx. 30 mA	
Terminator	integrated	
Configuration		
PIN 2	input/output/diagnostic	
PIN 4	input/output	
Inputs		
Sensor supply	24 V DC (18...30.2 V), to EN61131-2, ≤ 200 mA per M8/M12 female	
Type	for 3-wire sensors or mechanical switches, PNP, EN61131-2 compatible	
Status indicator	yellow LED per input	
Input filter	1 ms	
Diagnostic input		
Sensor supply	24 V DC (18...30.2 V), to EN61131-2, ≤ 200 mA per M12 female	—
Type	for 3-wire sensors or mechanical switches, PNP, EN61131-2 compatible	—
Status indicator	red LED per port	—
Function	24 V = high = OK. (LED off); 0 V = low = error (LED red)	—
Input filter	1 ms	—
Outputs		
Actuator supply	24 V DC (18...30.2 V), to EN61131-2 via system connection (total max. 4 A)	
Switching current 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	
Status indicator	output activated yellow LED; output short-circuit red LED; fault connection red LED	
Diagnostic		
Under voltage sensor/system	U _S < 18 V (red)	
Under voltage actuator	U _A < 18 V (red) (if parameterized as output)	
Communication to bus module	U _S blinking green if no data exchange	
Actuator short-circuit	PIN 2 and/or PIN 4 red LED per output	PIN 4 red LED per output
Sensor short-circuit	PIN 2 and/or PIN 4 red LED per input	PIN 4 red LED per input
Diagnostic to DESINA® (PIN 2)	PIN 2 diagnostic with red LED per M12 port	—
Actuator warning	PIN 2 and/or PIN 4 red LED per output	PIN 4 red LED per output
General data		
Temperature range	0...+ 55 °C (storage temperature - 20...+ 75 °C)	
Mounting method	2-hole screw mounting	
Dimension	H x W x D	34.5 x 126 x 30 mm
Dimension drawing		
Notes	Accessories, terminators and blind plugs see page 2.1.24. Contact layout see page 2.1.25. Connection cables can be found in chapter 1.4... All housings are potted.	

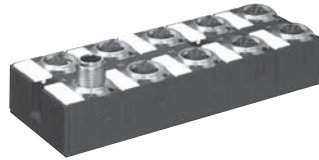
Expansion modules

Digital inputs
Digital outputs

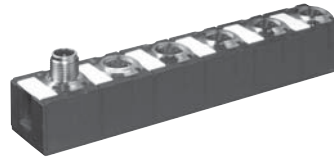
Multifunctional
Parameters free definable

Protection IP67

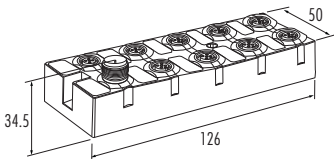
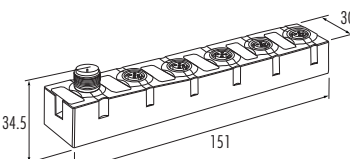
Cube67 DI016 E 8xM12



Cube67 DI08 E 4xM12



Cube67 DI08 E 4xM12 1A

Ordering data	Art.-No.	Art.-No.	Art.-No.
	approvals	approvals	approvals
	UL	UL	filed for UL
	56601	56611	56631
Internal communication	via internal system connection		
Module supply	via internal system connection		
Status indicator	U _S : sensor supply and internal supply voltage (green = OK.); U _A : actuator supply (green = OK.)		
Current usage	approx. 50 mA		
Configuration			
PIN 2	input/output/diagnostic		
PIN 4	input/output		
Inputs			
Sensor supply	24 V DC (18...30.2 V), to EN61131-2, ≤ 200 mA per M12 female		
Type	for 3-wire sensors or mechanical switches, PNP, EN61131-2 compatible		
Status indicator	yellow LED per port		
Input filter	1 ms		
Diagnostic input			
Sensor supply	24 V DC (18...30.2 V), to EN61131-2, ≤ 200 mA per M12 female		
Type	for 3-wire sensors or mechanical switches, PNP, EN61131-2 compatible		
Status indicator	red LED per port		
Function	24 V = high = OK. (LED off); 0 V = low = error (LED red)		
Input filter	1 ms		
Outputs			
Actuator supply	24 V DC (18...30.2 V), to EN61131-2 via system connection (total max. 4 A)		
Switching current per output	0.5 A short-circuit and overload protected		1.0 A short-circuit and overload protected
Lamp load	10 W		
Max. switching frequency	resistive load 50 Hz, inductive load 5 Hz		
Status indicator	output activated LED yellow; output short-circuit LED red; fault connection LED red		
Diagnostic			
Under voltage sensor/system	U _S < 18 V (red)		
Under voltage actuator	U _A < 18 V (red) (if parameterized as output)		
Communication to bus module	U _S blinking green if no data exchange		
Actuator short-circuit	PIN 2 and/or PIN 4 red LED per output		
Sensor short-circuit	PIN 2 and/or PIN 4 red LED per input		
Diagnostic to DESINA® (PIN 2)	PIN 2 diagnostic with red LED per M12 port		
Actuator warning	PIN 2 and/or PIN 4 red LED per output		
General data			
Temperature range	0...+55 °C (storage temperature -20...+75 °C)		
Mounting method	4-hole screw mounting		2-hole screw mounting
Dimension H x W x D	34.5 x 126 x 50 mm		34.5 x 151 x 30 mm
Dimension drawing			
			
Notes	Accessories, terminators and blind plugs see page 2.1.24. Contact layout see page 2.1.25. Connection cables can be found in chapter 1.4... All housings are potted.		

Expansion modules

Digital inputs
Digital outputs

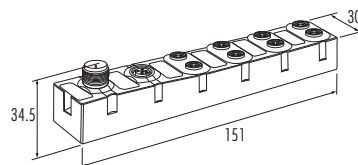
Multifunctional
Parameters free definable

Protection IP67

Cube67 DI08 E 8xM8



Ordering data		Art.-No.
	approvals	
	UL	56621
Internal communication		
Module supply	via internal system connection	
Status indicator	U _S : sensor supply and internal supply voltage (green = OK.); U _A : actuator supply (green = OK.)	
Current usage	approx. 30 mA	
Configuration		
PIN 2	–	
PIN 4	input/output	
Inputs		
Sensor supply	≤ 200 mA per M8 female	
Type	for 3-wire sensors or mechanical switches, PNP, EN61131-2 compatible	
Status indicator	yellow LED per input	
Input filter	1 ms	
Outputs		
Actuator supply	24 V DC (18...30.2 V), to EN61131-2 via system connection (total max. 4 A)	
Switching current 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	
Status indicator	output activated yellow LED; output short-circuit red LED	
Diagnostic		
Under voltage sensor/system	U _S < 18 V (red)	
Under voltage actuator	U _A < 18 V (red) (if parameterized as output)	
Communication to bus module	U _S blinking green if no data exchange	
Actuator short-circuit	PIN 4 red LED per output	
Sensor short-circuit	PIN 4 red LED per input	
Diagnostic to DESINA® (PIN 2)	–	
Actuator warning	PIN 4 red LED per output	
General data		
Temperature range	0...+55 °C (storage temperature -20...+75 °C)	
Mounting method	2-hole screw mounting	
Dimension	H x W x D	34.5 x 151 x 30 mm
Dimension drawing		



Notes

Accessories, terminators and blind plugs see page 2.1.24. Contact layout see page 2.1.25. Connection cables can be found in chapter 1.4...
All housings are potted.

Cube67 - Modular I/O station

Expansion modules

Digital inputs
Digital outputs

Multifunctional
Parameters free definable

Protection IP67

Cube67 DI08 E Cable

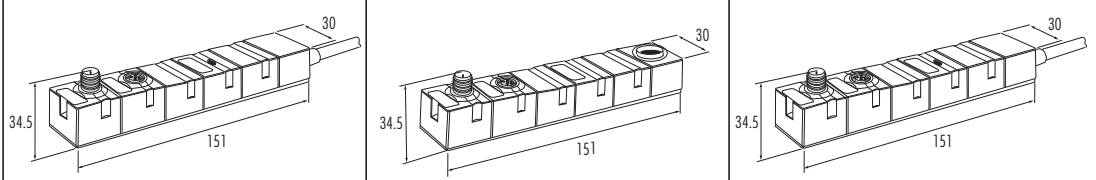


Cube67 DI08 E M16 0.5A



Cube67 DI08 E Cable M12 ID



Ordering data	Art.-No.	Art.-No.	Art.-No.
approvals filed for UL	56661	approvals filed for UL	56663
approvals filed for UL		approvals filed for UL	5666500
Internal communication			
Module supply	via internal system connection		
Status indicator	U _S : sensor supply and internal supply voltage (green = OK.); U _A : actuator supply (green = OK.)		
Current usage	approx. 30 mA		
Configuration			
I/O channels	input/output		suitable for EUCHNER type CIT 3PL1M30-STR
Inputs			
Sensor supply	1.6 A	200 mA	suitable for EUCHNER type CIT 3PL1M30-STR
Type	for 3-wire sensors or mechanical switches, PNP, EN61131-2 compatible		suitable for EUCHNER type CIT 3PL1M30-STR
Input filter	1 ms		
Outputs			
Actuator supply	24 V DC (18...30.2 V), to EN61131-2		suitable for EUCHNER type CIT 3PL1M30-STR
Switching current per output	max. 70 mA	0.5 A short-circuit and overload protected	suitable for EUCHNER type CIT 3PL1M30-STR
Total current for all outputs	total max. 4 A (internal system connection)		suitable for EUCHNER type CIT 3PL1M30-STR
Max. switching frequency	resistive load 50 Hz, inductive load 5 Hz		suitable for EUCHNER type CIT 3PL1M30-STR
Status indicator	combined LED; output short-circuit red LED, fault connection red LED		
Diagnostic			
Under voltage sensor/system	U _S < 18 V (red)		
Under voltage actuator	U _A < 18 V (red) (if parameterized as output)		
Communication to bus module	U _S blinking green if no data exchange		
Actuator short-circuit	combined red LED		
Sensor short-circuit	combined red LED		
Connection cable			
Cable construction	10 x 0.34 mm ² PVC OBLIY-CY	–	PUR-OB
Length	0.5 m	–	0.5 m
Connector	single wires	–	M12 female 8-pole
General data			
Temperature range	0...+55 °C (storage temperature -20...+75 °C)		
Mounting method	2-hole screw mounting		
Dimension	H x W x D	34.5 x 151 x 30 mm	
Dimension drawing			
			
Notes			
Accessories, terminators and blind plugs see page 2.1.24. Contact layout see page 2.1.25. Connection cables can be found in chapter 1.4... All housings are potted.			

Expansion modules

Digital outputs

Protection IP67

Cube67 DO8 E Valve

Cube67 DO16 E Valve

Cube67 DO32 E Valve



Ordering data	Art.-No.	Art.-No.	Art.-No.
With open ended wires	Cube67 DO8 E Valve/* 56655	Cube67 DO16 E Valve/UL 56651	Cube67 DO32 E Valve/* 56656
With pre-wired multipol connector	Cube67 DO8 E Valve CPV/* 5665500	Cube67 DO16 E Valve CPV/* 5665100	Cube67 DO32 E Valve VM10/* 5665600
	Cube67 DO8 E Valve CPV (9)/* 5665501	Cube67 DO16 E Valve V/* 5665101	Cube67 DO32 E MPA/* 5665601
		Cube67 DO16 E Valve V20/22/* 5665110	Cube67 DO32 E HF03/* 5665602
		Cube67 DO16 E Valve VM10/* 5665111	
		Cube67 DO16 E Valve V20/22B/* 5665112	

Internal communication	
Module supply	via internal system connection
Status indicator	U _s : sensor supply and internal supply voltage (green = OK.); U _a : actuator supply (green = OK.)
Current usage	approx. 30 mA

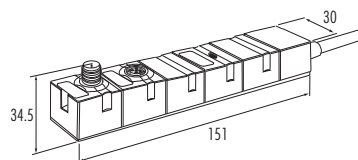
Outputs		
Actuator supply	24 V DC (18...30.2 V), to EN61131-2, total max. 4 A (internal system connection)	
Switching current per output	max. 70 mA	0.5 A short-circuit and overload protected
Lamp load	1.5 W	10 W
Max. switching frequency	resistive load 50 Hz, inductive load 5 Hz	
Status indicator	combined LED; output short-circuit red LED, wire-break red LED	

Diagnostic	
Under voltage system	U _s < 18 V (red)
Under voltage actuator	U _a < 18 V (red)
Communication to bus module	U _s blinking green if no data exchange
Actuator short-circuit	combined red LED

Connection cable			
Cable construction	10 x 0.34 mm ² PUR-OB	18 x 0.25 mm ² PVC	36 x 0.14 mm ² PVC
Length	0.5 m	0.5 m	0.5 m

General data	
Temperature range	0...+55 °C (storage temperature -20...+75 °C)
Mounting method	2-hole screw mounting
Dimension H x W x D	34.5 x 151 x 30 mm

Dimension drawing



Notes	
	Accessories, terminators and blind plugs see page 2.1.24. Connection cables can be found in chapter 1.4... All housings are potted. *Approvals for UL is filed.

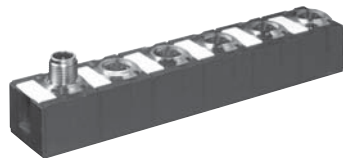
Function modules

Logic module

Counter module with process preparation

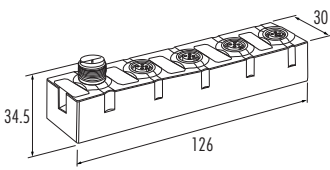
Protection IP67

Cube67 Logic E 4xM12



Cube67 CNT 2 C 4xM12



Ordering data	Art.-No.	Art.-No.
approvals filed for UL	56771	approvals filed for UL 56750
Internal communication		
Module supply	via internal system connection	
Status indicator	U _S : sensor supply and internal supply voltage (green = OK.); U _A : actuator supply (green = OK.)	
Current usage	approx. 30 mA	
Inputs		
Sensor supply	24 V DC (18...30.2 V), to EN61131-2, ≤ 200 mA per M12 female	
Type	for 3-wire sensors or mechanical switches, PNP, EN61131-2 compatible	
Status indicator	yellow LED per input	
Input filter	1 ms	
Logic module		
Inputs	6	—
Outputs	2	—
Logical functions	AND/NOR; AND; XOR parameterized	
Counter		
Counter frequency	—	max. 300 kHz
Counter input	—	to EN61131-2
Count depth	—	32 Bit (31 Bit + sign)
Outputs		
Actuator supply	24 V DC (18...30.2 V), to EN61131-2, total max. 4 A (internal system connection)	
Switching current per output	0.5 A short-circuit and overload protected	1.6 A short-circuit and overload protected
Lamp load	10 W	30 W
Max. switching frequency	resistive load 50 Hz, inductive load 5 Hz	
Status indicator	output activated yellow LED; output short-circuit red LED, fault connection red LED red	
Diagnostic		
Under voltage sensor/system	U _S < 18 V (red)	
Under voltage actuator	U _A < 18 V (red)	
Communication to bus module	U _S blinking green if no data exchange	
Actuator short-circuit	PIN 2 and/or PIN 4 red LED per output	
Sensor short-circuit	PIN 2 and/or PIN 4 red LED per input	
Actuator warning	PIN 2 and/or PIN 4 red LED per output	
General data		
Temperature range	0...+55 °C (storage temperature -20...+75 °C)	
Mounting method	2-hole screw mounting	
Dimension	H x W x D	34.5 x 126 x 30 mm
Dimension drawing		
		
Notes		
Accessories, terminators and blind plugs see page 2.1.24. Contact layout see page 2.1.26. Connection cables can be found in chapter 1.4... All housings are potted.		

Function modules

Digital inputs
Digital outputs

Multifunctional
Parameters free definable

Serial interface

Protection IP67

Cube67 DIO4 RS485 E 3xM12



Ordering data	Art.-No.
approvals filed for UL	56760
Internal communication	
Module supply	via internal system connection
Status indicator	U _S : sensor supply and internal supply voltage (green = OK.); U _A : actuator supply (green = OK.)
Current usage	approx. 30 mA
Configuration	
PIN 2	input/output/diagnostic
PIN 4	input/output
Inputs	
Sensor supply	24 V DC (18...30.2 V), to EN61131-2, ≤ 200 mA per M12 female
Type	for 3-wire sensors or mechanical switches, PNP, EN61131-2 compatible
Status indicator	yellow LED per input
Input filter	1 ms
Outputs	
Actuator supply	24 V DC (18...30.2 V), to EN61131-2, total max. 4 A (internal system connection)
Switching current 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
Status indicator	output activated yellow LED; output short-circuit red LED, fault connection red LED
RS485	
Type	RS485, galvanically separated, M12 female, 5-pole, difference signal
Transmission parameters	9600 Baud, half duplex, 8 bit, even parity, 1 Stopbit
Diagnostic	
Under voltage sensor	U _S < 18 V (red)
Under voltage actuator	U _A < 18 V (red) (if parameterized as output)
Communication to bus module	U _S blinking green if no data exchange
Actuator short-circuit	PIN 2 and/or PIN 4 red LED per output
Sensor short-circuit	PIN 2 and/or PIN 4 red LED per input
Diagnostic to DESINA® (PIN 2)	PIN 2 diagnostic with red LED per M12 port
Actuator warning	PIN 2 and/or PIN 4 red LED per output
General data	
Temperature range	0...+55 °C (storage temperature -20...+75 °C)
Mounting method	2-hole screw mounting
Dimension	H x W x D 34.5 x 126 x 30 mm
Dimension drawing	
Notes	
	Accessories, terminators and blind plugs see page 2.1.24. Contact layout see page 2.1.25 and 2.1.26. Connection cables can be found in chapter 1.4... S7 function module for SEW MOVIMOT® via www.murrelektronik.com . All housings are potted.

Terminal modules

Digital inputs
Digital outputs

Parameters free definable

Cube67 DIO8/DI8 E TB Box



Cube67 DIO8/DI8 E TB Rail



Ordering data		Art.-No.	Art.-No.
		approvals	approvals
		filed for UL	filed for UL
		56681	56691
With additional common terminals		filed for UL	
		5668100	
Internal communication			
Module supply		via internal system connection	
Status indicator		U _S : sensor supply and internal supply voltage (green = OK.); U _A : actuator supply (green = OK.)	
Current usage		approx. 30 mA	
Configuration			
Terminal row X 0	(8 channels)	input	
Terminal row X 1	(8 channels)	input/output	
Inputs			
Sensor supply		24 V DC (18...30.2 V), to EN61131-2, 8 x ≤ 200 mA	
Type		for 3-wire sensors or mechanical switches, PNP, EN61131-2 compatible	
Status indicator		yellow LED per input	
Input filter		1 ms	
Outputs			
Actuator supply		24 V DC (18...30.2 V), to EN61131-2, total max. 4 A (internal system connection)	
Switching current 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	
Status indicator		output activated LED yellow; output short-circuit LED red, fault connection LED red	
Diagnostic			
Under voltage sensor/system		U _S < 18 V (red)	
Under voltage actuator		U _A < 18 V (red) (if parameterized as output)	
Communication to bus module		U _S blinking green if no data exchange	
Actuator short-circuit		LED (red) per output	
Sensor short-circuit		PIN 2 and/or PIN 4 red LED per input	
Diagnostic to DESINA®		diagnostic with red LED per terminal (X 0)	
Actuator warning		red LED per output	
General data			
Protection		IP66	IP20
Temperature range		0...+55 °C (storage temperature -20...+75 °C)	
Mounting method		screw mounting	
Dimension		H x W x D	45 x 113 x 54 mm
		81 x 130 x 94 mm	DIN-rail mounting EN60715
Dimension drawing			
Notes			
Accessories, terminators and blind plugs see page 2.1.24. Connection diagrams and contact layout see page 2.1.27 All housings are potted.			

Analog modules for Temperature converter

Analog inputs

Protection IP67

Cube67 AI C 4xM12 RTD

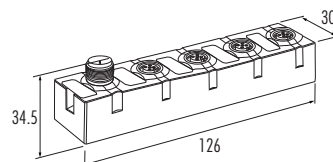
Input module for PT100

Cube67 AI C 4xM12 TH

Input module for thermo elements



Ordering data	Art.-No.	Art.-No.
approvals filed for UL	56740	approvals filed for UL 56748
Internal communication	via internal system connection	
Module supply	U _S : sensor supply and internal supply voltage (green = OK.); U _A : actuator supply (green = OK.)	
Status indicator	approx. 50 mA	
Current usage		
Inputs		
Connection technology	2-, 3-, 4-wire	2-wire
Number of channels	4	4
Accuracy (ambient temperature 0...50 °C)	≤ ± 0.5 %	≤ ± 0.5 %, cold junction combination plug
Technical data		
Sensor types	Pt 100, 200, 500, 1000, Ni 100, 120, 200, 500, 1000, R 0...3000 Ω	K, N, J, E, R
Conversion time	approx. 58 ms per channel	approx. 65 ms per channel
Data format	15 Bit + sign	
Diagnostic		
Under voltage sensor	U _S < 18 V (red)	
Wire-break, upper/low limit	red LED per channel	
General data		
Temperature range	0...+ 55 °C (storage temperature - 20...+ 75 °C)	
Mounting method	2-hole screw mounting	
Dimension	H x W x D	34.5 x 126 x 30 mm
Dimension drawing		



Notes
Accessories, terminators and blind plugs see page 2.1.24. Contact layout see page 2.1.26. Connection cables can be found in chapter 1.4... All housings are potted.

Analog modules for current and voltage

Protection IP67

Cube67 AI4 C 4xM12 (I)

Input module
Current

Cube67 AI4 C 4xM12 (U)

Input module
Voltage

Cube67 AO4 C 4xM12 (I)

Output module
Current

Cube67 AO4 C 4xM12 (U)

Output module
Voltage

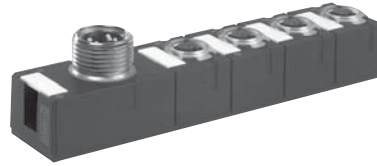


Ordering data	Art.-No.	Art.-No.	Art.-No.	Art.-No.
	approvals	approvals	approvals	approvals
	UL	UL	UL	UL
	56730	56700	56720	56710
Internal communication				
Module supply	via internal system connection			
Status indicator	U _S : sensor supply and internal supply voltage (green = OK.); U _A : actuator supply (green = OK.)			
Current usage	approx. 50 mA			approx. 75 mA
Inputs/outputs				
Sensor supply	24 V DC (18...30.2 V), ≤ 200 mA		≤ 1.6 A per M12 female via actuator supply	
PIN 2	current input (+)	voltage input (+)	–	–
PIN 4	current input (–)	voltage input (–)	current output	voltage output
Voltage inputs				
Input resistor	–	approx. 1 MOhm, difference input	–	–
Input range	–	± 10 V DC, 0...10 V DC	–	–
Resolution	–	15 Bit + sign	–	–
Conversion time	–	approx. 2 ms per channel	–	–
Current inputs				
Load	approx. 300 Ohm, difference input	–	–	–
Input range	0...20 mA, 4...20 mA	–	–	–
Resolution	15 Bit	–	–	–
Conversion time	approx. 2 ms per channel	–	–	–
Current outputs				
Load	–	–	≤ 500 Ohm	–
Range	–	–	0...20 mA, 4...20 mA	–
Resolution	–	–	11 Bit	–
Conversion time	–	–	approx. 1 ms per channel	–
Voltage outputs				
Load	–	–	–	≥ 500 Ohm
Output range	–	–	–	± 10 V DC, 0...10 V DC
Resolution	–	–	–	11 Bit + sign
Conversion time	–	–	–	approx. 1 ms per channel
Diagnostic				
Under voltage sensor	U _S < 18 V (red)	–	U _A < 18 V (red)	–
Under voltage actuator	–	–	U _A < 18 V (red)	–
Communication	U _S blinking (green) if no data exchange			
Sensor short-circuit	red LED at M12 plug			
Overl./short-circuit/wire-break/upper/low limit	red LED per channel			
General data				
Temperature range	0...+ 55 °C (storage temperature - 20...+ 75 °C)			
Mounting method	2-hole screw mounting			
Dimension	H x W x D	34.5 x 126 x 30 mm		
Dimension drawing				
Notes				
Accessories, terminators and blind plugs see page 2.1.24. Contact layout see page 2.1.26. Connection cables can be found in chapter 1.4... All housings are potted.				

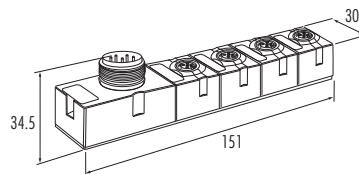
Power distributor

Cube67 PD 7/8"

Protection IP67



Ordering data		Art.-No.
	approvals filed for UL	56955
Voltage input		
Nominal voltage	24 V DC (18...30.2 V), to EN61131-2	
Connection technology	7/8" male, 5-pole	
Current load	max. 9 A	
Voltage output		
Number	4	
Connection technology	M12 female, 6-pole	
Current load	max. 4 A	
Short-circuit protection	electronic	
Diagnostic		
Supply voltage	green LED at M12 plug	
Short-circuit at output	red LED at M12 plug	
General data		
Temperature range	0...+55 °C (storage temperature -20...+75 °C)	
Mounting method	2-hole screw mounting	
Dimension	H x W x D	34.5 x 151 x 30 mm
Dimension drawing		



Notes

Accessories, terminators and blind plugs see page 2.1.24. Connection cables can be found in chapter 1.4...
All housings are potted.

Internal system connection

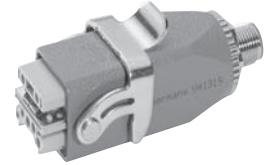
Cube67 FSC Pin M12

Cube67 FSC Socket M12 Mount

Cube67 FSC Socket M12

Protection IP65

Cube67



Ordering data

Art.-No.
56947

Art.-No.
56948

Art.-No.
56949



Technical data

Nominal voltage	24 V DC
Nominal current	4 A
Connection	female 6-pole M12, Han-Brid® 6-pole
Insertion cycles	≥ 500

General data

Temperature range	- 40...+85 °C			
Mounting	–	flange, hole spacing 30 mm, drill-scale 3.3 mm	–	
Dimension	H x W x D	74 x 33.5 x 28.5 mm	80.5 x 40 x 40 mm	80.5 x 34 x 32 mm
Weight		114 g	140 g	122 g
Housing	zinc pressure diecasting			

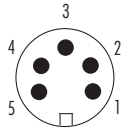
Notes

Blind plugs			Art.-No.
	Blind plug M12 x 1 Cube67 BP	set 4 pieces	56952
	Blind plug M8 x 1	set 4 pieces	3858627
	Diagnostic blind plug M12 x 1	set 1 piece	7000-13481-0000000
	Blind cap M12 Cube67 BP for internal system connection	set 4 pieces	56951
Other			Art.-No.
	Label plates	set 20 pieces	55318
Notes	Further system accessories and configuration datas on request. Up-to-date manuals can be downloaded under www.murrelektronik.com		

Contact layout for bus nodes Cube67 BN-P



POWER
Male 7/8"



- PIN 1: GND
- PIN 2: GND
- PIN 3: PE
- PIN 4: sensor supply
- PIN 5: actuator supply

BUS IN
Male M12



- PIN 1: 5 V
- PIN 2: A-wire (green)
- PIN 3: 0 V
- PIN 4: B-wire (red)
- PIN 5: shield

BUS OUT
Female M12



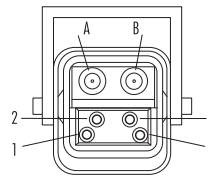
- PIN 1: 5 V
- PIN 2: A-wire (green)
- PIN 3: 0 V
- PIN 4: B-wire (red)
- PIN 5: shield

Connection: Shielded

Top view of module

Contact layout for bus nodes Cube67 BN-P ECOFAST®

Male/Female



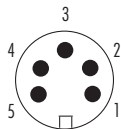
- Data A: CU
- Data B: CU
- PIN 1: 24 V equal channels supply not switched (U_{ns})
- PIN 2: GND
- PIN 3: GND
- PIN 4: 24 V unequal channels supply switched (U_s)

Top view of module. ECOFAST® is a registered trademark of Siemens

Contact layout for bus nodes Cube67 BN-DN

DeviceNet

POWER
Male 7/8"



- PIN 1: GND
- PIN 2: GND
- PIN 3: PE
- PIN 4: sensor supply
- PIN 5: actuator supply

BUS IN
Male M12



- PIN 1: shield
- PIN 2: V+
- PIN 3: V-
- PIN 4: CAN_H
- PIN 5: CAN_L

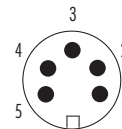
Connection: Shielded

Top view of module

Contact layout for bus nodes Cube67 BN-C

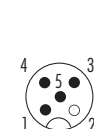
CANopen

POWER
Male 7/8"



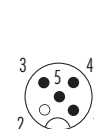
- PIN 1: GND
- PIN 2: GND
- PIN 3: PE
- PIN 4: sensor supply
- PIN 5: actuator supply

BUS IN
Male M12



- PIN 1: shield
- PIN 2: N.C.
- PIN 3: GND
- PIN 4: CAN_H
- PIN 5: CAN_L

BUS OUT
Female M12



- PIN 1: shield
- PIN 2: N.C.
- PIN 3: GND
- PIN 4: CAN_H
- PIN 5: CAN_L

Top view of module

Contact layout for Cube67 digital I/O modules

digital inputs

Female M12



- 1: sensor supply +
- 2: input 2/diagnostic
- 3: 0 V
- 4: input 1
- 5: PE

digital inputs

Female M8



- 1: sensor supply +
- 3: 0 V
- 4: input

multifunctional plug

Female M12



- 1: sensor supply +
- 2: input 2/output 2/diagnostic
- 3: 0 V
- 4: input 1/output 1
- 5: PE

multifunctional plug

Female M8



- 1: sensor supply +
- 3: 0 V
- 4: input/output

Contact layout for Cube67 analog modules

Plug for
PT100/resistance measuring

Female M12



- 1: current source
- 2: input
- 3: 0 V
- 4: input
- 5: N.C.

Plug for thermo elements

Female M12



- 1: compensation +
- 2: thermo element +
- 3: compensation -
- 4: thermo element -
- 5: N.C.

Plug for analog input

Female M12



- 1: supply voltage +
- 2: analog +
- 3: 0 V
- 4: analog -
- 5: N.C.

Plug for analog output

Female M12



- 1: + 24 V/1.6 A
- 2: N.C.
- 3: 0 V
- 4: output
- 5: N.C.

Contact layout for Cube67 function modules

Plug for counter input

Female M12



- 1: + 24 V
- 2: up/down 1
- 3: GND
- 4: counter Input
- 5: N.C.

Plug for counter output

Female M12



- 1: + 24 V
- 2: gate 1
- 3: GND
- 4: digital OUT 1
- 5: N.C.

Plug for logic input

Female M12



- 1: + 24 V
- 2: input 1
- 3: 0 V
- 4: input 2
- 5: PE

Plug for logic output

Female M12



- 1: + 24 V
- 2: output 1
- 3: 0 V
- 4: output 2
- 5: PE

RS485

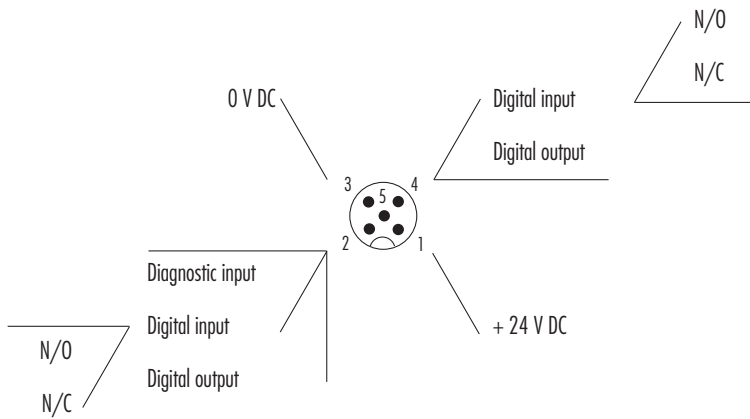
Female M12



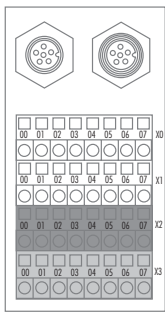
- 1: + 24 V
- 2: RS -
- 3: 0 V
- 4: RS +
- 5: PE

Possible parameterizations multi functional I/Os

Cube67



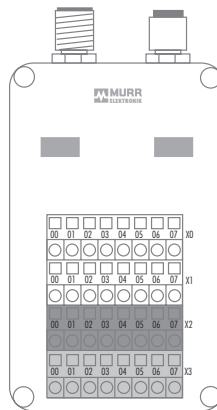
Terminal plan... for Cube67 TB rail



Terminal layout

- X0: DI 00...07
- X1: DI/DO 00...07
- X2: + 24 V DC
- X3: 0 V

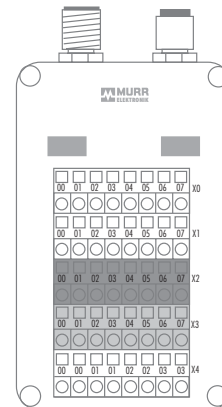
... for Cube67 TB box



Terminal layout

- X0: DI 00...07
- X1: DI/DO 00...07
- X2: + 24 V DC
- X3: 0 V

... for Cube67 TB box PK

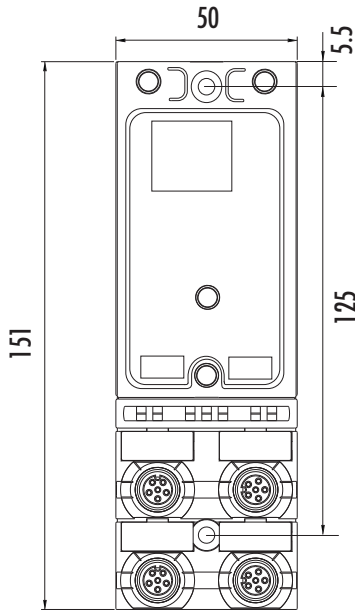


Terminal layout

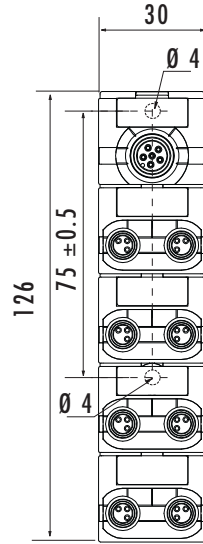
- X0: DI 00...07
- X1: DI/DO 00...07
- X2: + 24 V DC
- X3: 0 V
- X4: 00_00 01_01 02_02 03_03

Drill plans for Cube67 modules

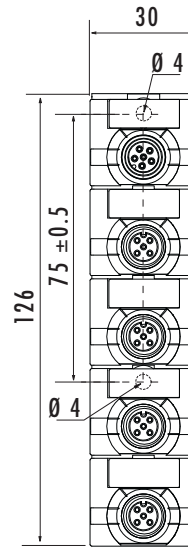
Cube67 bus nodes



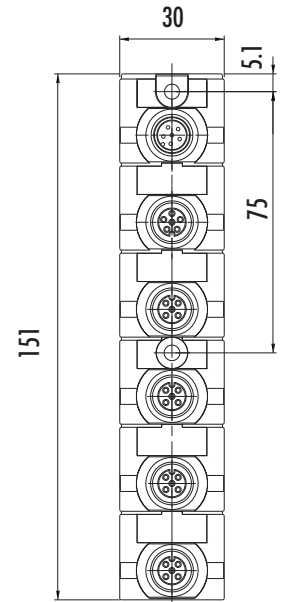
Cube67 M8 modules



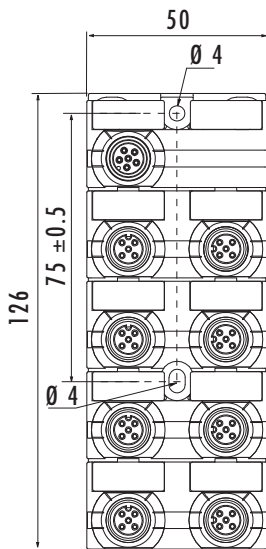
Cube67 M12 modules, 4-way



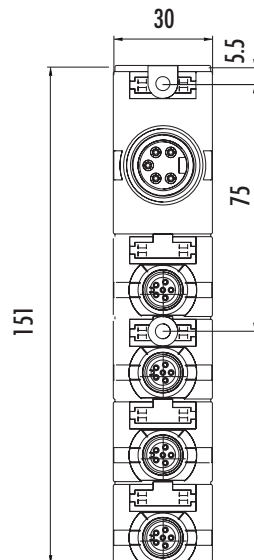
Cube67 M12 expansion module
Cube67 M8 expansion module



Cube67 M12 modules, 8-way



Cube67 power distributor



Cube67 TB box

