

QL20 Remote-I/O-System

Chapter

A	QL20 Remote -I/O-System	Bus Interface Module	B.99
B		Digital Input Module	B. 101
C		Digital Output Module	B. 103
D		Analog Input Module	B. 105
E		Analog Output Module	B. 108
		Temperature Measurement Module	B. 109
		Feeding Module	B. 111



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PROFINET

- Maximum load supply current: 10A
- Supports up to 32 expansion modules (excluding terminal cover)
- Supports PROFINET RT communication
- Supports PROFINET diagnostic information
- Operating temperature: -10 °C to +60 °C
- Supports parameter configuration tools

QL20-FBC-PN



Technical Data

System parameters
Fieldbus protocol
Configuration interface
Connection type
Input data width
Output data width
Parameter data
Diagnostic data
Local bus interface
Maximum number of expansion modules (excluding terminal modules)
Redundancy protocol
Maximum fieldbus transmission rate
Auto-negotiation and auto-crossover
Maximum QL remote system bus transmission rate
General parameters
Product dimensions: H x W x D(mm)
Product weight(g)
Power supply specification
Modul Power consumption current
System supply rated voltage
System supply maximum current
Load feeding voltage
Maximum Load feeding current

Specification
PROFINET IO RT
USB Type C
2 X RJ45 plug-in connectors
Maximum 512 bytes
Maximum 512 bytes
Maximum 1539 bytes
Maximum 1551 bytes
QL- Remote System Bus
32
MRP
100 Mbit/s, Full-duplex
Supported
10Mbit/s
Specification
114×48×77.6
Terminal cover: 105×6×73.5
136g; Terminal cover: 19g
Specification
100mA
24VDC (+20% /-15%)
800mA
24 V DC (20.4-28VDC)
10A

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Ordering data

Module type
Bus interface Module PROFINET
Note

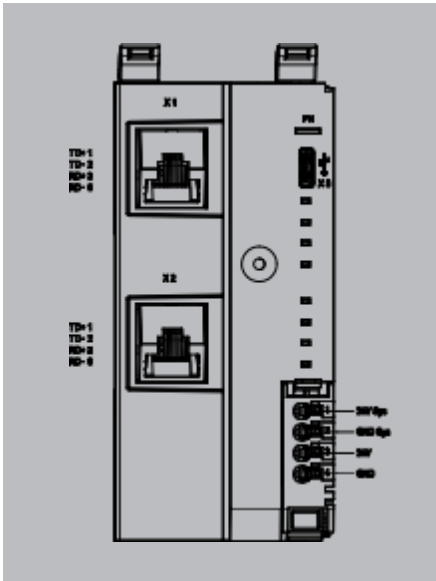
Model	Quantity	Order number
QL20-FBC-PN	1	3078340000
Interface Module Includes terminal cover		

Attachment

Block tag number (custom printing)
Module tag number (blank tag number)

Model	Quantity	Order number
DEK5/8-11.5MC SDR	100	1341610000
DEK5/8-11.5MC NE WS	500	1341630000

Reference standard	IEC61131 2
EMC	EN 61000



EtherCAT

- Maximum load supply current: 10A
- Supports up to 32 expansion modules (excluding terminal cover)
- Supports EtherCAT communication
- Operating temperature: -10 °C to +60 °C
- Supports parameter configuration tools

QL20-FBC-EC

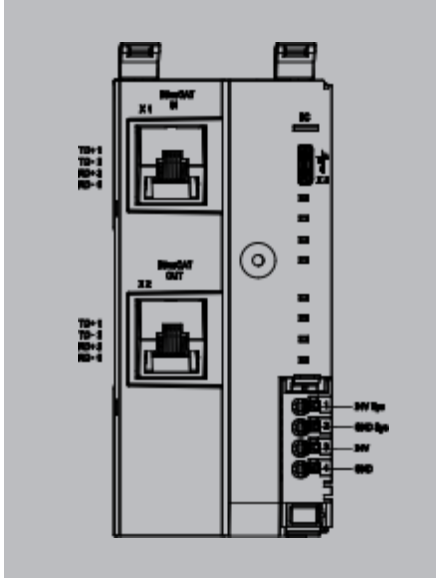


B

Technical Data

System parameters
Fieldbus protocol
Configuration interface
Connection type
Diagnostic data
Parameter data
Maximum fieldbus transmission rate
Maximum QL remote system bus transmission rate
Local bus interface
Maximum number of expansion modules (excluding terminal modules)
General parameters
Product dimensions : H × W × D(mm)
Product weight(g)
Power supply specification
Modul Power consumption current
System supply rated voltage
System supply maximum current
Load feeding voltage
Maximum Load feeding current

Specification
EtherCAT
USB Type C
2 X RJ45 plug-in connectors
20 X Diagnoses
512input/512output
100 Mbit/s, Full-duplex
10Mbit/s
QL- Remote System Bus
32
Specification
114×54×77.6
Terminal cover: 105×6×73.5
136g; Terminal cover: 19g
Specification
100mA
24VDC (+20%/-15%)
800mA
24 V DC (20.4-28VDC)
10A
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Order data

Module type
Bus interface Module EtherCAT
Note

Model	Quantity	Order number
QL20-FBC-EC	1	3078350000
Interface Module Includes terminal cover		

Attachment

Block tag number (custom printing)
Module tag number (blank tag number)

Model	Quantity	Order number
DEK5/8-11.5MC SDR	100	1341610000
DEK5/8-11.5MC NE WS	500	1341630000

Reference standard	IEC61131 2
EMC	EN 61000

DI

- 8-channel and 16-channel digital inputs for proximity sensors or switch signals
- High-level trigger
- Reverse polarity protection
- 1-wire, 2-wire, 3-wire connection
- Channel input filtering
- Integrated sensor supply
- Type 1, based on IEC 61131-2

QL20-8DIH-P



QL20-16DI-P



Technical data

System parameters	
Interface	QL remote system bus for internal module and coupler communication
Electrical isolation	Yes, DC 500V(Channels and backplane bus)
System current consumption I_{SYS}	15mA
Feeding current consumption I_{IN}	<2mA+Sensor feeding
Digital input	
Numbers of channels	8
Signal type	PNP Types 1,IEC61131-2
Input filtering	0ms /0.3ms / 3 ms /10 ms / 20 ms / 40ms; Default: 3 ms
Input voltage, low	<DC5V(voltage difference of DI input signal relative to COM)
Input voltage, high	>DC15V(voltage difference of DI input signal relative to COM)
Sensor supply	Yes
Sensor connection	2-wire, 3-wire
Reverse polarity protection	Yes
Module diagnosis	Yes
Channel diagnosis	No
General parameters	
Weight	65g
Product dimensions : H × W × D (mm)	114×14×75.4

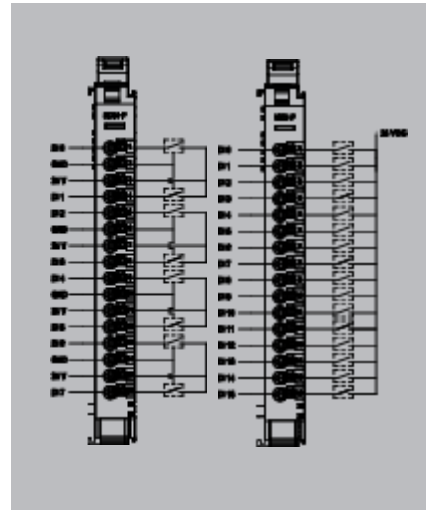
QL remote system bus for internal module and coupler communication	
Yes, DC 500V(Channels and backplane bus)	
15mA	
<2mA+Sensor feeding	
8	
PNP Types 1,IEC61131-2	
0ms /0.3ms / 3 ms /10 ms / 20 ms / 40ms; Default: 3 ms	
<DC5V(voltage difference of DI input signal relative to COM)	
>DC15V(voltage difference of DI input signal relative to COM)	
Yes	
2-wire, 3-wire	
Yes	
Yes	
No	
65g	
114×14×75.4	

QL remote system bus for internal module and coupler communication	
Yes, DC 500V(Channels and backplane bus)	
15mA	
<2mA+Sensor feeding	
16	
PNP Types 1,IEC61131-2	
3 ms	
<DC5V(voltage difference of DI input signal relative to COM)	
>DC15V(voltage difference of DI input signal relative to COM)	
No	
1-wire	
Yes	
Yes	
No	
65g	
114×14×75.4	

Order data

Module type
8-channel digital input module
16-channel digital input module

Model	Quantity	Order number
QL20-8DIH-P	1	3078360000
QL20-16DI-P	1	3078380000



Attachment

Block tag number (custom printing)
Module tag number (blank tag number)

Model	Quantity	Order number
DEK5/8-11.5MC SDR	100	1341610000
DEK5/8-11.5MC NE WS	500	1341630000

Reference Standard	IEC61131-2
EMC	EN 61000

- DI
- 8-channel and 16-channel digital inputs for proximity sensors or switch signals
 - Low-level trigger
 - Reverse polarity protection
 - 1-wire, 2-wire, 3-wire connection
 - Channel input filtering
 - Integrated sensor supply
 - Type 1, based on IEC 61131-2

QL20-8DI-N



QL20-16DI-N



B

Technical data

System parameters	
Interface	
Electrical isolation	
System current consumption I _{sys}	
Feeding current consumption I _{in}	
Digital input	
Numbers of channels	
Signal type	
Input filtering	
Input voltage, low	
Input voltage, high	
Sensor supply	
Sensor connection	
Reverse polarity protection	
Module diagnosis	
Channel diagnosis	
General parameters	
Weight	
Product dimensions : H × W × D(mm)	

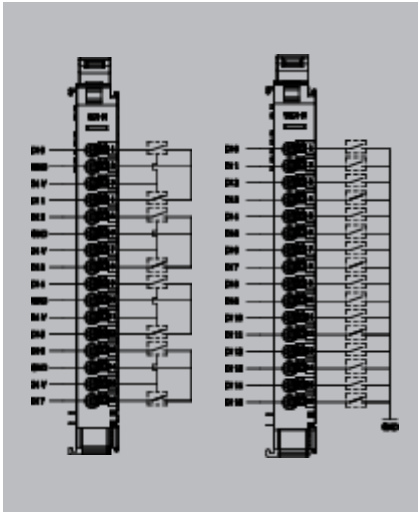
QL remote system bus for internal module and coupler communication		
Yes, DC 500V(Channels and backplane bus)		
15mA		
<2mA+sensor feeding		
8		
NPN Types 1,IEC61131-2		
0ms / 3 ms /10 ms / 20 ms / 40ms;Default: 3 ms		
>DC15V(voltage difference of DI input signal relative to COM)		
<DC5V(voltage difference of DI input signal relative to COM)		
Yes		
2-wire, 3-wire		
Yes		
Yes		
No		
65g		
114×14×75.4		

QL remote system bus for internal module and coupler communication		
Yes, DC 500V(Channels and backplane bus)		
15mA		
<2mA+sensor feeding		
16		
NPN Types 1,IEC61131-2		
3 ms		
>DC15V(voltage difference of DI input signal relative to COM)		
<DC5V(voltage difference of DI input signal relative to COM)		
Yes		
1-wire		
Yes		
Yes		
No		
65g		
114×14×75.4		

Order data

Module type
8-channel digital input module
16-channel digital input module

Model	Quantity	Order number
QL20-8DI-N	1	3078370000
QL20-16DI-N	1	3078390000



Attachment

Block tag number (custom printing)
Module tag number (blank tag number)

Model	Quantity	Order number
DEK5/8-11.5MC SDR	100	1341610000
DEK5/8-11.5MC NE WS	500	1341630000

Reference Standard	IEC61131 2
EMC	EN 61000

DO

- 8-channel and 16-channel digital outputs
- 500mA load capacity
- Short circuit protection
- 1-wire, 2-wire connection
- High-level output
- Supports DC 13
- Compatible with IEC 61131-2

QL20-8DO-P



QL20-16DO-P

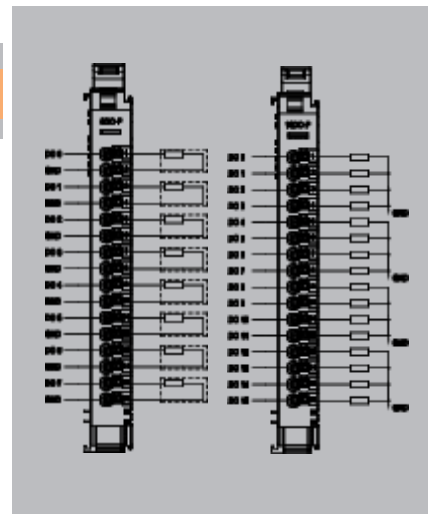


Technical data

System parameters	QL20-8DO-P	QL20-16DO-P
Interface	QL remote system bus for internal module and coupler communication	QL remote system bus for internal module and coupler communication
Electrical isolation	Yes, DC 500V(Channels and backplane bus)	Yes, DC 500V(Channels and backplane bus)
System current consumption I_{SYS}	10mA	10mA
Feeding current consumption I_{IN}	15mA+ Load	15mA+Load
Digital input		
Numbers of Channels	8	16
Load type	Resistive, inductive(DC 13)	Resistive, inductive(DC 13)
Response time	300 μ s	300 μ s
Maximum output current-Channel	500 mA	500 mA
Maximum output current-Module	0.5A/channel; 2A/module; per channel 0.3A when all channels are activated	0.5A/channel; 4A/module; per channel 0.3A when all channels are activated
Output voltage range	Signal "0" : -3 V < UL < 5 V; Signal "1" : 15 V < UH < 30 V	Signal "0" : -3 V < UL < 5 V; Signal "1" : 15 V < UH < 30 V
Maximum switching frequency	Resistive Load(min. 47 Ω): 500Hz Inductive Load(DC 13):1Hz	Resistive Load(min. 47 Ω): 500Hz Inductive Load(DC 13):1Hz
Short circuit protection	Yes	Yes
Module diagnosis	Yes	Yes
Channel diagnosis	No	No
General parameters		
Weight	66g	66g
Product dimensions : H $\times$ W $\times$ D (mm)	114 $\times$ 14 $\times$ 75.4	114 $\times$ 14 $\times$ 75.4

Order type

Module type	Model	Quantity	Order number
8-channel digital input module	QL20-8DO-P	1	3078400000
16-channel digital input module	QL20-16DO-P	1	3078420000



Attachment

Block tag number (custom printing)	Model	Quantity	Order number	Reference standard	IEC61131 2
Module tag number (blank tag number)	DEK5/8-11.5MC SDR	100	1341610000	EMC	EN 61000
	DEK5/8-11.5MC NE WS	500	1341630000		

DO

- 8-channel and 16-channel digital outputs
- 500mA load capacity
- Short circuit protection
- 1-wire, 2-wire connection
- Low-level output
- Supports DC 13
- Compatible with IEC 61131-2

QL20-8DO-N



QL20-16DO-N



B

Technical data

System parameters	
Interface	
Electrical isolation	
System current consumption I_{SYS}	
Feeding current consumption I_{IN}	
Digital input	
Numbers of Channels	
Load type	
Response time	
Maximum output current-Channel	
Maximum output current-Module	
Output voltage range	
Maximum switching frequency	
Short circuit protection	
Module diagnosis	
Channel diagnosis	
General parameters	
Weight	
Product dimensions : H × W × D(mm)	

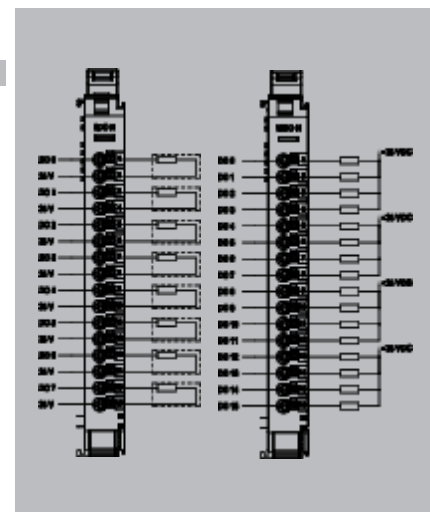
QL remote system bus for internal module and coupler communication		
Yes, DC 500V(Channels and backplane bus)		
	10mA	
	15mA+load	
Digital input		
Numbers of Channels	8	
Load type	Resistive, Inductive(DC 13)	
Response time	300 μs	
Maximum output current-Channel	500 mA	
Maximum output current-Module	0.5A/channel; 2A/module; per channel 0.3A when all channels are activated	
Output voltage range	signal "1" : -3 V < UL < 5 V; signal "0" : 15 V < UH < 30 V	
Maximum switching frequency	Resistive Load(min. 47Ω): 500Hz	
Short circuit protection	Inductive Load(DC 13): 1Hz	
Module diagnosis	Yes	
Channel diagnosis	Yes	
General parameters	No	
Weight	65g	
Product dimensions : H × W × D(mm)	114×14×75.4	

QL remote system bus for internal module and coupler communication		
Yes, DC 500V(Channels and backplane bus)		
	10mA	
	15mA+load	
Digital input		
Numbers of Channels	16	
Load type	Resistive, Inductive(DC 13)	
Response time	300 μs	
Maximum output current-Channel	500 mA	
Maximum output current-Module	0.5A/channel; 2A/module; per channel 0.3A when all channels are activated	
Output voltage range	signal "1" : -3 V < UL < 5 V; signal "0" : 15 V < UH < 30 V	
Maximum switching frequency	Resistive Load(min. 47Ω): 500Hz	
Short circuit protection	Inductive Load(DC 13): 1Hz	
Module diagnosis	Yes	
Channel diagnosis	Yes	
General parameters	No	
Weight	65g	
Product dimensions : H × W × D(mm)	114×14×75.4	

Order data

Module type
8-channel digital input module
16-channel digital input module

Model	Quantity	Order number
QL20-8DO-N	1	3078410000
QL20-16DO-N	1	3078430000



Attachment

Block tag number (custom printing)
Module tag number (blank tag number)

型号	Quantity	Order number
DEK5/8-11.5MC SDR	100	1341610000
DEK5/8-11.5MC NE WS	500	1341630000

Reference Standard	IEC61131 2
EMC	EN 61000

- AI
- 4-channel analog input
 - Parameterizable (voltage, current)
 - 16-bit resolution
 - 2-wire, 3-wire, 3-wire+FE connection
 - 0.1% FSR accuracy
 - Configurable input filtering

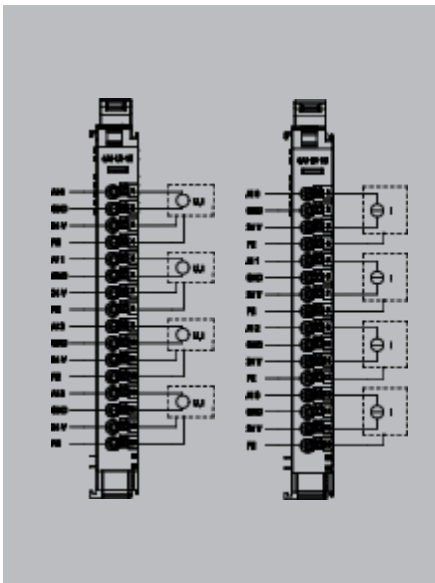
QL20-4AI-UI-16



Technical data

System parameters
Interface
Electrical isolation
System current consumption I _{sys}
Feeding current consumption I _{in}
Analog input
Numbers of channels
Signal Type
Resolution
Accuracy
Sensor connection
Conversion time
Internal impedance U
Internal impedance I
Reverse polarity protection
Module diagnosis
Channel diagnosis
Short circuit protection
General parameters
Weight
Product dimensions : H × W × D (mm)

QL remote system bus for internal module and coupler communication
Yes, DC 500V(Channels and backplane bus)
30mA
15mA+sensor feeding
4
Voltage(±10V、±5V、0-10V、0-5V、2-10V、1-5V)
Current(0-20mA、4-20mA)
16-bit
0.1%FSR
2-wire, 3-wire, 3-wire+FE
2ms
≥120KΩ
≤100Ω
Yes
Yes
No
Yes
66g
114×14×75.4



Order data

Module type
4-channel analog input module, 16-bit
Note

Model	Quantity	Order number
QL20-4AI-UI-16	1	3078520000

Attachment

Block tag number (custom printing)
Module tag number (blank tag number)

Model	Quantity	Order number
DEK5/8-11.5MC SDR	100	1341610000
DEK5/8-11.5MC NE WS	500	1341630000

Reference standard	IEC61131-2
EMC	EN 61000

AI

- 8-channel analog module
- Parameterizable (voltage, current)
- 16-bit resolution
- 2-wire
- 0.1% FSR accuracy
- Configurable input filtering

QL20-8AI-I-16

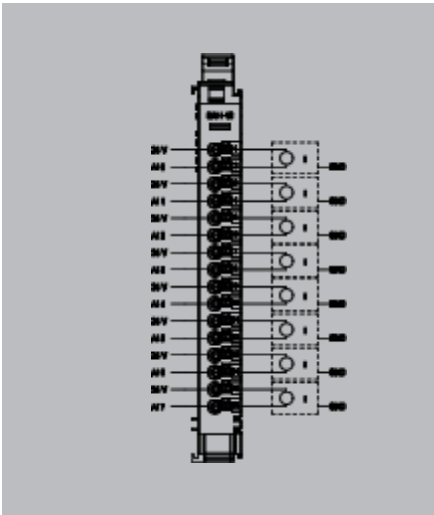


B

Technical data

System parameter
Interface
Electrical isolation
System current consumption I _{sys}
Feeding current consumption I _{in}
Analog input
Numbers of channels
Signal Type
Resolution
Accuracy
Sensor connection
Conversation time
Internal impedance J
Reverse polarity protection
Module diagnosis
Channel diagnosis
Short circuit protection
General parameters
Weight
Product dimensions : H × W × D (mm)

Specification
QL remote system bus for internal module and coupler communication
Yes, DC 500V(Channel and backplane bus)
30mA
15mA+sensor feeding
8
0-20mA, 4-20mA
16-bit
0.1%FSR
2-wire
2ms
≤100Ω
Yes
Yes
No
Yes
69g
114×14×75.4



Order data

Module type
8-channel analog current input module, 16-bit
Note

Model	Quantity	Order number
QL20-8AI-I-16	1	3078600000

Attachment

Block tag number (custom printing)
Module tag number (blank tag number)

Model	Quantity	Order number
DEK5/8-11.5MC SDR	100	1341610000
DEK5/8-11.5MC NE WS	500	1341630000

Reference standard	IEC61131-2
EMC	EN 61000

AI

- 8 –channel analog module
- Parameterizable (voltage)
- 16-bit resolution
- 2-wire
- 0.1% FSR accuracy
- Configurable input filtering

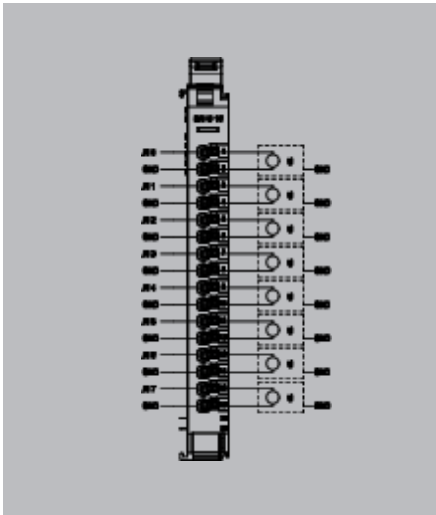
QL20-8AI-U-16



Technical data

System parameters	
Interface	
Electrical isolation	
System current consumption I _{sys}	
Feeding current consumption I _{in}	
Analog input	
Numbers of channels	
Signal Type	
Resolution	
Accuracy	
Sensor connection	
Conversion time	
Internal impedance U	
Reverse polarity protection	
Module diagnosis	
Channel diagnosis	
Short circuit protection	
General parameters	
Weight	
Product dimensions : H × W × D (mm)	

QL remote system bus for internal module and coupler communication		
Yes, DC 500V(channel and backplane bus)		
25mA		
15mA		
±10V, ±5V, 0-10V, 0-5V, 2-10V, 1-5V		
8		
16-bit		
0.1%FSR		
2-wire		
2ms		
≥120KΩ		
Yes		
Yes		
No		
Yes		
66g		
114×14×75.4		



Order data

Module type
8-channel analog voltage input module, 16-bit
Note

Model	Quantity	Order number
QL20-8AI-U-16	1	3078720000

Attachment

Block tag number (custom printing)
Module tag number (blank tag number)

Model	Quantity	Order number
DEK5/8-11.5MC SDR	100	1341610000
DEK5/8-11.5MC NE WS	500	1341630000

Reference standard	IEC61131-2
EMC	EN 61000

4 AO

QL20-4AO-UI-16

- 4-channel analog input
- Parametrizable output (Voltage, Current)
- 16-bit resolution
- 2-wire connection
- High accuracy
- Alternative values can be used. - channel
- Short circuit protection

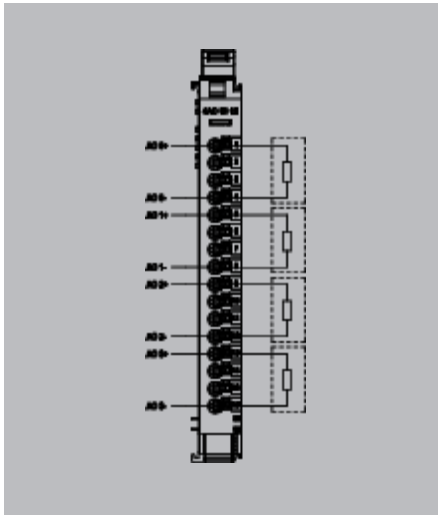


B

Technical data

General parameters
Interface
Electrical isolation
Power supply
System current consumption I _{sys}
Feeding current consumption I _{IN}
Analog input
Numbers of channels
Signal type
Response time
Resolution
Accuracy
Load resistance, voltage output
Load resistance, current output
Actuator connection
Short circuit protection
Temperature coefficient
Repeatability Accuracy
Module diagnosis
Short circuit protection
General parameters
Weight
Product dimensions : H × W × D (mm)

QL remote system bus for internal module and coupler communication
Yes, DC 500V(channels and backplane bus)
15mA
45mA+load
4
Voltage (±10V, ±5V, 0-10V, 0-5V, 2-10V, 1-5V) current (0-20mA, 4-20mA)
2ms
16-bit
0.1%FSR
> 1kΩ
≤ 600Ω
2-wire
Yes
±50 ppm/K
0.025%FSR
Yes
yes
72g
114×14×75.4



Order data

Module type
4-channel analog output module, 16-bit
Note

Model	Quantity	Order number
QL20-4AO-UI-16	1	3078950000

Attachment

Block tag number (custom printing)
Module tag number (blank tag number)

Model	Quantity	Order number
DEK5/8-11.5MC SDR	100	1341610000
DEK5/8-11.5MC NE WS	500	1341630000

Reference standard	IEC61131-2
EMC	EN 61000

4 AI-RTD

- 16-bit resolution
- 50 Hz/60 Hz frequency suppression
- Supports 2, 3, and 4 wire RTD sensors
- High precision
- Suitable for various sensors

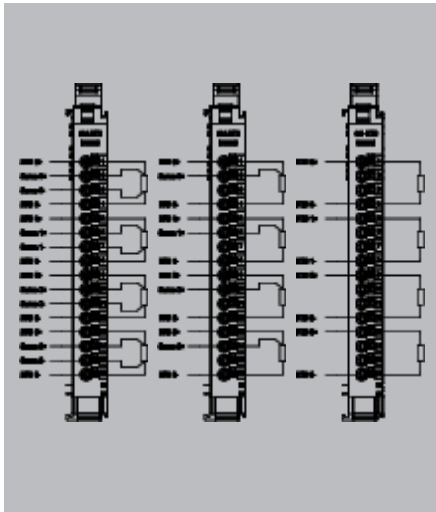
QL20-4AI-RTD



Technical data

System parameters	
Interface	
Electrical isolation	
System current consumption I _{sys}	
Feeding current consumption I _{in}	
Analog input	
Numbers of channels	
Sensor type	
Resolution	
Accuracy	
Sensor connection	
Temperature coefficient	
Temperature range	
Conversion time	
Maximum wire resistance	
Reverse polarity protection	
Module diagnosis	
Channel diagnosis	
General parameters	
Weight	
Product dimensions : H × W × D(mm)	

QL remote system bus for internal module and coupler communication		
Yes, DC 500V(Channels and backplane bus)		
25mA		
15mA		
4		
Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni 200, Ni500, Ni1000, Cu10		
16-bit		
Pt type sensor signal: 0.2% (Full scale)		
Ni type sensor signal: 0.3% (Full scale)		
Cu type sensor signal: 0.6% (Full scale)		
2-wire, 3-wire, 4-wire		
50 ppm/K		
-250 to 850°C		
36 to 240ms, adjustable		
40 Ω		
Yes		
Yes		
Yes		
65g		
114×14×75.4		



Order data

Module type
4-channel thermistor input module
Note

Model	Quantity	Order number
QL20-4AI-RTD	1	3078970000

Attachment

Block tag number (custom printing)
Module tag number (blank tag number)

Model	Quantity	Order number
DEK5/8-11.5MC SDR	100	1341610000
DEK5/8-11.5MC NE WS	500	1341630000

Reference standard	IEC61131-2
EMC	EN 61000

4AI-TC

- 4-channel analog input
- Supports various thermocouple sensors
- High accuracy of 0.2% FSR (Full Scale Range)
- 16-bit resolution
- External/internal cold junction compensation
- 50 Hz/60 Hz frequency suppression

QL20-4AI-TC



B

Technical data

System parameters

Interface

Electrical isolation

System current consumption I_{SYS} Feeding current consumption I_{IN}

Analog input

Numbers of channels

Sensor type

Resolution

Accuracy

Sensor connection

Cold end compensation

Temperature coefficient

Temperature range

Conversion time

Internal resistance

Module diagnosis

Channel diagnosis

Reverse polarity protection

General parameters

Weight

Product dimensions : H x W x D (mm)

QL remote system bus for internal module and coupler communication

Yes, DC 500V(channels and backplane bus)

15mA

15mA + Power supply load

4

J, K, T, B, N, E, R, S, C, L, U

16-bit

0.2% FSR

2-wire

It supports configurable internal or external cold junction compensation, applies to PT1000, and the accuracy is ≤ 3 K50 μ m/K

-200 to 2315°C

36 to 240ms, adjustable

> 1 M Ω

Yes

Yes

Yes

65g

114x14x75.4

Order data

Module type

4-Channel Thermocouple Input Module

Note

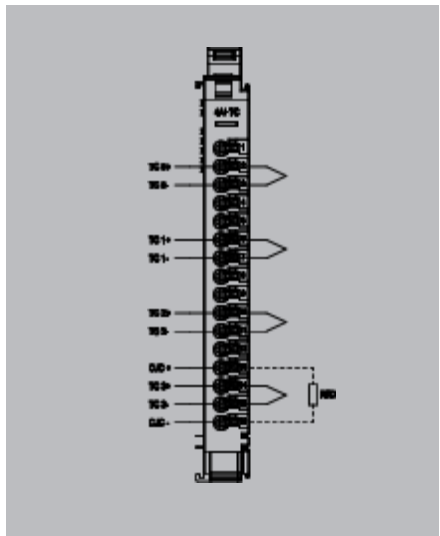
Model	Quantity	Order number
QL20-4AI-TC	1	3078980000

Attachment

Block tag number (custom printing)

Module tag number (blank tag number)

Model	Quantity	Order number
DEK5/8-11.5MC SDR	100	1341610000
DEK5/8-11.5MC NE WS	500	1341630000



Reference standard	IEC61131-2
EMC	EN 61000

PF-B

- Load circuit power supply
- Power supply current: 10 A

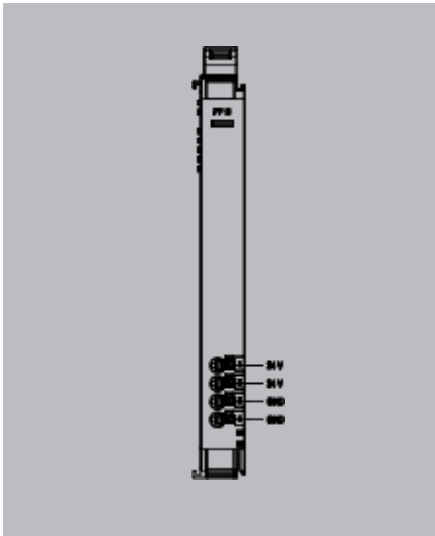
QL20-PF-B



Technical data

Power supply
Input voltage
Maximum feeding current - input
System current consumption I _{sys}
Feeding current consumption I _{in}
General parameters
Weight
Product dimensions : H × W × D (mm)

24VDC(+20%/-15%)
10A
15mA
18mA
54g
114×14×75.4



Order data

Module type
Feeding module
Note

Model	Quantity	Order number
QL20-PF-B	1	3079320000

Attachment

Block tag number (custom printing)
Module tag number (blank tag number)

Model	Quantity	Order number
DEK5/8-11.5MC SDR	100	1341610000
DEK5/8-11.5MC NE WS	500	1341630000

Reference standard	IEC61131-2
EMC	EN 61000