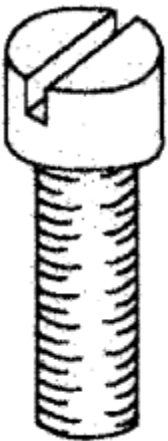


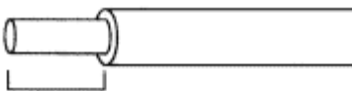
IB ST 24 AI 4/I



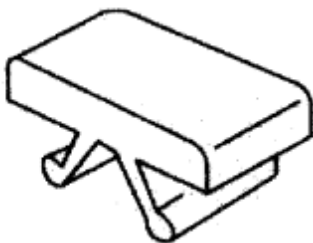
4 electrically isolated inputs, 0 - 20 mA, 4 - 20 mA, 0 - 10 V
Design width 118



M3



8



"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG


Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V 1

Description	Type	Order No.	Pcs. Pkt.
Analog input module , IP 20 protection, consisting of			
– Terminal part with screw-clamp connection and electronics module	IB ST 24 AI 4/1	27 19 62 9	1
– Terminal part with spring-clamp connection and electronics module	IB ST ZF 24 AI 4/1	27 21 26 4	1

Accessories

Replacement electronics module , without terminal part	IB STME 24 AI 4/1	27 19 64 5	1
Replacement fuse	IBS TR5 0,4AT	27 53 47 8	5
Jumper , (only for screw connection) separable, isolated comb spine			
Color: blue 80 pos.	EB 80-DIK BU	I_N : 26 A 27 15 94 0	5
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5

Technical data

	for voltage inputs	for current inputs
--	--------------------	--------------------

Interfaces		
INTERBUS-ST local bus	ST local bus connector	
Power supply		
Power supply voltage		
– Nominal values	24 V DC	
– Ripple	3.6 V _{pp}	
– Allowable range	18.5 to 30.2 V DC	
Current consumption		
– With nom. voltage (without passive sensors)	typ. 45 mA, max. 80 mA (no supply for sensors)	
– From the ST local bus	typ. 65 mA, max. 100 mA	
Local diagnostics		
Operating voltage display (U _L)	LED green	
Power supply voltage per group (U _S)	LED green	
ST local bus connection OK (CC)	LED green	
Bus active (BA)	LED green	
Diagnostics message via the bus		
Blown fuse	yes	
Power failure	yes	
Inputs		
Number of inputs	4 differential inputs, voltage or current can be chosen separately	
Connection method	2-wire	
Input range	0 - 10 V	4 - 20 mA, 0 - 20 mA
Input resistance	> 200 kΩ	50 Ω
Measurement principle	successive approximation	
Representation of measured value	16-bit two's complement	
Monitoring of measured value to control	4 channels simultaneously in 4 process data words	
Measured value resolution	12 bit	
Quantization	2.44 mV	3.91 μA, 4.88 μA
A/D conversion time per channel	10 μs	

Courtesy of Steven Engineering, Inc. • 230 Ryan Way, South San Francisco, CA, 94080-6370 • Main Office: (650) 588-9200 • Outside Local Area: (800) 258-9200 • www.stevenengineering.com

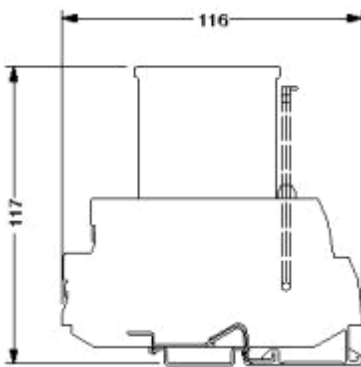
AVD conversion time per channel	10 µs	
Process data update	0.5 ms per channel/2 ms all channels	
3 dB threshold frequency	30 Hz	
Line break diagnosis	no	diagnostic bit (4 - 20 mA)
Overrange diagnostics	yes, diagnostic bit	yes, diagnostic bit
Basic error limit	± 0,025 %	± 0,02 %
Electrical isolation		
– Bus/inputs	500 V AC test voltage	
– Power supply voltage/inputs	500 V AC test voltage	
– Between inputs	500 V AC test voltage	
Polarity reversal protection	yes	
Transient protection of inputs	yes	

General data

Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	465 g

¹ application submitted

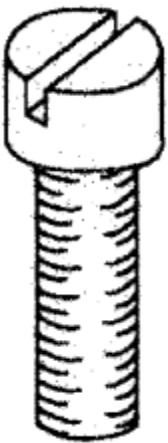
Dimensional drawing



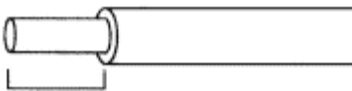
IB ST 24 AI 4/BP



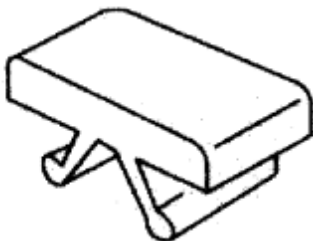
4 inputs, 4 - 20 mA, - 10 to + 10 V
Design width 118



M3



8



"...6"


(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp 0.2-2.5 0.2-2.5 24-12

-Spring-clamp 0.2-1.5 0.2-1.5 24-16

A V 1

Description	Type	Order No.	Pcs. Pkt.
Analog input module, IP 20 protection, consisting of			
– Terminal part with screw-clamp connection and electronics module	IB ST 24 AI 4/BP	27 51 56 4	1
– Terminal part with spring-clamp connection and electronics module	IB ST ZF 24 AI 4/BP	27 24 73 7	1
Accessories			
Replacement electronics module, without terminal part	IB STME 24 AI 4/BP	27 51 55 1	1
Replacement fuse	IBS TR5 0,2AM	27 53 45 2	5
	IBS TR5 0,4AT	27 53 47 8	5
Jumper, (only for screw connection) separable, isolated comb spine			
Color: blue 80 pos.	EB 80-DIK BU	I _N : 26 A 27 15 94 0	5
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5
Technical data	for voltage inputs	for current inputs	
Interfaces			
INTERBUS-ST local bus	ST local bus connector		
Power supply			
Power supply voltage			
– Nominal values	24 V DC		
– Ripple	3.6 V _{pp}		
– Allowable range	18.5 to 30.2 V DC		
Current consumption			
– With nom. voltage (without passive sensors)	max. 125 mA, typ. 65 mA		
– From the ST local bus	typ. 110 mA		
Local diagnostics			
Operating voltage display (U _L)	LED green		
Power supply voltage per group (U _S)	LED green		
ST local bus connection OK (CC)	LED green		
Bus active (BA)	LED green		
Diagnostics message via the bus			
Blown fuse	yes		
Power failure	yes		
Inputs			
Number of inputs	4 differential inputs, voltage or current can be chosen separately		
Connection method	2-, 3-, 4-wire		
Input range	– 10 to + 10 V	4 - 20 mA	
Input resistance	> 200 kΩ	50 Ω	
Measurement principle	successive approximation		
Representation of measured value	16-bit two's complement		
Monitoring of measured value to control	all channels simultaneously in 4 process data words		
Measured value resolution	12 bit	11 bit	
Quantization	4.88 mV	7.81 μA	

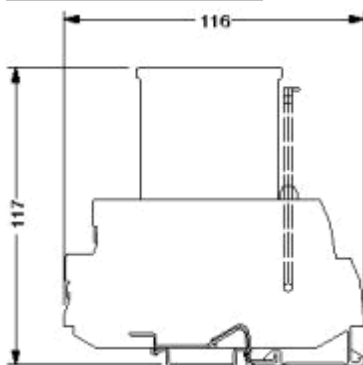
A/D conversion time per channel	10 µs	10 µs
Process data update	1 ms per channel/4 ms all channels	
3 dB threshold frequency	123.7 Hz (2-wire), 61.8 Hz (3-wire)	
Line break diagnosis	no	yes, diagnostic bit
Overrange diagnostics		
Basic error limit	0.05 %	0.12 %
Bridge voltage for passive sensors	15 V 6 %, T _K 100 ppm, 25 mA per channel	
Electrical isolation		
– Bus/inputs	500 V AC test voltage	
– Power supply voltage/inputs	500 V AC test voltage	
Polarity reversal protection	yes	
Short-circuit protection of bridge voltage	yes, with fuse	
Transient protection of inputs	yes	

General data

Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	600 g

¹ application submitted

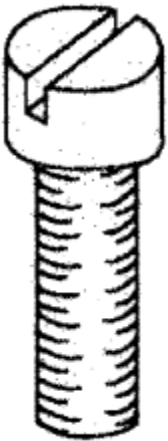
Dimensional drawing



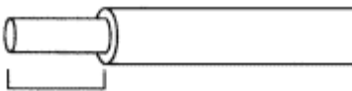
IB ST 24 AI 4/SF



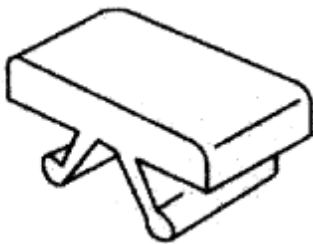
4 inputs, 0 - 20 mA, 0 - 10 V
Design width 118



M3



8



"...6"


(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp 0.2-2.5 0.2-2.5 24-12

-Spring-clamp 0.2-1.5 0.2-1.5 24-16

A V 1

Description	Type	Order No.	Pcs. Pkt.
Analog input module, IP 20 protection, consisting of			
– Terminal part with screw-clamp connection and electronics module	IB ST 24 AI 4/SF	27 54 30 9	1
– Terminal part with spring-clamp connection and electronics module	IB ST ZF 24 AI 4/SF	27 50 62 0	1
Accessories			
Replacement electronics module, without terminal part	IB STME 24 AI 4/SF	27 54 38 3	1
Replacement fuse	IBS TR5 0,2AM	27 53 45 2	5
	IBS TR5 0,4AT	27 53 47 8	5
Jumper, (only for screw connection) separable, isolated comb spine			
Color: blue 80 pos.	EB 80-DIK BU	I _N : 26 A 27 15 94 0	5
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5
Technical data		for voltage inputs	for current inputs
Interfaces			
INTERBUS-ST local bus	ST local bus connector		
Power supply			
Power supply voltage			
– Nominal values	24 V DC		
– Ripple	3.6 V _{pp}		
– Allowable range	18.5 to 30.2 V DC		
Current consumption			
– With nom. voltage (without passive sensors)	max. 125 mA, typ. 65 mA		
– From the ST local bus	typ. 120 mA		
Local diagnostics			
Operating voltage display (U _L)	LED green		
Power supply voltage per group (U _S)	LED green		
ST local bus connection OK (CC)	LED green		
Bus active (BA)	LED green		
Diagnostics message via the bus			
Blown fuse	yes		
Power failure	yes		
Inputs			
Number of inputs	4 differential inputs, voltage or current can be chosen separately		
Connection method	2-, 3-, 4-wire		
Input range	0 - 10 V	0 - 20 mA	
Input resistance	> 200 kΩ	50 Ω	
Measurement principle	successive approximation		
Representation of measured value	16-bit two's complement		
Monitoring of measured value to control	all channels simultaneously in 4 process data words		
Measured value resolution	12 bit		
Quantization	2.44 mV	4.88 μA	

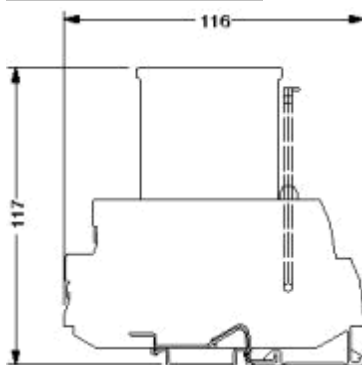
A/D conversion time per channel	10 μ s	7.00 μ s
Process data update	0.75 ms per channel/3 ms all channels	
3 dB threshold frequency	58.5 Hz	
Line break diagnosis	no	no
Overrange diagnostics		
Basic error limit	0.02 %	0.05 %
Bridge voltage for passive sensors	15 V 6 %, T _K 100 ppm, 25 mA per channel	
Electrical isolation		
– Bus/inputs	500 V AC test voltage	
– Power supply voltage/inputs	500 V AC test voltage	
Polarity reversal protection	yes	
Short-circuit protection of bridge voltage	yes, with fuse	
Transient protection of inputs	yes	

General data

Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	600 g

¹ application submitted

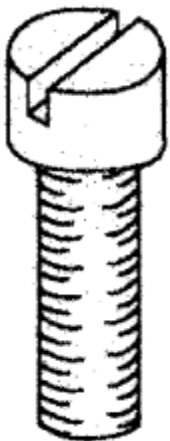
Dimensional drawing



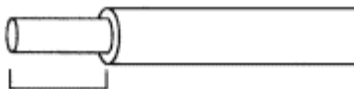
IB ST 24 AI 4/SF4



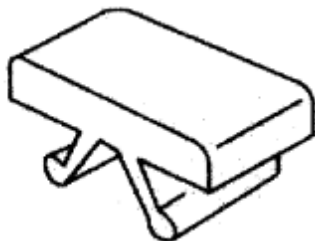
4 inputs, 4 - 20 mA, 0 - 10 V
Design width 118



M3



8




"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V 1

Description	Type	Order No.	Pcs. Pkt.
Analog input module, IP 20 protection, consisting of			
– Terminal part with screw-clamp connection and electronics module	IB ST 24 AI 4/SF4	27 50 56 5	1
– Terminal part with spring-clamp connection and electronics module	IB ST ZF 24 AI 4/SF4	27 50 59 4	1
Accessories			
Replacement electronics module, without terminal part	IB STME 24 AI 4/SF4	27 50 06 0	1
Replacement fuse	IBS TR5 0,2AM	27 53 45 2	5
	IBS TR5 0,4AT	27 53 47 8	5
Jumper, (only for screw connection) separable, isolated comb spine			
Color: blue 80 pos.	EB 80-DIK BU	I _N : 26 A 27 15 94 0	5
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5
Technical data		for voltage inputs	for current inputs
Interfaces			
INTERBUS-ST local bus	ST local bus connector		
Power supply			
Power supply voltage			
– Nominal values	24 V DC		
– Ripple	3.6 V _{pp}		
– Allowable range	18.5 to 30.2 V DC		
Current consumption			
– With nom. voltage (without passive sensors)	max. 125 mA, typ. 65 mA		
– From the ST local bus	typ. 120 mA		
Local diagnostics			
Operating voltage display (U _L)	LED green		
Power supply voltage per group (U _S)	LED green		
ST local bus connection OK (CC)	LED green		
Bus active (BA)	LED green		
Diagnostics message via the bus			
Blown fuse	yes		
Power failure	yes		
Inputs			
Number of inputs	4 differential inputs, voltage or current can be chosen separately		
Connection method	2-, 3-, 4-wire		
Input range	0 - 10 V	4 - 20 mA	
Input resistance	> 200 kΩ	50 Ω	
Measurement principle	successive approximation		
Representation of measured value	16-bit two's complement		
Monitoring of measured value to control	all channels simultaneously in 4 process data words		
Measured value resolution	12 bit		

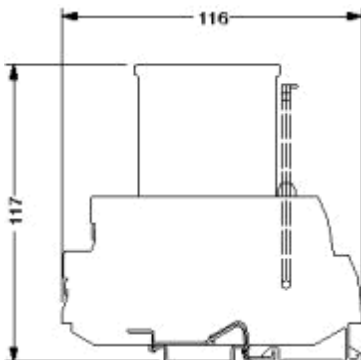
Quantization	2.44 mV	3.91 μ A
A/D conversion time per channel	10 μ s	
Process data update	0.75 ms per channel/3 ms all channels	
3 dB threshold frequency	58.5 Hz (2-wire), 29.9 Hz (3-wire)	
Line break diagnosis	no	yes, diagnostic bit
Overrange diagnostics		
Basic error limit	0.02 %	0.06 %
Bridge voltage for passive sensors	15 V 6 %, T _K 100 ppm, 25 mA per channel	
Electrical isolation		
– Bus/inputs	500 V AC test voltage	
– Power supply voltage/inputs	500 V AC test voltage	
Polarity reversal protection	yes	
Short-circuit protection of bridge voltage	yes, with fuse	
Transient protection of inputs	yes	

General data

Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	600 g

¹ application submitted

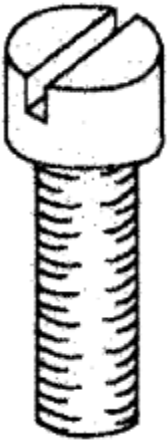
Dimensional drawing



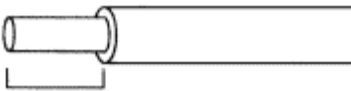
IB ST 24 PT 100 4/4



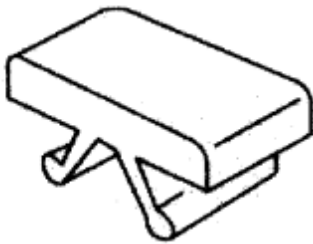
4 inputs, RTD, 2, 3 and 4-wire connection
Design width 118



M3



8




"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V 1

Description	Type	Order No.	Pcs. Pkt.
Analog output module , IP 20 protection, consisting of			
– Terminal part with screw-clamp connection and electronics module	IB ST 24 PT 100 4/4	27 52 76 7	1
– Terminal part with spring-clamp connection and electronics module	IB ST ZF 24 PT 100 4/4	27 50 95 0	1
Accessories			
Replacement electronics module , without terminal part	IB STME 24 PT 100 4/4	27 50 13 8	1
Replacement fuse	IBS TR5 0,4AT	27 53 47 8	5
Jumper , (only for screw connection) separable, isolated comb spine			
Color: blue 80 pos.	EB 80-DIK BU	I_N : 26 A 27 15 94 0	5
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5

Technical data**Interfaces**

INTERBUS-ST local bus ST local bus connector

Power supply

Power supply voltage

- Nominal values 24 V DC
- Ripple 3.6 V_{pp}
- Allowable range 18.5 to 30.5 V DC

Current consumption

- At nominal voltage typ. 50 mA, max. 65 mA
- From the ST local bus typ. 85 mA

Local diagnostics

Operating voltage display (U_L) LED green

Power supply voltage (U_S) LED green

ST local bus connection OK (CC) LED green

Bus active (BA) LED green

Diagnostics message via the bus

Blown fuse yes

Power failure yes

Inputs

Number of inputs 4 RTD inputs

Connection method 2, 4-wire

Input range PT: – 200 °C to + 850 °C, Ni: – 60 °C to + 250 °C

Measurement principle Sigma-Delta process

Representation of measured value 16-bit two's complement

Monitoring of measured value to control 4 channels simultaneously in 4 process data words

Measured value resolution 16 bit

Quantization 0.1 K for Celsius scale, 0.056 K for Fahrenheit scale

Process data update 258 ms per channel/816 ms all channels (for 50 Hz suppression)

Line break diagnostic yes

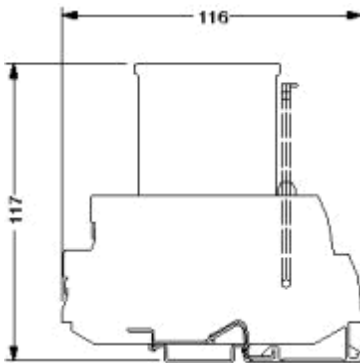
Basic error limit	± 0.005 % of measurement range
Electrical isolation	
– Bus/inputs	500 V AC test voltage
– Power supply/inputs	500 V AC test voltage
Polarity reversal protection	yes
Transient protection of inputs	yes

General data

Operating temperature range	-25 °C to + 55 °C
Degree of protection	IP 20
Weight	540 g

¹ application submitted

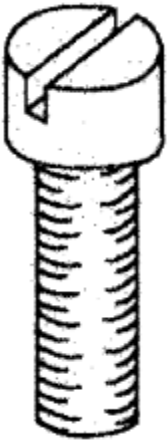
Dimensional drawing



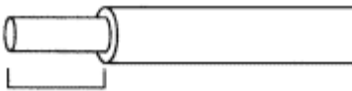
IB ST 24 UTH 8



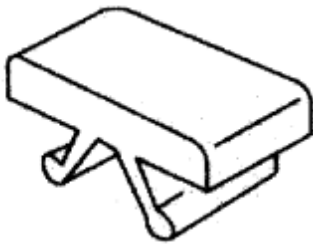
8 inputs, thermocouple (TC), 2-wire connection
Design width 118



M3



8




"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V 1

Description	Type	Order No.	Pcs. Pkt.
Analog output module , IP 20 protection, consisting of			
– Terminal part with screw-clamp connection and electronics module	IB ST 24 UTH 8 ²	27 24 90 2	1
– Terminal part with spring-clamp connection and electronics module	IB ST ZF 24 UTH 8 ²	27 24 89 2	1
Accessories			
Replacement electronics module, without terminal part	IB STME 24 UTH 8	27 24 88 9	1
Replacement fuse	IBS TR5 0,4AT	27 53 47 8	5
Jumper , (only for screw connection) separable, isolated comb spine Color: blue 80 pos.		EB 80-DIK BU	I _N : 26 A 27 15 94 0 5
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5
Technical data			
Interfaces			
INTERBUS-ST local bus	ST local bus connector		
Power supply			
Power supply voltage			
– Nominal values	24 V DC		
– Ripple	3.6 V _{pp}		
– Allowable range	18.5 to 30.2 V DC		
Current consumption			
– At nominal voltage	typ. 65 mA		
– From the ST local bus	typ. 110 mA		
Local diagnostics			
Operating voltage display (U _L)	LED green		
Power supply voltage per group (U _S)	LED green		
ST local bus connection OK (CC)	LED green		
Bus active (BA)	LED green		
Diagnostics message via the bus			
Blown fuse	yes		
Power failure	yes		
Inputs			
Number of inputs	8 TC inputs		
Connection method	2-wire		
Input range	thermocouples J, K, B, C, E, HK, N, R, S, T, W, L, U		
Measurement principle	Sigma-Delta process		
Representation of measured value	16-bit two's complement		
Monitoring of measured value to control	1-channel (multiplex process)		
Measured value resolution	16 bit		
Quantization	0.1 K for Celsius scale, 0.056 K for Fahrenheit scale		
Process data update	see data sheet		
Line break diagnostic	yes		
Basic error limit	0.01 % of measurement range		

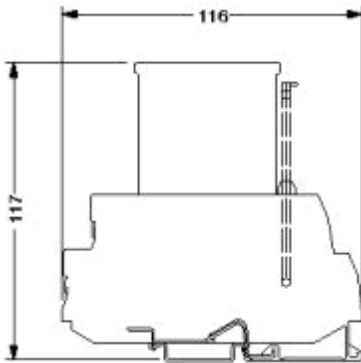
Basic error limit	0.01 % of measurement range
Electrical isolation	
– Bus/inputs	500 V AC test voltage
– Power supply/inputs	500 V AC test voltage
Polarity reversal protection	yes
Transient protection of inputs	yes

General data

Operating temperature range	-20 °C to + 55 °C
Degree of protection	IP 20
Weight	540 g

¹ application submitted

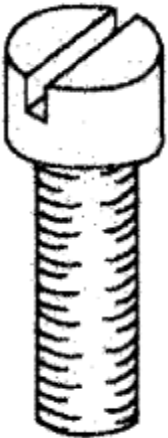
Dimensional drawing



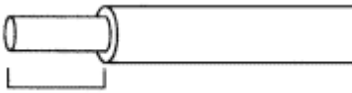
IB ST 24 AO 4/BP



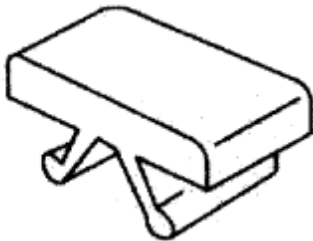
4 outputs, -10 V to +10 V



M 3



8



"...6"

Design width 118

A V ¹

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

Description	Type	Order No.	Pcs. Pkt.
Analog output module , D/A resolution 13 bit, consisting of			
– Terminal part with screw clamp and electronics module	IBS ST 24 AO 4/BP	27 52 52 1	1
– Terminal part with spring clamp and electronics module	IBS ST ZF 24 AO 4/BP	27 50 61 7	1

Accessories

Replacement electronics module , without terminal part	IBS STME 24 AO 4/BP	27 50 20 6	1
Replacement fuse	IBS TR5 0,4AT	27 53 47 8	5
Jumper , (only for screw clamp terminals) separable, isolated comb spine			
Color:	blue 80 pos.:	EB 80-DIK BU	I_N : 26 A
	red 80 pos.:	EB 80-DIK RD	26 A
		27 15 94 0	5
		27 15 95 3	5



Technical data

for
voltage outputs

Interfaces

INTERBUS-ST local bus ST local bus connector

Power supply

Power supply voltage

- Nominal values 24 V DC
- Ripple 3.6 V_{pp}
- Allowable range 18.5 to 30.2 V DC

Current consumption

- With nominal voltage typ. 150 mA
- From the ST local bus typ. 100 mA, max.130 mA

Local diagnostics

Operating voltage display (U_L) LED green

Power supply voltage (U_S) LED green

ST local bus connection OK (CC) LED green

Bus active (BA) LED green

Diagnostics message via the bus

Blown fuse yes

Power failure yes

Outputs

Number of outputs 4

Connection method 2-wire

Output range – 10 V to + 10 V, (max. 5 mA)

Load impedance > 2 kΩ

Representation of output value 16-bit two's complement

Transmission of output value from control all channels simultaneously in 4 process data words

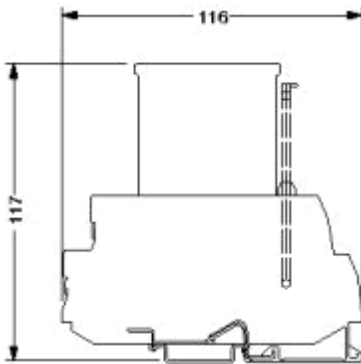
DAC resolution	12 Bit
Quantization	4.88 mV
Process data update (incl. slew rate)	1 ms
Basic error limit	± 0.05 %
Electrical isolation	
– Bus/outputs	500 V AC test voltage
– Power supply/outputs	500 V AC test voltage
– Between outputs	no
Polarity reversal protection	yes
Transient protection of the outputs	yes

General data

Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	600 g

¹ application submitted

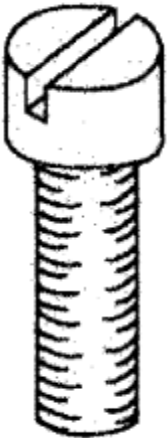
Dimensional drawing



IB ST 24 AO 4/SF



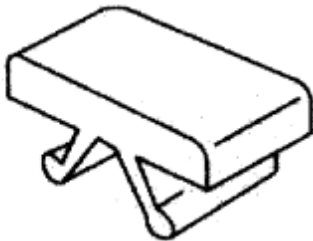
4 outputs, 0 - 20 mA, 0 - 10 V



M 3



8



"...6"

Design width 118

A V ¹

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw clamp	0.2-2.5	0.2-2.5	24-12
-Spring clamp	0.2-1.5	0.2-1.5	24-16

Description	Type	Order No.	Pcs.	Pkt.
Analog output module , D/A resolution 13 bit, consisting of				
– Terminal part with screw clamp and electronics module	IBS ST 24 AO 4/SF	27 54 31 2	1	
– Terminal part with spring clamp and electronics module	IBS ST ZF 24 AO 4/SF	27 50 60 4	1	
Accessories				
Replacement electronics module , without terminal part	IBS STME 24 AO 4/SF	27 54 35 4	1	
Replacement fuse	IBS TR5 0,4AT	27 53 47 8	5	
Jumper , (only for screw clamp terminals) separable, isolated comb spine				
Color:	blue 80 pos.:	EB 80-DIK BU	I_N : 26 A	27 15 94 0 5
	red 80 pos.:	EB 80-DIK RD	26 A	27 15 95 3 5
Technical data				
	for	for		
	voltage outputs	current outputs		
Interfaces				
INTERBUS-ST local bus	ST local bus connector			
Power supply				
Power supply voltage				
– Nominal value	24 V DC			
– Ripple	3.6 V _{pp}			
– Allowable range	18.5 to 30.2 V DC			
Current consumption				
– With nominal voltage	250 mA			
– From the ST local bus	typ. 100 mA, max.130 mA			
Local diagnostics				
Operating voltage display (U _L)	LED green			
Power supply voltage (U _S)	LED green			
ST local bus connection OK (CC)	LED green			
Bus active (BA)	LED green			
Diagnostics message via the bus				
Blown fuse	yes			
Power failure	yes			
Outputs				
Number of outputs	4, voltage and current can be chosen separately			
Connection method	2-wire			
Output range	0 - 10 V (max. 5 mA)	0 - 20 mA		
Load impedance	> 2 kΩ	< 500 Ω		
Representation of output value	16-bit two's complement			
Transmission of output value from control	all channels simultaneously in 4 process data words			
DAC resolution	12 bit			



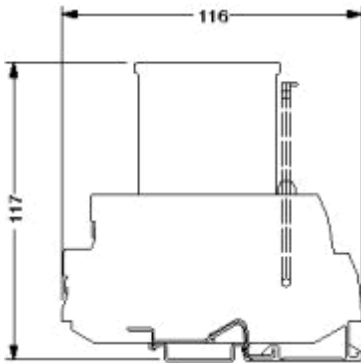
Quantization	2.44 mV	4.88 μ A
Process data update (incl. slew rate)	1 ms	
Basic error limit	$\pm 0.05 \%$	$\pm 0.1 \%$
Electrical isolation		
– Bus/outputs	500 V AC test voltage	
– Power supply/outputs	500 V AC test voltage	
– Between outputs	no	
Polarity reversal protection	yes	
Transient protection of the outputs	yes	

General data

Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	600 g

¹ application submitted

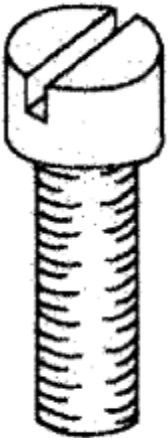
Dimensional drawing



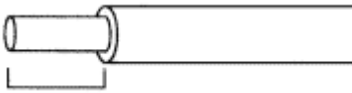
IB ST 24 AO 4/SF4



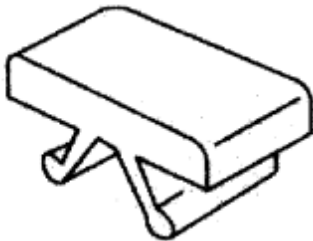
4 outputs, 4 - 20 mA, 0 - 10 V



M 3



8



"...6"

Design width 118

A V ¹

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

Description	Type	Order No.	Pcs. Pkt.
Analog output module , D/A resolution 13 bit, consisting of			
– Terminal part with screw clamp and electronics module	IBS ST 24 AO 4/SF4	27 50 57 8	1
– Terminal part with spring clamp and electronics module	IBS ST ZF 24 AO 4/SF4	27 50 58 1	1

Accessories

Replacement electronics module, without terminal part **IBS STME 24 AO 4/SF4** **27 50 05 7** 1

Replacement fuse **IBS TR5 0,4AT** **27 53 47 8** 5

Jumper, (only for screw clamp terminals) separable, isolated comb spine



Color:	blue 80 pos.:	EB 80-DIK BU	I_N : 26 A	27 15 94 0	5
	red 80 pos.:	EB 80-DIK RD	26 A	27 15 95 3	5

Technical data

for
voltage outputs

for
current outputs

Interfaces

INTERBUS-ST local bus ST local bus connector

Power supply

Power supply voltage

- Nominal value 24 V DC
- Ripple 3.6 V_{pp}
- Allowable range 18.5 to 30.2 V DC

Current consumption

- With nominal voltage 250 mA
- From the ST local bus typ. 100 mA, max.130 mA

Local diagnostics

Operating voltage display (U_L) LED green

Power supply voltage (U_S) LED green

ST local bus connection OK (CC) LED green

Bus active (BA) LED green

Diagnostics message via the bus

Blown fuse yes

Power failure yes

Outputs

Number of outputs 4, voltage and current can be chosen separately

Connection method 2-wire

Output range 0 - 10 V (max. 5 mA) 4 - 20 mA

Load impedance > 2 kΩ < 500 Ω

Representation of output value 16-bit two's complement

Transmission of output value from control all channels simultaneously in 4 process data words

DAC resolution 12 Bit

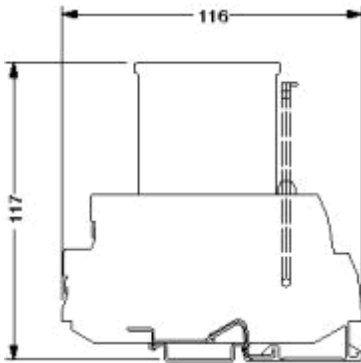
Quantization	2.44 mV	3.93 μ A
Process data update (incl. slew rate)	1 ms	
Basic error limit	$\pm 0.05 \%$	$\pm 0.1 \%$
Electrical isolation		
– Bus/outputs	500 V AC test voltage	
– Power supply/outputs	500 V AC test voltage	
– Between outputs	no	
Polarity reversal protection	yes	
Transient protection of the outputs	yes	

General data

Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	600 g

¹ application submitted

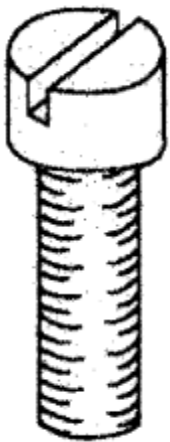
Dimensional drawing



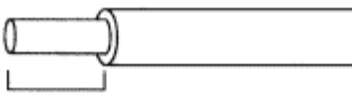
IB ST ASI DIO



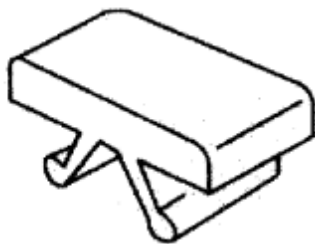
Connection of 31 ASI slaves



M 3



8



"...6"


Design width 81

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

H

Description	Type	Order No.	Pcs.	Pkt.
Digital I/O module for ASI sensors and actuators, IP 20 protection, consisting of terminal part, electronics module and connection cable	IB ST ASI DIO	27 53 65 6		1
Accessories				
Replacement electronics module without terminal part, for individual replacement	IB STME ASI DIO	on request		1
User Manual,				
German	IB ST ASI DIO UM	27 53 88 9		1
English	IB ST ASI DIO UM E	27 53 89 2		1
Jumper , separable, isolated comb spine				
Color: blue 80 pos.	EB 80-DIK BU	IN:26 A 27 15 94 0		5
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3		5

Technical data

Interfaces		ST local bus, ASI interface (screw-clamp terminals)
Power supply voltage	- Nominal value	24 V DC via external ASI power supply
	- Ripple	3.6 V _{pp}
	- Allowable range ¹	20 to 30 V DC
Max. power consumption from the local bus		220 mA
Allowable current consumption per module (with load)		2 x 2 A
Electrical isolation	- INTERBUS/ASI	500 V AC

Error messages via the bus

- ASI configuration error yes

Local diagnostics

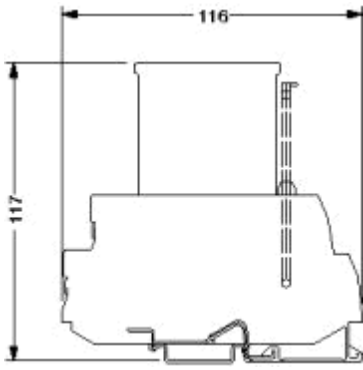
- Optional display local bus/electronics module (U _L)	LED green
- Remote bus active (BA)	LED green
- Bus connection OK (CC)	LED green
- PCP communication (TR)	LED green
- Power supply for ASI (U _{ASI})	LED green
- ASI- bus active (ASI ACTIVE)	LED green
- Programming mode enabled (PRG. ENABLE)	LED green
- Configuration mode enabled (PRJ. ENABLE)	LED yellow
- Configuration error (CONFIG ERR)	LED red

ASI display 2-digit, 7-segment display

Number of sensors/actuators which can be connected Max. 31 sensors/actuators with ASI slave interface

¹ Including ripple

Dimensional drawing

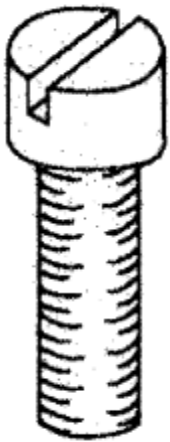


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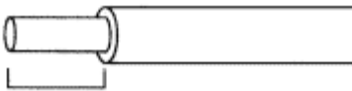
IBS ST 24 BK DIO 8/8/3-LK



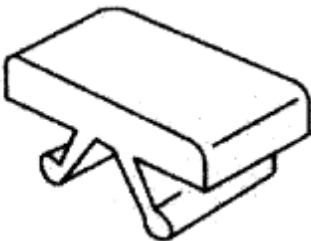
I/O bus terminal module, fiber-optic connection
8 dig. inputs, 8 dig. outputs, 500 mA,
I/Os also available via FLK connector
Design width 118



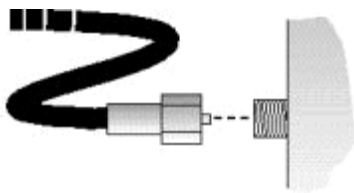
M 3



8



"...6"



(IEC)	rigid	flexible
[mm ²]	solid	stranded AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V ¹

Description	Type	Order No.	Pcs.	Pkt.
INTERBUS I/O Bus Terminal, IP 20 protection, consisting of				
- Terminal part with screw-clamp connection and electronics module	IBS ST 24 BK DIO 8/8/3-LK	27 51 21 8		1
- Terminal part with spring-clamp connection and electronics module	IBS ST ZF 24 BK DIO 8/8/3-LK	27 50 78 5		1

Accessories

Replacement electronic modules, without terminal part	IBS STME 24 BK DIO 8/8/3-LK	27 51 22 1		1
Replacement fuse	IBS TR5 1 AT	28 06 60 0		5
	IBS TR5 3,15 AF	27 19 25 0		5
Jumper, (only for screw-clamp terminals) separable, isolated comb spine				
Color: blue 80 pos.	EB 80-DIK BU	I _N : 26 A	27 15 94 0	5
red 80 pos.	EB 80-DIK RD	26 A	27 15 95 3	5

Technical data

Interfaces

INTERBUS remote bus (incoming/outgoing)	4 x F-SMA connector
INTERBUS-ST local bus branch	ST local bus connector

Power supply

Power supply voltage	- Nominal values	24 V DC
	- Allowable range	20 to 30 V DC incl. 3.6 V _{pp} ripple

Current consumption (without I/Os)

- Without connected ST I/O modules	150 mA
- For max. terminal configuration	450 mA
- Max. allowable total current consumption of all I/O modules	500 mA

Electrical isolation

Incoming remote bus/outgoing remote bus	500 V AC test voltage
Incoming remote bus/local bus	500 V AC test voltage

INTERBUS data

Max. distance to the next remote bus device	min. 50 m polymer fiber/min. 300 m HCS fiber
Max. no. of ST I/O modules	4 (observe allowable total current consumption)

Programmable functions

Programmable functions

Local bus branch disable	yes
Local bus reset	yes
Remote bus disable (outgoing remote bus)	yes
Remote bus reset	yes

Local diagnostics

Operating voltage display (U _L)	LED green
Power supply for each group (U _S)	LED green
Remote bus active (BA)	LED green
ST local bus error (E)	LED red
Remote bus connection OK (RC)	LED red
ST local bus branch disabled (LD)	LED green
Outgoing remote bus disabled (RD)	LED red
I/O errorr (E)	LED red

Local functions

Reconfiguration input	external switch connection option
-----------------------	-----------------------------------

Inputs

Number of inputs	8
Connection method	3-wire (signal, U _S , Gnd)
Input current per channel	typ. 5 mA
Allowable input voltage for	
– "1" signal	+ 15 to + 30 V DC
– "0" signal	– 30 to + 5 V DC
Signal change delay	typ. 3 ms

Outputs

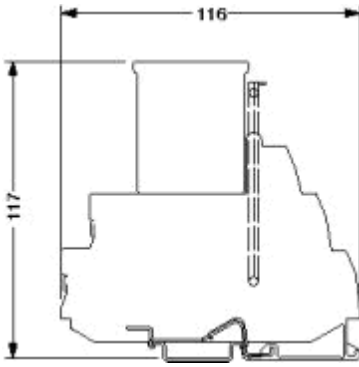
Number of outputs	2 x 4
Connection method	3-wire (signal, GND, PE)
Output current	
– Per output	500 mA
– Per group	2 A
– Per module	4 A
Allowable load per output	
– Resistive load	12 W (max. 150 Hz/48 Ohm)
– Inductive load	12 VA (max. 0.5 Hz at 1.3 H with 48 Ω)
– Lamp load	12 W

General data

Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Polarity reversal protection/short circuit protection	yes, electronic, per channel
Weight	690 g

¹ application submitted

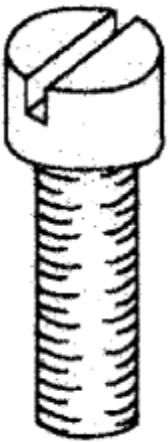
Dimensional drawing



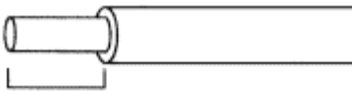
IBS ST 24 BK DIO 8/8/3-T



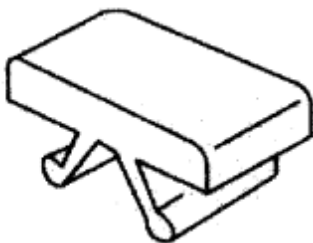
I/O bus terminal,
8 dig. inputs, 8 dig. outputs, 500 mA,
I/Os also available via FLK connector
Design width 118



M 3



8




"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V¹

Description	Type	Order No.	Pcs.	Pkt.
INTERBUS I/O Bus Terminal, IP 20 protection, consisting of				
– Terminal part with screw-clamp connection and electronics module	IBS ST 24 BK DIO 8/8/3-T	27 52 41 1	1	
– Terminal part with spring-clamp connection and electronics module	IBS ST ZF 24 BK DIO 8/8/3-T	27 50 79 8	1	
Accessories				
Replacement electronic modules, without terminal part	IBS STME 24 BK DIO 8/8/3-T	27 52 96 1	1	
Replacement fuse	IBS TR5 1 AT	28 06 60 0	5	
	IBS TR5 3,15 AF	27 19 25 0	5	
Jumper , (only for screw-clamp terminals) separable, isolated comb spine 				
Color: blue 80 pos.	EB 80-DIK BU	I _N : 26 A	27 15 94 0	5
red 80 pos.	EB 80-DIK RD	26 A	27 15 95 3	5
Technical data				
Interfaces				
INTERBUS remote bus (incoming/outgoing)	2 x 9-pos. D-SUB			
INTERBUS-ST local bus branch	ST local bus connector			
Power supply				
Power supply voltage	– Nominal values	24 V DC		
	– Allowable range	20 to 30 V DC incl. 3.6 V _{pp} ripple		
Current consumption (without I/Os)				
	– Without connected ST I/O modules	150 mA		
	– For max. terminal configuration	450 mA		
	– Max. allowable total current consumption of all I/O modules	500 mA		
Electrical isolation				
Incoming remote bus/outgoing remote bus	500 V AC test voltage			
Incoming remote bus/local bus	500 V AC test voltage			
INTERBUS data				
Max. distance to the next remote bus device	400 m			
Max. no. of ST I/O modules	4 (observe allowable total current consumption)			
Programmable functions				
Local bus branch disable	yes			
Local bus reset	yes			
Remote bus disable (outgoing remote bus)	yes			
Remote bus reset	yes			
Local diagnostics				
Operating voltage display (U _L)	LED yellow			
Power supply for each group (U _S)	LED green			
Remote bus active (BA)	LED green			

ST local bus error (E)	LED red
Remote bus connection OK (RC)	LED red
ST local bus branch disabled (LD)	LED green
Outgoing remote bus disabled (RD)	LED red
I/O errorr (E)	LED red

Local functions

Reconfiguration input	external switch connection option
-----------------------	-----------------------------------

Inputs

Number of inputs	8
Connection method	3-wire (signal, U _S , GND)
Input current per channel	typ. 5 mA
Allowable input voltage for	
– "1" signal	+ 15 to + 30 V DC
– "0" signal	– 30 to + 5 V DC
Signal change delay	typ. 3 ms

Outputs

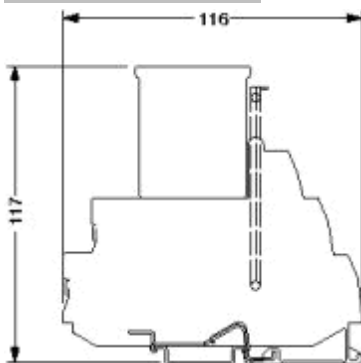
Number of outputs	2 x 4
Connection method	3-wire (signal, Gnd, PE)
Output current	
– Per output	500 mA
– Per group	2 A
– Per module	4 A
Allowable load per output	
– Resistive load	12 W (max. 150 Hz/48 Ohm)
– Inductive load	12 VA (max. 0.5 Hz at 1.3 H with 48 Ω)
– Lamp load	12 W

General data

Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Polarity reversal protection/short circuit protection	yes, electronic, per channel
Weight	690 g

¹ application submitted

Dimensional drawing

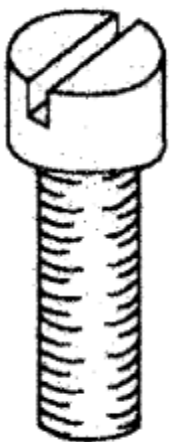


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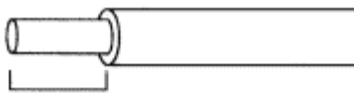
IBS ST 24 BK LB-T



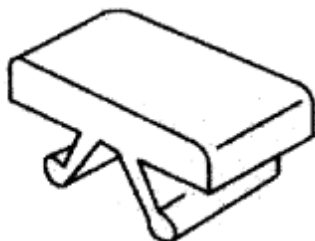
Bus terminal module INTERBUS, 24 V DC, 9-pos. D-SUB with additional local bus branch, 15-pos. D-SUB
Design width 81



M 3



8



"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V¹

Description	Type	Order No.	Pcs. Pkt.
INTERBUS bus terminal , IP 20 protection, consisting of			
– Terminal part with screw-clamp connection and electronics module	IBS ST 24 BK LB-T	27 53 23 2	1
– Terminal part with spring-clamp connection and electronics module	IBS ST ZF 24 BK LB-T	27 50 77 2	1
Accessories			
Replacement electronics module, without terminal part	IBS STME 24 BK LB-T	27 53 24 5	1
Replacement fuse	IBS TR5 1 AT	28 06 60 0	5
Technical data			
Interfaces			
INTERBUS remote bus (incoming/outgoing)	2 x 9-pos. D-SUB		
INTERBUS-ST local bus	ST local bus connector		
INTERBUS-ST local bus branch	15-pos. D-SUB		
Power supply			
Power supply voltage			
– Nominal values	24 V DC		
– Ripple	3.6 V _{pp}		
– Allowable range	20 to 30 V DC (including ripple)		
Current consumption			
– Without connected ST I/O modules	150 mA		
– For max. terminal configuration	650 mA		
– Max. allowable total current consumption of all I/O modules	800 mA		
Electrical isolation			
Incoming remote bus/outgoing remote bus	500 V AC test voltage		
Incoming remote bus/ST local bus	500 V AC test voltage		
Incoming remote bus/local bus	500 V AC test voltage		
Power supply voltage/ST local bus	500 V AC test voltage		
INTERBUS data			
Max. distance to the next remote bus device	400 m		
Max. distance to the next local bus device	1.5 m		
Max. no. of ST I/O modules	8 (observe allowable total current consumption)		
Programmable functions			
Local bus branch disable	yes, both local buses can be disabled separately		
Local bus reset	yes, both local buses		
Remote bus disable (outgoing remote bus)	yes		
Remote bus reset	yes		
Local diagnostics			
Operating voltage display (U _L)	LED green		
Remote bus active (BA)	LED green		
ST local bus error (E1)	LED red		

Local bus error (E2)	LED red
Remote bus connection OK (RC)	LED green
ST local bus branch disabled (LD1)	LED red
Local bus branch disabled (LD2)	LED red
Outgoing remote bus disabled RD)	LED red

Local functions

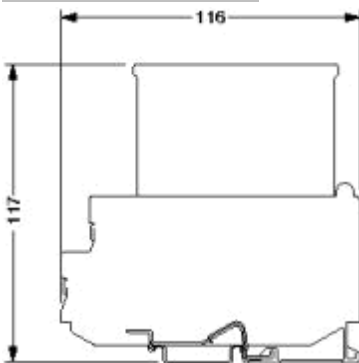
Reconfiguration input	2 internal switches and connection option for 2 external switches
Alarm output	relay contact, 30 V DC / 0.1-0.5 A

General data

Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	470 g

¹ application submitted

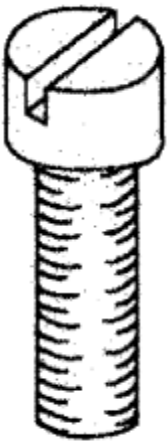
Dimensional drawing



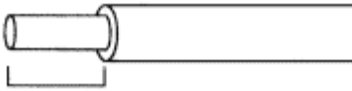
IBS ST 24 BK RB-LK DIO 8/8/3-LK



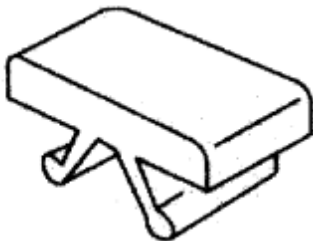
I/O bus terminal module, fiber-optic connection,
8 dig. inputs, 8 dig. outputs, 500 mA,
with additional fiber-optic remote bus branch
Design width 118



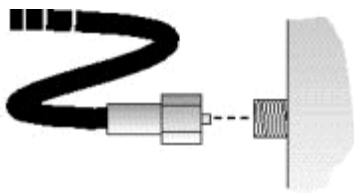
M 3



8



"...6"



(IEC)	rigid	flexible
[mm ²]	solid	stranded AWG


Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V¹

Description	Type	Order No.	Pcs. Pkt.
INTERBUS I/O Bus Terminal, IP 20 protection, consisting of			
- Terminal part with screw-clamp connection and electronics module	IBS ST 24 BK RB-LK DIO 8/8/3-LK	27 21 66 2	1
- Terminal part with spring-clamp connection and electronics module	IBS ST ZF 24 BK RB-LK DIO 8/8/3-LK	27 26 05 2	1

Accessories

Replacement electronic modules, without terminal part	IBS STME 24 BK RB-LK DIO 8/8/3-LK	27 21 95 0	1
Replacement fuse	IBS TR5 1 AT	28 06 60 0	5
	IBS TR5 3,15 AF	27 19 25 0	5
Jumper, (only for screw-clamp terminals) separable, isolated comb spine			
Color: blue 80 pos.	EB 80-DIK BU	I _N : 26 A 27 15 94 0	5
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5

Technical data

Interfaces

INTERBUS remote bus (incoming/outgoing)	4 x F-SMA connector
INTERBUS-ST local bus branch	ST local bus connector
INTERBUS remote bus branch	2 x F-SMA connector

Power supply

Power supply voltage	- Nominal values	24 V DC
	- Allowable range	20 to 30 V DC incl. 3.6 V _{pp} ripple

Current consumption (without I/Os)

- Without connected ST I/O modules	150 mA
- For max. terminal configuration	500 mA
- Max. allowable total current consumption of all I/O modules	500 mA

Electrical isolation

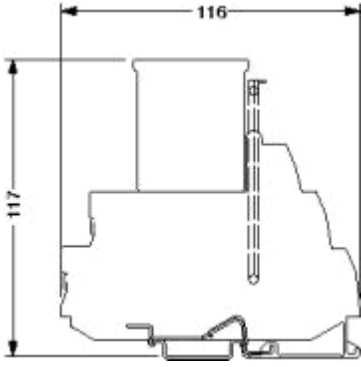
Incoming remote bus/outgoing remote bus	500 V AC test voltage
Incoming remote bus/local bus	500 V AC test voltage

INTERBUS data

Max. distance to the next remote bus device	min. 50 m polymer fiber/min. 300 m HCS fiber
---	--

Max. no. of ST I/O modules	4 (observe allowable total current consumption)
Programmable functions	
Local bus branch disable	yes
Local bus reset	yes
Remote bus disable (outgoing remote bus)	yes
Remote bus branch disable	yes
Remote bus reset	yes
Local diagnostics	
Operating voltage display (U _L)	LED green
Power supply for each group (U _S)	LED green
Remote bus active (BA)	LED green
ST local bus error (E)	LED red
Remote bus connection OK (RC)	LED red
ST local bus branch disabled (LD)	LED green
Outgoing remote bus disabled (RD)	LED red
Remote bus branch disabled (LD)	LED red
I/O errorr (E)	LED red
Local functions	
Reconfiguration input	external switch connection option
Inputs	
Number of inputs	8
Connection method	3-wire (signal, U _S , Gnd)
Input current per channel	typ. 5 mA
Allowable input voltage for	
– "1" signal	+ 15 to + 30 V DC
– "0" signal	– 30 to + 5 V DC
Signal change delay	typ. 3 ms
Outputs	
Number of outputs	2 x 4
Connection method	3-wire (signal, GND, PE)
Output current	
– Per output	500 mA
– Per group	2 A
– Per module	4 A
Allowable load per output	
– Resistive load	12 W (max. 150 Hz/48 Ohm)
– Inductive load	12 VA (max. 0.5 Hz at 1.3 H with 48 Ω)
– Lamp load	12 W
General data	
Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Polarity reversal protection/short circuit protection	yes, electronic, per channel
Weight	710 g
¹ application submitted	

Dimensional drawing

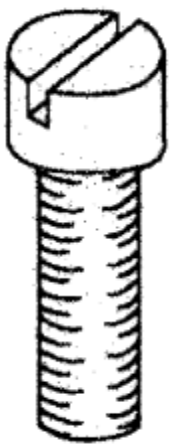


IBS ST 24 BK RB-T

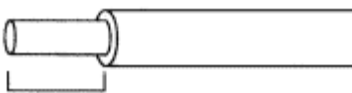


Bus terminal module INTERBUS, 24 V DC, 9-pos. D-SUB with additional local bus branch, 9-pos. D-SUB

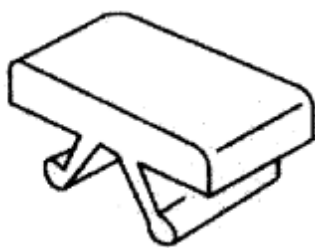
Design width 81



M 3



8



"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V ¹

Description	Type	Order No.	Pcs. Pkt.
INTERBUS bus terminal, IP 20 protection, consisting of			
– Terminal part with screw-clamp connection and electronics module	IBS ST 24 BK RB-T	27 53 50 4	1
– Terminal part with spring-clamp connection and electronics module	IBS ST ZF 24 BK RB-T	27 50 76 9	1
Accessories			
Replacement electronics module, without terminal part	IBS STME 24 BK RB-T	27 52 93 2	1
Replacement fuse	IBS TR5 1 AT	28 06 60 0	5
Technical data			
Interfaces			
INTERBUS remote bus (incoming/outgoing)	2 x 9-pos. D-SUB		
INTERBUS-ST local bus	ST local bus connector		
INTERBUS-ST local bus branch			
INTERBUS remote bus branch	9-pin D-SUB		
Power supply			
Power supply voltage			
– Nominal values	24 V DC		
– Ripple	3.6 V _{pp}		
– Allowable range	20 to 30 V DC (including ripple)		
Current consumption			
– Without connected ST I/O modules	150 mA		
– For max. terminal configuration	650 mA		
– Max. allowable total current consumption of all I/O modules	800 mA		
Electrical isolation			
Incoming remote bus/outgoing remote bus	500 V AC test voltage		
Incoming remote bus/ST local bus	500 V AC test voltage		
Incoming remote bus/remote bus branch	500 V AC test voltage		
Power supply voltage/ST local bus	500 V AC test voltage		
INTERBUS data			
Max. distance to the next remote bus device	400 m		
Max. no. of ST I/O modules	8 (observe allowable total current consumption)		
Programmable functions			
Local bus branch disable	yes		
Local bus reset	yes		
Remote bus disable (outgoing remote bus)	yes		
Remote bus reset	yes		
Local diagnostics			
Operating voltage display (U _L)	LED green		
Remote bus active (BA)	LED green		

Remote bus active (BA)	LED green
ST local bus error (E1)	LED red
Local bus error (E2)	LED red
Remote bus connection OK (RC)	LED green
ST local bus branch disabled (LD1)	LED red
Local bus branch disabled (LD2)	
Outgoing remote bus disabled (RD)	LED red
Remote bus branch disabled (RD2)	LED red

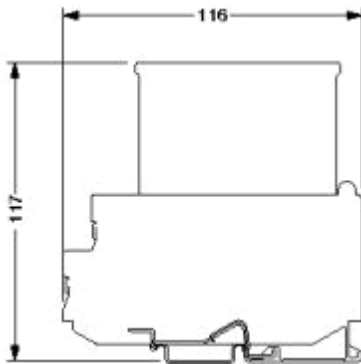
Local functions

Reconfiguration input	2 internal switches and connection option for 2 external switches
Alarm output	relay contact, 30 V DC / 0.1-0.5 A

General data

Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	470 g

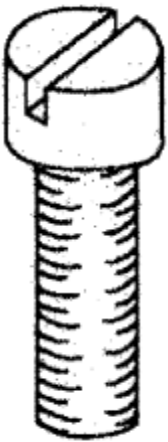
Dimensional drawing



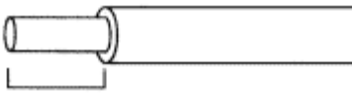
IBS ST 24 BK RB-T DIO 8/8/3-LK



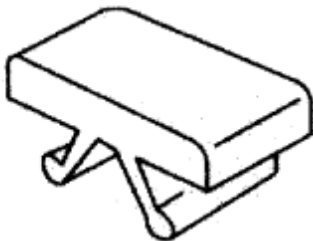
I/O bus terminal module, fiber-optic connection,
8 dig. inputs, 8 dig. outputs, 500 mA,
with additional remote bus branch
Design width 118



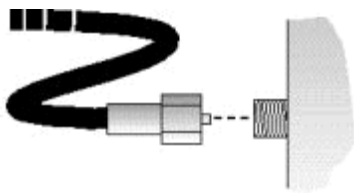
M 3



8



"...6"



(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG


Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V¹

Description	Type	Order No.	Pcs. Pkt.
INTERBUS I/O Bus Terminal, IP 20 protection, consisting of			
- Terminal part with screw-clamp connection and electronics module	IBS ST 24 BK RB-T DIO 8/8/3-LK	27 23 45 3	1
- Terminal part with spring-clamp connection and electronics module	IBS ST ZF 24 BK RB-T DIO 8/8/3-LK	27 26 04 9	1

Accessories

Replacement electronic modules, without terminal part	IBS STME 24 BK RB-T DIO 8/8/3-LK	27 25 89 1	1
Replacement fuse	IBS TR5 1 AT	28 06 60 0	5
	IBS TR5 3,15 AF	27 19 25 0	5
Jumper, (only for screw-clamp terminals) separable, isolated comb spine			
Color: blue 80 pos.	EB 80-DIK BU	I _N : 26 A 27 15 94 0	5
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5

Technical data

Interfaces

INTERBUS remote bus (incoming/outgoing)	4 x F-SMA connector
INTERBUS-ST local bus branch	ST local bus connector
INTERBUS remote bus branch	9-pos. D-SUB

Power supply

Power supply voltage	- Nominal values	24 V DC
	- Allowable values	20 to 30 V DC incl. 3.6 V _{pp} ripple

Current consumption (without I/Os)

- Without connected ST I/O modules	150 mA
- For max. terminal configuration	500 mA
- Max. allowable total current consumption of all I/O modules	500 mA

Electrical isolation

Incoming remote bus/outgoing remote bus	500 V AC test voltage
Incoming remote bus/local bus	500 V AC test voltage

INTERBUS data

Max. distance to the next remote bus device	min. 50 m polymer fiber/min. 300 m HCS fiber
---	--

Max. no. of ST I/O modules 4 (observe allowable total current consumption)

Programmable functions

Local bus branch disable yes

Local bus reset yes

Remote bus disable (outgoing remote bus) yes

Remote bus branch disable yes

Remote bus reset yes

Local diagnostics

Operating voltage display (U_L) LED green

Power supply for each group (U_S) LED green

Remote bus active (BA) LED green

ST local bus error (E) LED red

Remote bus connection OK (RC) LED red

ST local bus branch disabled (LD) LED green

Outgoing remote bus disabled (RD) LED red

Remote bus branch disabled (LD) LED red

I/O errorr (E) LED red

Local functions

Reconfiguration input external switch connection option

Inputs

Number of inputs 8

Connection method 3-wire (signal, U_S, Gnd)

Input current per channel typ. 5 mA

Allowable input voltage for – "1" signal + 15 to + 30 V DC
– "0" signal – 30 to + 5 V DC

Signal change delay typ. 3 ms

Outputs

Number of outputs 2 x 4

Connection method 3-wire (signal, GND, PE)

Output current – Per output 500 mA

– Per group 2 A

– Per module 4 A

Allowable load per output – Resistive load 12 W (max. 150 Hz/48 Ohm)

– Inductive load 12 VA (max. 0.5 Hz at 1.3 H with 48 Ω)

– Lamp load 12 W

General data

Operating temperature range 0 °C to + 55 °C

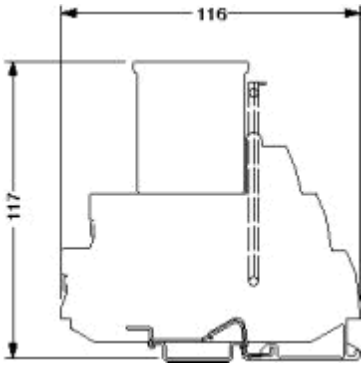
Degree of protection IP 20

Polarity reversal protection/short circuit protection yes, electronic, per channel

Weight 710 g

¹ application submitted

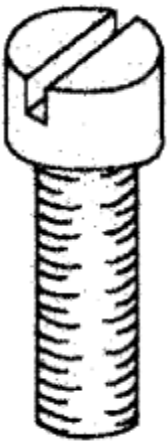
Dimensional drawing



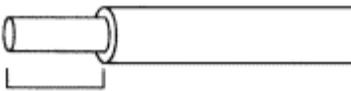
IB ST 24 CNT



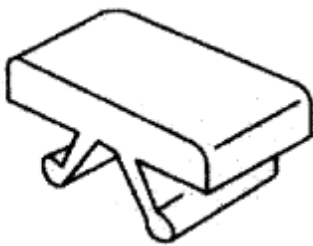
4 counting inputs, 24 V or 5 V DC signal level



M 3



8




"...6"

Design width 118

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

Description	Type	Order No.	Pcs.	Pkt.
Counter module, IP 20 protection, consisting of				
– Terminal part with screw clamp connection and electronics module	IBS ST 24 CNT	27 50 40 0	1	
– Terminal part with spring clamp connection and electronics module	IBS ST ZF 24 CNT	27 50 94 7	1	
Accessories				
Replacement electronics module, without terminal part	IBS STME 24 CNT	27 51 61 6	1	
User manual, for counter module,	German English	IB ST 24 CNT UM	27 21 39 0	1
Replacement fuse	IBS TR5 4A	27 53 46 5	5	
Jumper, (only for screw connection) separable, isolated comb spine				
Color: blue 80 pos.	EB 80-DIK BU	I_N : 26 A	27 15 94 0	5
red 80 pos.	EB 80-DIK RD	26 A	27 15 95 3	5

Technical data**Interfaces**

INTERBUS-ST local bus ST local bus connector

Power supplyPower supply voltage (U_S)

- Nominal values 24 V DC
- Ripple 3.6 V_{pp}
- Allowable range 20 - 30 V DC

Current consumption from the local bus 200 mA

Local diagnostics

Operating voltage display (U_L) LED green

Power supply voltage each group (U_S) LED green

ST local bus connection OK (CC) LED green

Bus active (BA) LED green

PCP communication active (TR) LED green

I/O error (E) LED red

Counter input active (SRC) LED yellow

Control input active (GATE) LED yellow

Signal output active (OUT) LED yellow

Diagnostics messages to control system

Power failure yes

Short circuit, overload of an output no

Blown fuse yes

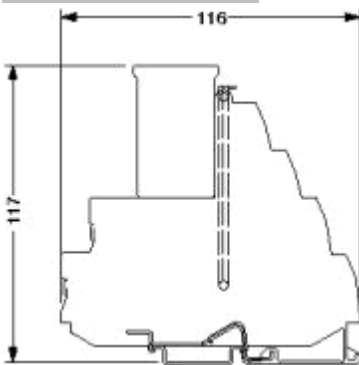
Counter inputs/outputs

Number of inputs/outputs 4 counters (16 bit)

Operating modes event count. frequency measurement. time

Operating mode	<p> current count, frequency measurement, and measurement, pulse generation </p>
Input frequency	0 - 80 kHz (max. 300 kHz)
Input current	typ. 11 mA (24 V input); typ. 8 mA (5 V input)
Connection method of outputs	2 or 3-wire
Output voltage	$U_S - 0.5 \text{ V DC} \leq U_{\text{OUT LED}} \leq U_S$
Allowable output current	<p> 500 mA per output (to 300 Hz) 250 mA per output (to 10 kHz) 500 mA per initiator </p>
Polarity reversal protection	yes
Short-circuit protection of outputs	electronic
Electrical isolation	
- Module electronics/inputs/outputs	500 V AC
General data	
Operating temperature range	-25 °C to +55 °C
Degree of protection	IP 20
Weight	660 g

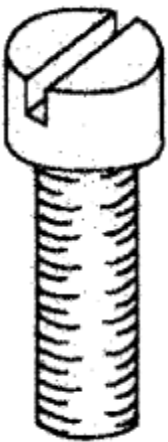
Dimensional drawing



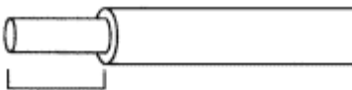
IB ST 24 DIO 8/8/3-2A



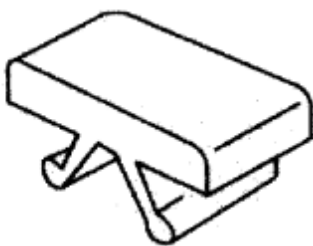
8 inputs, 24 V DC,
8 outputs, 24 V DC, 2 A
Design width 118



M3



8




"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

–Screw-clamp	0.2-2.5	0.2-2.5	24-12
–Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V 1

Description	Type	Order No.	Pcs.	Pkt.
Digital input/output module, IP 20 protection, consisting of				
– Terminal part with screw-clamp connection and electronic module	IB ST 24 DIO 8/8/3-2A	27 53 70 8		1
– Terminal part with spring-clamp connection and electronic module	IB ST ZF 24 DIO 8/8/3-2A	27 50 66 2		1
Accessories				
Replacement electronic module, without terminal part	IB STME 24 DIO 8/8/3-2A	27 52 94 5		1
Replacement fuse	IBS TR5 4AF	27 53 46 5		5
Jumper , (only for screw-clamp terminals) separable, isolated comb spine				
Color: blue 80 pos.	EB 80-DIK BU	I_N : 26 A 27 15 94 0		5
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3		5

Technical data**Interfaces**

INTERBUS-ST local bus ST local bus connector

Power supply

Power supply voltage

- Nominal values 24 V DC
- Ripple 3.6 V_{pp}
- Allowable range 20 to 30 V DC (including ripple)

Current consumption

- From the ST local bus 150 mA

Local diagnostics

Operating voltage display (U_L) LED green

Power supply for each group (U_S) LED green

ST local bus connection OK (CC) LED green

Bus active (BA) LED green

I/O error per group (E) LED red

Fuse blown per group LED green

Diagnostics message via the bus

Blown fuse yes (see data sheet)

Power failure no

Short circuit or overload of an output yes (see data sheet)

Inputs

Number of inputs 8

Connection method 3-wire (signal, U_S, GND)

Input current per channel typ. 5 mA

Allowable input voltage for

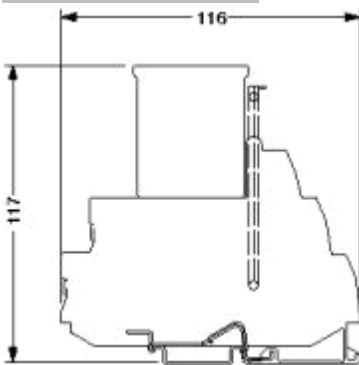
- "1" signal + 13 to + 30 V DC
- "0" signal – 30 to + 5 V DC

Signal change delay typ. 3 ms

Electrical isolation	
– Module electronics/inputs	500 V AC test voltage
Outputs	
Number of outputs	2 x 4
Connection method	3-wire (signal, GND, PE)
Output voltage	$U_S - 1.5 \text{ V}$
Output current	
– Per output	2 A
– Per group	4 A
– Per module	16 A
Allowable load per output	
– Resistive load	48 W (max. 150 Hz)
– Inductive load	48 VA (max. 5 Hz at 1.2 H with 12 Ohm)
– Lamp load	24 W
Polarity reversal protection	with inverse-parallel diode and fuse
Short circuit protection	with fuse
Electrical isolation	
– bus electronics/I/O	500 V AC test voltage
General data	
Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	715 g

¹ application submitted

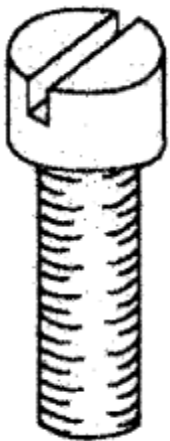
Dimensional drawing



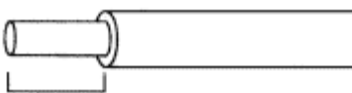
IB ST 24 DIO 8/8/3-2A-S



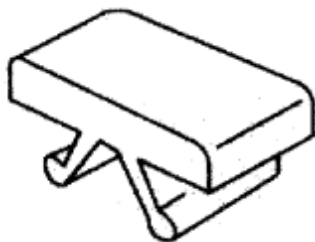
8 inputs, 24 V DC,
 8 outputs, 24 V DC, 2 A,
 special functions for bus-independent
 local addressing of outputs
 Design width 118



M3



8




"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V 1

Description	Type	Order No.	Pcs.	Pkt.
Digital input/output module, IP 20 protection, consisting of				
– Terminal part with screw-clamp connection and electronic module	IB ST 24 DIO 8/8/3-2A-S	27 53 44 9		1
– Terminal part with spring-clamp connection and electronic module	IB ST ZF 24 DIO 8/8/3-2A-S	27 26 02 3		1
Accessories				
Replacement electronics module, without terminal part	IB STME 24 DIO 8/8/3-2A-S	27 52 95 8		1
Replacement fuse	IBS TR5 4AF	27 53 46 5		5
Jumper, (only for screw-clamp terminals) separable, isolated comb spine				
Color: blue 80 pos.	EB 80-DIK BU	I_N : 26 A 27 15 94 0		5
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3		5

Technical data**Interfaces**

INTERBUS-ST local bus ST local bus connector

Power supply

Power supply voltage

- Nominal values 24 V DC
- Ripple 3.6 V_{pp}
- Allowable range 20 to 30 V DC (including ripple)

Current consumption

- From the ST local bus 150 mA

Local diagnostics

Operating voltage display (U_L) LED green

Power supply for each group (U_S) LED green

ST local bus connection OK (CC) LED green

Bus active (BA) LED green

I/O error per group (E) LED red

Fuse blown per group LED green

Diagnostics message via the bus

Blown fuse yes (see data sheet)

Power failure no

Short circuit or overload of an output yes (see data sheet)

Inputs

Number of inputs 8

Connection method 3-wire (signal, U_S, GND)

Input current per channel typ. 5 mA

Allowable input voltage for

- "1" signal + 13 to + 30 V DC
- "0" signal – 30 to + 5 V DC

Signal change delay typ. 3 ms

Electrical isolation

– Module electronics/inputs 500 V AC test voltage

Outputs

Number of outputs 2 x 4

Connection method 3-wire (signal, GND, PE)

Output voltage $U_S - 1.5 \text{ V}$

Output current

– Per output 2 A

– Per group 4 A

– Per module 16 A

Allowable load per output

– Resistive load 48 W (max. 150 Hz)

– Inductive load 48 VA (max. 5 Hz at 1.2 H with 12 Ω)

– Lamp load 24 W

Polarity reversal protection with inverse-parallel diode and fuse

Short circuit protection with fuse

Electrical isolation

– bus electronics/I/O 500 V AC test voltage

General data

Operating temperature range 0 °C to + 55 °C

Degree of protection IP 20

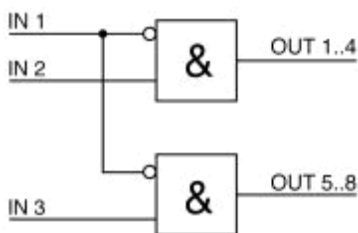
Weight 715 g

¹ application submitted

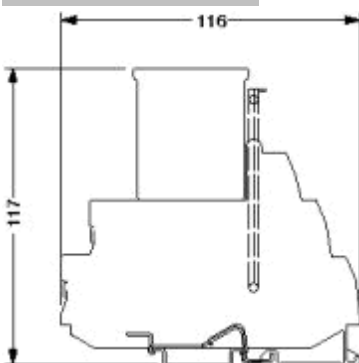
Special Functions of the IB ST 24 DIO 8/8/3-2A-S

Inputs 1 to 3 of the IB ST 24 DIO8/8/3-2A-S module have special functions.

Input 1 acts as a release signal for the special function. If input 1 is "Low", the out-modules puts 1 to 4 take on the signal from input 2 and the outputs 5 to 8 the signal from input 3. This procedure takes place independently of the address signals of the bus. If input 1 is reset to "High", the outputs take on the condition defined by the bus.

**Basic diagram for special functions**

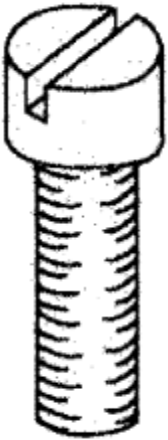
Application example: in plants in which it must be possible to change output signals on site with inputs (e.g., presses), this module is the right choice. In the event of a fault, an output group can be set or reset independently of the bus.

Dimensional drawing

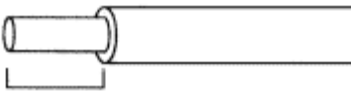
IB ST 24 DIO 8/8R/3



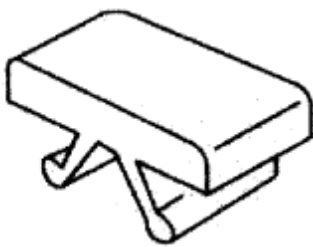
8 inputs, 24 V DC,
8 relay PDT outputs
Design width 118



M3



8




"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V 1

Description	Type	Order No.	Pcs. Pkt.
Digital input/output module, IP 20 protection, consisting of			
– Terminal part with screw-clamp connection and electronic module	IB ST 24 DIO 8/8R/3	27 51 84 9	1
– Terminal part with spring-clamp connection and electronic module	IB ST ZF 24 DIO 8/8R/3	27 26 01 0	1
Accessories			
Replacement electronic module, without terminal part	IB STME 24 DIO 8/8R/3	27 51 83 6	1
Replacement fuse	IBS TR5 0,4AT	27 53 47 8	5
Jumper , (only for screw-clamp terminals) separable, isolated comb spine 			
Color: blue 80 pos.	EB 80-DIK BU	I _N : 26 A 27 15 94 0	5
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5

Technical data**Interfaces**

INTERBUS-ST local bus ST local bus connector

Power supply

Power supply voltage

- Nominal values 24 V DC
- Ripple 3.6 V_{pp}
- Allowable range 20 to 30 V DC (including ripple)

Current consumption

- From the ST local bus 100 mA

Local diagnostics

Operating voltage display (U_L) LED green

Power supply for each group (U_S) LED green

ST local bus connection OK (CC) LED green

Bus active (BA) LED green

Fuse blown per group LED green

Diagnostics message via the bus

Blown fuse yes

Power failure yes

Short circuit or overload of an output no

Inputs

Number of inputs 8

Connection method 3-wire (signal, U_S, GND)

Input current per channel typ. 5 mA

Allowable input voltage for

- "1" signal + 13 to + 30 V DC
- "0" signal – 30 to + 5 V DC

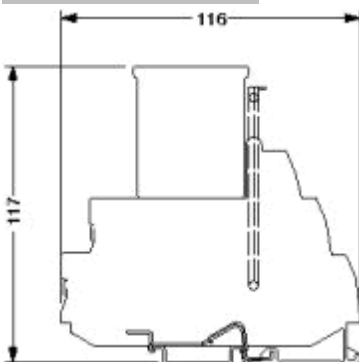
Signal change delay typ. 3 ms

Electrical isolation

Electrical isolation	
– Module electronics/inputs	500 V AC test voltage
Outputs	
Number of outputs	8 relay SPDT
Connection method	3-wire
Output voltage	12 to 250 V AC/DC
Output current	
– Per output	3 A AC, 3 A at 24 V DC, 0.8 at 60 V DC
– Min. load current	100 mA
Allowable load per output	
Polarity reversal protection	with inverse-parallel diode and fuse
Short circuit protection	with fuse (initiator supply)
Contact material	AgCdO
Mechanical life	20 x 10 ⁶ cycles
Electrical isolation	
– bus electronics/I/O	500 V AC test voltage
– between the relay contacts	1500 V AC test voltage
General data	
Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	770 g

¹ application submitted

Dimensional drawing

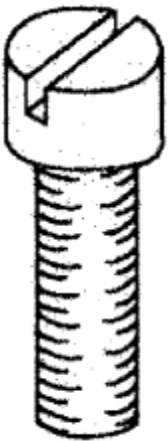


Courtesy of Steven Engineering, Inc. • 230 Ryan Way, South San Francisco, CA, 94080-6370 • Main Office: (650) 588-9200 • Outside Local Area: (800) 258-9200 • www.stevenengineering.com

IB ST 120 DI 16/3



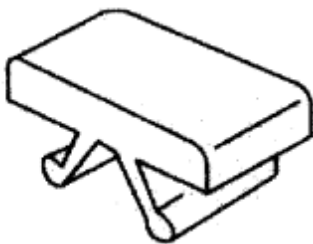
16 inputs, 120 V AC, 3-wire connections
Design width 118



M3



8




"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V 1

Description	Type	Order No.	Pcs. Pkt.
Digital input module , IP 20 protection, consisting of			
– Terminal part with screw-clamp connection and electronic module	IB ST 120 DI 16/3	27 19 27 6	1
– Terminal part with spring-clamp connection and electronic module	IB ST ZF 120 DI 16/3	27 26 09 4	1
Accessories			
Replacement electronics module , without terminal part	IB STME 120 DI 16/3	27 19 29 2	1
Replacement fuse	SI 5X20 6,3 AFF DIN 41662	27 26 10 4	1
Jumper , (only for screw-clamp terminals) separable, isolated comb spine 			
Color: blue 80 pos.	EB 80-DIK BU	I_N : 26 A 27 15 94 0	5
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5

Technical data**Interfaces**

INTERBUS-ST local bus ST local bus connector

Power supply

Power supply voltage

- Nominal values 120 V AC
- Allowable range 108 to 135 V AC

Current consumption

- From ST local bus 100 mA

Local diagnostics

Operating voltage display (U_L) LED green

Power supply voltage each group (U_S) LED green

ST local bus connection OK (CC) LED green

Bus active (BA) LED green

Status display per input LED yellow

Diagnostics message via the bus

Blown fuse no

Power failure no

Short circuit, overload of an initiator power supply no

Inputs

Number of inputs 16

Number of groups 1

Connection method 3-wire (signal, L, N)

Input current per channel 6 mA (60 Hz)

Allowable input voltage for

- "1" signal +77 to +135 V AC
- "0" signal 0 to +40 V AC

Signal change response time 30 ms

Electrical isolation

- Bus electronics/inputs 1500 V AC test voltage

Short circuit protection of the initiator power supply with fuse

General data

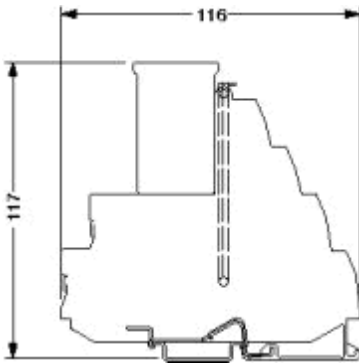
Operating temperature range 0 °C to + 55 °C

Degree of protection IP 20

Weight 674 g

¹ application submitted

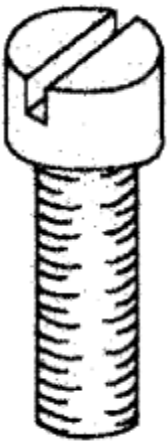
Dimensional drawing



IB ST 230 DI 16/3



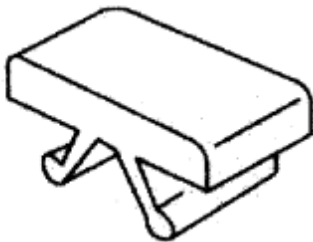
16 inputs, 230 V AC, 3-wire connections
Design width 118



M3



8




"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V 1

Description	Type	Order No.	Pcs. Pkt.
Digital input module , IP 20 protection, consisting of			
– Terminal part with screw-clamp connection and electronic module	IB ST 230 DI 16/3	27 21 09 9	1
– Terminal part with spring-clamp connection and electronic module	IB ST ZF 230 DI 16/3	27 21 29 3	1
Accessories			
Replacement electronics module , without terminal part	IB STME 230 DI 16/3	27 21 12 5	1
Replacement fuse	SI 5X20 6,3 AFF DIN 41662	27 26 10 4	1
Jumper , (only for screw-clamp terminals) separable, isolated comb spine			
Color: blue 80 pos.	EB 80-DIK BU	I_N : 26 A 27 15 94 0	5
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5
Technical data			
Interfaces			
INTERBUS-ST local bus	ST local bus connector		
Power supply			
Power supply voltage			
– Nominal values	230 V AC		
– Allowable range	210 to 253 V AC		
Current consumption			
– From the ST local bus	100 mA		
Local diagnostics			
Operating voltage display (U_L)	LED green		
Power supply voltage each group (U_S)	LED green		
ST local bus connection OK (CC)	LED green		
Bus active (BA)	LED green		
Status display per input	LED yellow		
Diagnostics message via the bus			
Blown fuse	no		
Power failure	no		
Short circuit, overload of an initiator power supply	no		
Inputs			
Number of inputs	16		
Number of groups	1		
Connection method	3-wire (signal, L, N)		
Input current per channel	7 mA (50 Hz)		
Allowable input voltage for			
– "1" signal	+170 to +253 V AC		
– "0" signal	0 to + 66 V AC		
Signal change response time	30 ms		
Electrical isolation			
– Bus electronics/inputs	1500 V AC test voltage		

Short circuit protection of the initiator power supply with fuse

General data

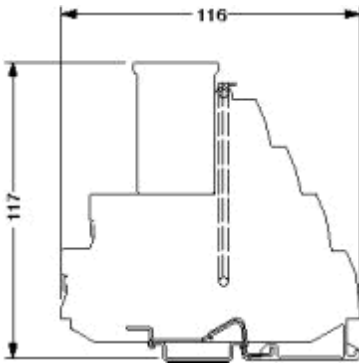
Operating temperature range 0 °C to + 55 °C

Degree of protection IP 20

Weight 670 g

¹ application submitted

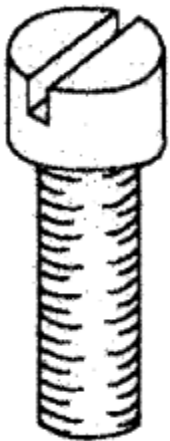
Dimensional drawing



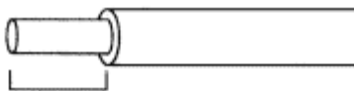
IB ST 24 DI 16/4



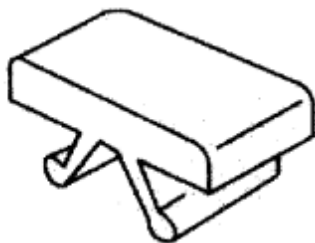
16 inputs, 24 V DC, 4-wire connections
Design width 118



M3



8




"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V 1

Description	Type	Order No.	Pcs. Pkt.
Digital input module, IP 20 protection, consisting of			
– Terminal part with screw-clamp connection and electronic module	IB ST 24 DI 16/4	27 54 33 8	1
– Terminal part with spring-clamp connection and electronic module	IB ST ZF 24 DI 16/4	27 50 68 8	1
Accessories			
Replacement electronics module, without terminal part	IB STME 24 DI 16/4	27 54 39 6	1
Jumper , (only for screw-clamp terminals) separable, isolated comb spine 			
Color: blue 80 pos.	EB 80-DIK BU	I_N : 26 A 27 15 94 0	5
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5

Technical data**Interfaces**

INTERBUS-ST local bus ST local bus connector

Power supply

Power supply voltage

- Nominal values 24 V DC
- Ripple 3.6 V_{pp}
- Allowable range 20 to 30 V DC (including ripple)

Current consumption

- From ST local bus 100 mA

Local diagnostics

- Operating voltage display (U_L) LED green
- Power supply voltage each group (U_S) LED green
- ST local bus connection OK (CC) LED green
- Bus active (BA) LED green
- I/O error per group (E) LED red
- Status display per input LED yellow

Diagnostics message via the bus

- Blown fuse no fuse
- Power failure yes
- Short circuit, overload of an initiator power supply yes

Inputs

- Number of inputs 16
- Number of groups 4 x 4 channels
- Connection method 4-wire (signal, U_S, GND, PE)
- Input current per channel typ. 7 mA at 24 V DC
- Allowable input voltage for
 - "1" signal +13 to +30 V DC
 - "0" signal -30 to +5 V DC
- Signal change response time typ. 3 ms
- Electrical isolation

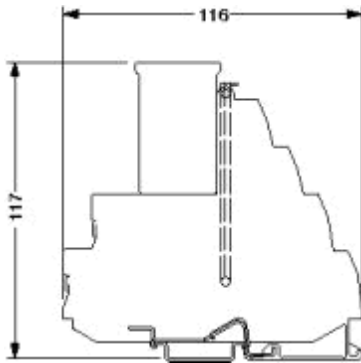
– Bus electronics/inputs	500 V AC test voltage
– Between channel groups	500 V AC test voltage
Polarity reversal protection	with inverse-parallel diode
Short circuit protection of the initiator power supply	electronic, per channel

General data

Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	771 g

¹ application submitted

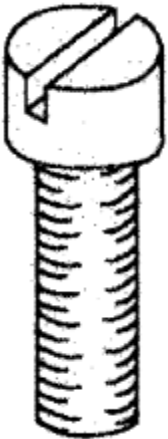
Dimensional drawing



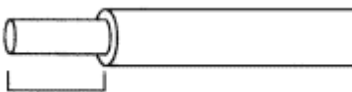
IB ST 48 DI 16/2



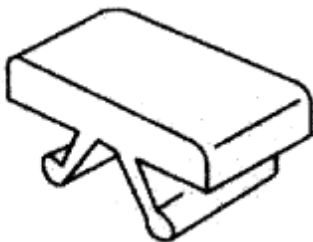
16 inputs, 48 V DC, 2-wire connections
Design width 118



M3



8




"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V 1

Description	Type	Order No.	Pcs. Pkt.
Digital input module, IP 20 protection, consisting of			
– Terminal part with screw-clamp connection and electronic module	IB ST 48 DI 16/2	27 21 10 9	1
– Terminal part with spring-clamp connection and electronic module	IB ST ZF 48 DI 16/2	27 26 08 1	1
Accessories			
Replacement electronics module, without terminal part	IB STME 48 DI 16/2	27 21 05 7	1
Replacement fuse	IBS TR5 1AT	28 06 60 0	5
Jumper , (only for screw-clamp terminals) separable, isolated comb spine 			
Color: blue 80 pos.	EB 80-DIK BU	I_N : 26 A 27 15 94 0	5
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5

Technical data**Interfaces**

INTERBUS-ST local bus ST local bus connector

Power supply

Power supply voltage

- Nominal value 48 V DC
- Ripple 3.6 V_{pp}
- Allowable range 36 to 60 V DC (including ripple)

Current consumption

- From ST local bus 100 mA

Local diagnostics

Operating voltage display (U_L) LED green

Power supply voltage each group (U_S) LED green

ST local bus connection OK (CC) LED green

Bus active (BA) LED green

Status display per input LED yellow

Diagnostics message via the bus

Blown fuse yes

Power failure yes

Short circuit, overload of an initiator power supply yes, with fuse blown

Inputs

Number of inputs 16

Number of groups 1

Connection method 2-wire (signal, U_S)

Input current per channel 7 mA

Allowable input voltage for

- "1" signal +30 to +60 V DC
- "0" signal 0 to +10 V DC

Signal change response time 3 ms

Electrical isolation

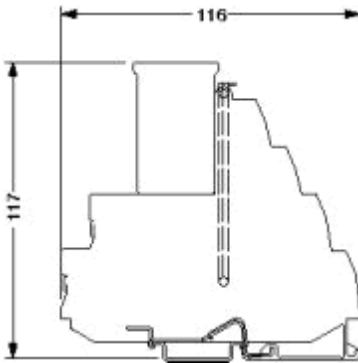
Electrical isolation

– Bus electronics/inputs	500 V AC test voltage
Polarity reversal protection	with inverse-parallel diode and fuse
Short circuit protection of the initiator power supply	with fuse

General data

Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	600 g

¹ application submitted

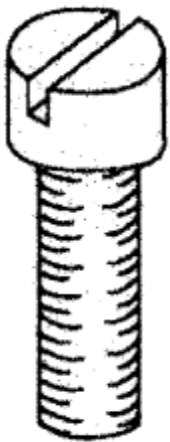
Dimensional drawing

IB ST 24 DO 16/3

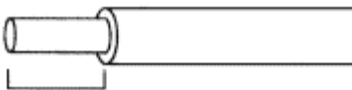


16 outputs, 24 V DC, 500 mA,
3-wire connections

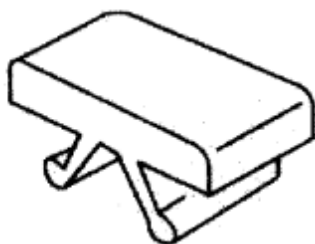
Design width 118



M3



8




"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

–Screw-clamp	0.2-2.5	0.2-2.5	24-12
–Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V 1

Description	Type	Order No.	Pcs.	Pkt.
Digital output module, IP 20 protection, consisting of				
– Terminal part with screw-clamp connection and electronic module	IB ST 24 DO 16/3	27 54 91 4	1	
– Terminal part with spring-clamp connection and electronic module	IB ST ZF 24 DO 16/3	27 50 64 6	1	
Accessories				
Replacement electronics module, without terminal part	IB STME 24 DO 16/3	27 54 94 3	1	
Replacement fuse	IBS TR5 4AM	27 53 46 5	5	
Jumper , (only for screw-clamp terminals) separable, isolated comb spine 				
Color: blue 80 pos.	EB 80-DIK BU	I_N : 26 A 27 15 94 0	5	
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5	
Technical data				
Interfaces				
INTERBUS-ST local bus	ST local bus connector			
Power supply				
Power supply voltage				
– Nominal values	24 V DC			
– Ripple	3.6 V _{pp}			
– Allowable range	20 to 30 V DC (including ripple)			
Current consumption				
– From ST local bus	100 mA			
Local diagnostics				
Operating voltage display (U _L)	LED green			
Power supply voltage each group (U _S)	LED green			
ST local bus connection OK (CC)	LED green			
Bus active (BA)	LED green			
I/O error per group (E)	LED red			
Status display per output	LED yellow			
Diagnostics message via the bus				
Blown fuse	no			
Power failure	no			
Short circuit, overload of an output	yes			
Outputs				
Number of outputs	16			
Number of electrically separated output groups	4			
Connection method	3-wire			
Output voltage	U _S -1 V			
Output current				
– Max. per output	500 mA			
– Min. per output	1 mA			
– Max. per group	2 A for 4 channels			

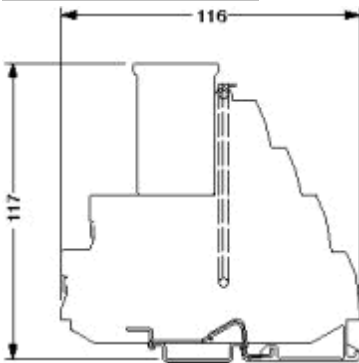
max. per group	27 A (4 channels)
– Max. per module	8 A
Allowable load of outputs at	
– Resistive load	12 W, max. 300 Hz at 48 Ω
– Inductive load	12 VA, 0.5 Hz at 1.2 H with 48 Ω
– Lamp load	12 W
Electrical isolation	
– Module electronics/outputs	500 V AC test voltage
– Between channel groups	500 V AC test voltage
Polarity reversal protection	with inverse-parallel diode and fuse
Short circuit protection of the outputs	electronic, per channel

General data

Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	760 g

¹ application submitted

Dimensional drawing

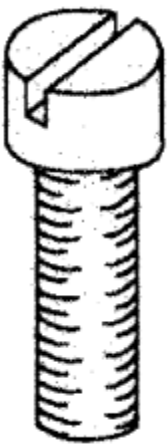


IB ST 24 DO 32/2



32 outputs, 24 V DC, 500 mA,
2-wire connections

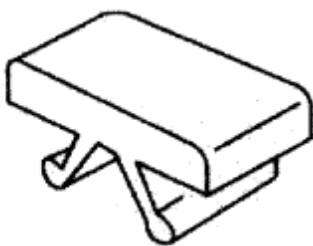
Design width 118



M3



8




"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V 1

Description	Type	Order No.	Pcs. Pkt.
Digital output module, IP 20 protection, consisting of			
– Terminal part with screw-clamp connection and electronic module	IB ST 24 DO 32/2	27 54 32 5	1
– Terminal part with spring-clamp connection and electronic module	IB ST ZF 24 DO 32/2	27 50 63 3	1
Accessories			
Replacement electronics module, without terminal part	IB STME 24 DO 32/2	27 54 37 0	1
Replacement fuse	IBS TR5 5AT	27 67 38 3	5
Jumper , (only for screw-clamp terminals) separable, isolated comb spine 			
Color: blue 80 pos.	EB 80-DIK BU	I_N : 26 A 27 15 94 0	5
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5
Technical data			
Interfaces			
INTERBUS-ST local bus	ST local bus connector		
Power supply			
Power supply voltage			
– Nominal values	24 V DC		
– Ripple	3.6 V _{pp}		
– Allowable range	20 to 30 V DC (including ripple)		
Current consumption			
– From the ST local bus	100 mA		
Local diagnostics			
Operating voltage display (U _L)	LED green		
Power supply voltage each group (U _S)	LED green		
ST local bus connection OK (CC)	LED green		
Bus active (BA)	LED green		
I/O error per group (E)	LED red		
Status display per output	LED yellow		
Diagnostics message via the bus			
Blown fuse	no		
Power failure	no		
Short circuit, overload of an output	yes		
Outputs			
Number of outputs	32		
Number of electrically separated output groups	4		
Connection method	2-wire		
Output voltage	U _S -1 V		
Output current			
– Max. per output	500 mA		
– Min. per output	1 mA		
– Max. per group	4 A for 8 channels		

max. per group	47 A per channel
– Max. per module	16 A
Allowable load of outputs at	
– Resistive load	12 W, max. 300 Hz at 48 Ω
– Inductive load	12 VA, 0.5 Hz at 1.2 H with 48 Ω
– Lamp load	12 W
Electrical isolation	
– Module electronics/outputs	500 V AC test voltage
– Between channel groups	500 V AC test voltage
Polarity reversal protection	with inverse-parallel diode and fuse
Short circuit protection of the outputs	electronic, per channel

General data

Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	790 g

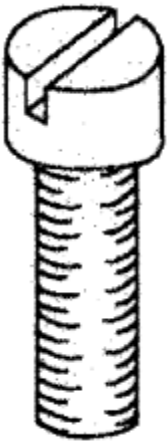
¹ application submitted

IB ST 24 DO 8/3-2A



8 outputs, 24 V DC, 2 A,
3-wire connections

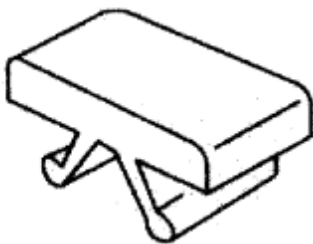
Design width 81



M3



8




"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V 1

Description	Type	Order No.	Pcs. Pkt.
Digital output module, IP 20 protection, consisting of			
– Terminal part with screw-clamp connection and electronic module	IB ST 24 DO 8/3-2A	27 54 89 1	1
– Terminal part with spring-clamp connection and electronic module	IB ST ZF 24 DO 8/3-2A	27 50 65 9	1
Accessories			
Replacement electronics module, without terminal part	IB STME 24 DO 8/3-2A	27 54 97 2	1
Replacement fuse	IBS TR5 5AT	27 67 38 3	5
Jumper , (only for screw-clamp terminals) separable, isolated comb spine 			
Color: blue 80 pos.	EB 80-DIK BU	I_N : 26 A 27 15 94 0	5
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5

Technical data**Interfaces**

INTERBUS-ST local bus ST local bus connector

Power supply

Power supply voltage

- Nominal values 24 V DC
- Ripple 3.6 V_{pp}
- Allowable range 20 to 30 V DC (including ripple)

Current consumption

- From ST local bus 100 mA

Local diagnostics

Operating voltage display (U_L) LED green

Power supply voltage each group (U_S) LED green

ST local bus connection OK (CC) LED green

Bus active (BA) LED green

I/O error per group (E) LED red

Status display per output LED yellow

Diagnostics message via the bus

Blown fuse no

Power failure no

Short circuit, overload of an output yes

Outputs

Number of outputs 8

Number of electrically separated output groups 2

Connection method 3-wire

Output voltage U_S -1 V

Output current

- Max. per output 2 A
- Min. per output 1 mA
- Max. per group 5 A for 4 channels

max. per group	37 A (4 channels)
– Max. per module	10 A
Allowable load of outputs at	
– Resistive load	48 W, max. 150 Hz at 12 Ω
– Inductive load	48 VA (0.5 Hz at 1.2 H with 12 Ω)
– Lamp load	48 W ²
Electrical isolation	
– Module electronics/outputs	500 V AC test voltage
– Between channel groups	500 V AC test voltage
Polarity reversal protection	with inverse-parallel diode and fuse
Short circuit protection of the outputs	electronic, in groups of two outputs

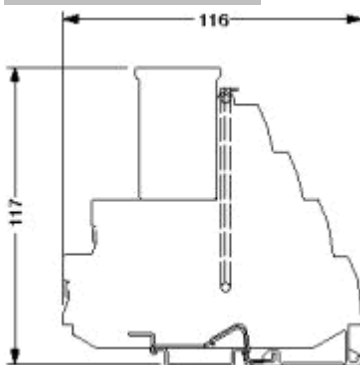
General data

Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	479 g

¹ application submitted

² valid from Revision 02 of electronics module

Dimensional drawing

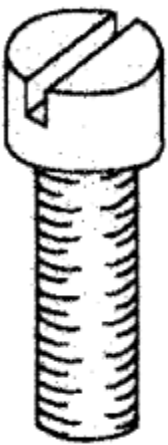


IB ST 120/230 DO 8/3-1A

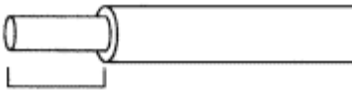


8 outputs, 120-230 V AC, 1 A,
3-wire connections

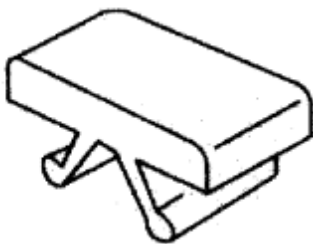
Design width 118



M3



8




"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V 1

Description	Type	Order No.	Pcs. Pkt.
Digital output module, IP 20 protection, consisting of			
– Terminal part with screw-clamp connection and electronic module	IB ST 120/230 DO 8/3-1A	27 19 26 3	1
– Terminal part with spring-clamp connection and electronic module	IB ST ZF 120/230 DO 8/3-1A	27 23 35 6	1
Accessories			
Replacement electronics module, without terminal part	IB STME 120/230 DO 8/3-1A	27 19 31 5	1
Replacement fuse	SI 5X20 6,3 AFF DIN 41662	27 26 10 4	5
Jumper , (only for screw-clamp terminals) separable, isolated comb spine			
			
Color: blue 80 pos.	EB 80-DIK BU	I_N : 26 A 27 15 94 0	5
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5
Technical data			
Interfaces			
INTERBUS-ST local bus	ST local bus connector		
Power supply			
Power supply voltage			
– Nominal values	120/230 V AC		
– Allowable range	108 to 253 V AC		
Current consumption			
– From the ST local bus	100 mA		
Local diagnostics			
Operating voltage display (U_L)	LED green		
Power supply voltage each group (U_S)	LED green		
ST local bus connection OK (CC)	LED green		
Bus active (BA)	LED green		
Status display per output	LED yellow		
Diagnostics message via the bus			
Blown fuse	no		
Power failure	no		
Short circuit, overload of an output	no		
Outputs			
Number of outputs	8		
Number of isolated output groups	2		
Connection method	3-wire		
Output voltage	U_S -2 V		
Output current			
– Max. per output	1 A		
– Min. per output	50 mA		
– Max. per group	4 A		
– Max. per module	8 A		
Allowable load of outputs at			

– Resistive load	120 W/230 W
– Inductive load	60 VA/110 VA
– Lamp load	60 W/100 W
Electrical isolation	
– Module electronics/outputs	1500 V AC test voltage
– Between the relay contacts	2500 V AC test voltage
Short circuit protection of outputs	with fuse per group

General data

Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	651 g

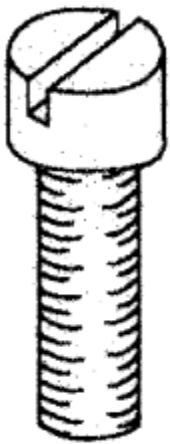
¹ application submitted

IB ST 24 DO 16 R/S

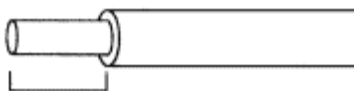


16 relay NO contact outputs,
3-wire connections

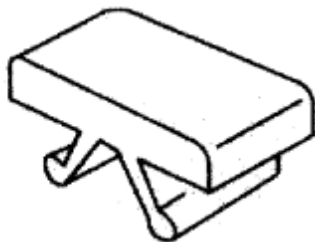
Design width 118



M3



8



"...6"


(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

–Screw-clamp 0.2-2.5 0.2-2.5 24-12

–Spring-clamp 0.2-1.5 0.2-1.5 24-16

A V 1

Description	Type	Order No.	Pcs. Pkt.
Digital output module, IP 20 protection, consisting of			
– Terminal part with screw-clamp connection and electronic module	IB ST 24 DO 16 R/S	27 21 11 2	1
– Terminal part with spring-clamp connection and electronic module	IB ST ZF 24 DO 16 R/S	27 21 14 1	1
Accessories			
Replacement electronics module, without terminal part	IB STME 24 DO 16 R/S	27 21 13 8	1
Replacement fuse	IBS TR5 0,4AT	27 53 47 8	5
Jumper , (only for screw-clamp terminals) separable, isolated comb spine 			
Color: blue 80 pos.	EB 80-DIK BU	I_N : 26 A 27 15 94 0	5
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5

Technical data**Interfaces**

INTERBUS-ST local bus ST local bus connector

Power supply

Power supply voltage

- Nominal values 24 V DC
- Ripple 3.6 V_{pp}
- Allowable range 20 to 30 V DC

Current consumption

- From ST local bus 100 mA

Local diagnostics

- Operating voltage display (U_L) LED green
- Power supply voltage per group (U_S) LED green
- ST local bus connection OK (CC) LED green
- Bus active (BA) LED green
- Status display per output LED yellow

Diagnostics message via the bus

- Blown fuse no
- Power failure no
- Short circuit, overload of an output no

Outputs

- Number of outputs 16 relay outputs
- Number of isolated output groups 4
- Connection method 3-wire (N/O contact) + PE (earth ground)
- Output voltage 250 V AC
- Output current
 - Max. per output 3 A AC, 3 A at 24 V DC, 0.8 A at 60 V DC
 - Min. per output 1 mA
 - Max. per module see data sheet
- Allowable load of outputs at

– Resistive load	750 W, 45 W
– Inductive load	200 VA (cos φ = 0.4), 22 VA (L/R < 40 ms)
– Lamp load	75 W, 4.5 W
Contact material	AgNi (90/10) gold-plated
Mechanical life	20 x 10 ⁶ cycles
Electrical isolation	
– Module electronics/outputs	2000 V AC test voltage
– Between channel groups	2000 V AC test voltage
– Between the relay contacts	750 V AC test voltage
– Between the output channels	1000 V AC test voltage
Polarity reversal protection	with inverse-parallel diode and fuse

General data

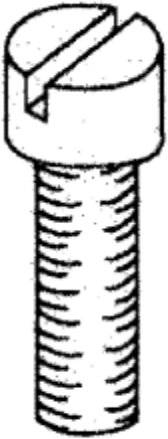
Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	703 g

¹ application submitted

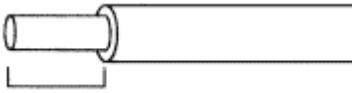
IB ST 24 INC/2



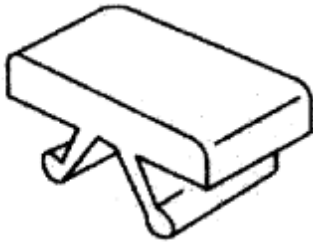
2 incremental valuator device inputs, 8 digital inputs, 8 digital outputs, 24 V DC, 0.5 A



M 3



8




"...6"

Design width 118

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

Description	Type	Order No.	Pcs.	Pkt.
Positioning module , IP 20 protection, consisting of				
– Terminal part with screw connection and electronics module	IBS ST 24 INC/2	27 51 97 5	1	
– Terminal part with spring connection and electronics module	IBS ST ZF 24 INC/2	27 23 90 3	1	
Accessories				
Replacement electronics module , without terminal part	IBS STME 24 INT/2	27 51 96 2	1	
User manual , for counter module,	IB ST 24 INT/2 UM	27 21 07 3	1	
Replacement fuse	IBS TR5 3,15AF	27 19 25 0	5	
Jumper , (only for screw connection) separable, isolated comb spine				
Color: blue 80 pos.	EB 80-DIK BU	I _N : 26 A 27 15 94 0	5	
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5	

Technical data**Interfaces**

INTERBUS-ST local bus ST local bus connector

Power supplyPower supply voltage (U_S)

- Nominal value 24 V DC
- Ripple 3.6 V_{pp}
- Allowable range 20 - 30 V DC

Current consumption from the local bus 200 mA

Local diagnostics

Operating voltage display (U_L) LED green

Power supply voltage each group (U_S) LED green

ST local bus connection OK (CC) LED green

Bus active (BA) LED green

PCP communication active (TR) LED green

Error (E) LED red

Impulse repetition direction <> LED green

Reference point search active (REF) LED yellow

Status display per input LED yellow

Status display per output LED yellow

Diagnostics messages via the bus

Power failure yes (via process data)

Short circuit, overload of an output yes (via process data)

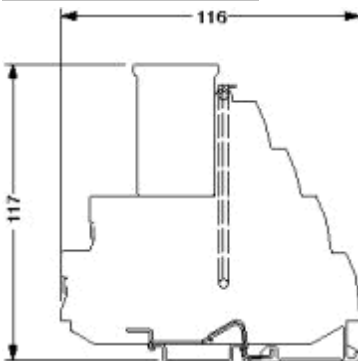
Blown fuse yes

Counter inputs

Number of inputs 2 incremental encoder inputs (24 bits)

Operating modes counting, position detection, controlled positioning

Input frequency	0 - 25 kHz (24-V- signal level) or 0 - 500 kHz (5 V signal level)
Digital inputs	
Number of inputs	8 (in two groups)
Connection method of outputs	3-wire (signal, U_S , GND)
Input current per channel	typ. 5 mA
Allowable input voltage for	
– "1" signal	+13 to +30 V DC
– "0" signal	-30 to +5 V DC
Signal change response time	typ. 3 ms
Digital outputs	
Number of outputs	8 (in two groups)
Connection of inputs	3-wire
Output voltage	$U_S - 0.5 \text{ V DC} \leq U_{\text{OUT}} \leq U_S$
Polarity reversal protection	yes
Short circuit protection of outputs	electronic
Electrical isolation	
Module electronics/inputs/outputs	500 V AC
General data	
Operating temperature range	0 °C to +55 °C
Degree of protection	IP 20
Weight	680 g

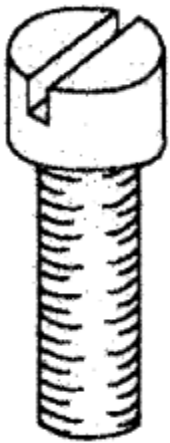
Dimensional drawing

IBS ST 24 BK-FT-T

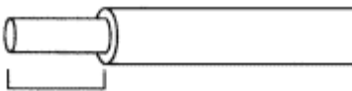


Generation 4

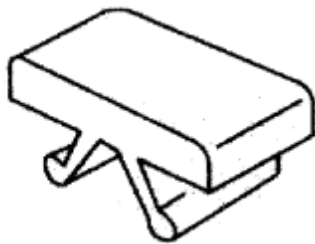
INTERBUS system coupler with double bus connection



M 3



8



"...6"

Design width 280 IBS

C A¹

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp 0.2-2.5 0.2-2.5 24-12

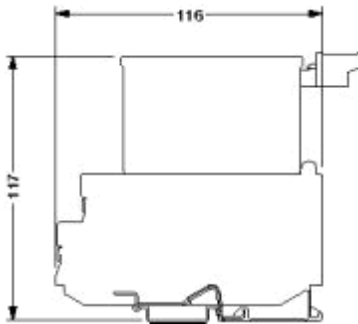
Description	Type	Order No.	Pcs. Pkt.
INTERBUS system coupler , consisting of a terminal part with two bus terminal module and a submaster module, protection type IP 20	IBS ST 24 BK-FT-T	27 19 28 9	1
Accessories			
User manual – System coupler	German	IBS ST 24 BK-FT- T UM	27 47 46 8 1
	English	IBS ST 24 BK-FT- T UM E	27 47 47 1 1
Replacement terminal part , for FT-T	IBS STTB 24 BK-FT-T	27 19 34 4	1
Replacement module electronics , for FT-T	IBS STME 24 BK-FT-T	27 19 35 7	1
Replacement submaster electronics , for FT-T	IBS STME 24 MA-FT	27 19 33 1	1
Technical data			
Data interface			
INTERBUS	remote bus IN/OUT (D-SUB 9-pos., redundant remote bus) per bus terminal module remote bus OUT (D-SUB 9-pos.) or INTERBUS-ST local bus per submaster module (optional fiber optic possible via interface converter, see installation accessories)		
Parameterization/configuration/diagnostics	RS-232 (D-SUB 9-pos.), for connection of IBS CMD		
Power supply			
Power supply voltage			
– Nominal value	24 V DC		
– Ripple	3.6 V _{pp}		
– Allowable range	18.5 to 30.5 V DC		
Power consumption	max. 15 W, depending on the configuration of the lower-level bus		
Electrical isolation			
Remote bus IN/remote bus OUT	500 V AC		
General data			
Polarity reversal protection/ power supply voltage	electronic		
Local diagnostics bus terminal module			
Operating voltage display (U _L)	LED green		
Remote bus connection OK (RC)	LED green		
Bus active (BA)	LED green		
PCP communication active (TR)	LED green		
Remote bus disabled (RD)	LED red		
INTERBUS data (Slave)			
Number of process data words	configurable (1 byte to 25 words)		
Number of PCP words	configurable (1 to 4 words)		

Local diagnostics submaster module

Bus 1	LED green
Bus 2	LED green
READY/RUN	LED green
Higher-level bus error	LED yellow
Local bus error	LED yellow
Bus system aborted	LED yellow
Error	LED red

¹ application submitted

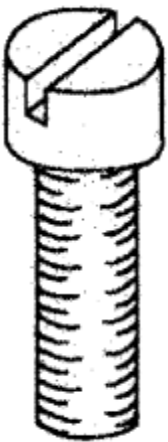
Dimensional drawing



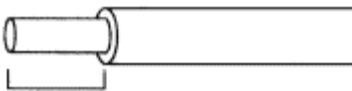
IBS ST 24 RFC-T



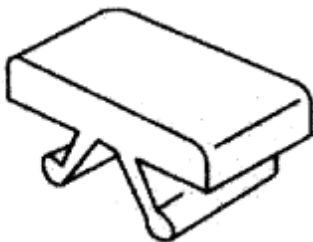
IEC-1131 programmable INTERBUS system coupler



M 3



8



"...6"

Design width 280

IBS C **A**¹

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp 0.2-2.5 0.2-2.5 24-12

Description	Type	Order No.	Pcs.	Pkt.
Remote field controller IB ST , consisting of a terminal part with a bus terminal module and a submaster module, protection type IP 20	IBS ST 24 RFC-T	27 25 52 9		1
Accessories				
User manual	German IBS ST 24 RFC-T UM	27 25 50 3		
	English IBS ST 24 RFC-T UM E	27 25 49 3		1
Automation software PC WORX	IBS PC WORX.. (see info)			1
Connection cable , for connecting the remote field controllers to the PC (RS-232-C), length 3 m	IBS PRG CAB	28 06 86 2		1
Replacement terminal part	IBS STTB 24 SSC-T	27 25 62 6		1
Replacement module electronics	IBS STME 24 BK-FT-T	27 19 35 7		1
Replacement submaster electronics	IBS STME 24 RFC-T	27 25 51 6		1
Supplementary documentation , Installation manual: Structure an installation of the INTERBUS system	German IBS SYS INST UM	27 54 28 6		1
	English IBS SYS INST UM E	27 54 80 4		1
Project planning manual : Collection of data sheets relating to INTERBUS components	German IBS SYS PRO UM	27 53 82 1		1
	English IBS SYS PRO UM E	27 51 00 1		1
Technical data				
Mechanical design				
Format	200 x 116 x 116 mm (WxHxD)			
Weight	1130 g			
Data interface				
INTERBUS (Slave)	Remote bus IN and OUT (D-SUB 9-pos., higher-level remote bus) on bus terminal module			
INTERBUS (Master)	Remote bus OUT (D-SUB 9-pos.) or INTERBUS ST local bus on submaster			
Local serial interface	RS-232 on submaster module			
Software interface				
Automation software IBS PC WORX	INTERBUS and local RS-232 for connection of PC WORX			
IEC-1131-run time system				
Processing speed	0.8 ms for 1 K word or 1.6 ms for 1 bit instruction			
Program memory	384 Kbyte/ typ. 32 K instructions (IL)			
Control tasks	3 tasks			
Residual data	8 kbyte (NVRAM)			
Power supply				
Power supply voltage				
– Nominal value	24 V DC			
– Ripple	3.6 V _{pp}			
– Allowable range	18.5 to 28.5 V DC			

- Allowable range	18.5 to 30.5 V DC
Power consumption	max. 15 W, depending on the configuration of the lower-level bus
Polarity reversal protection power supply	electronic

Ambient conditions

Degree of protection	IP 20
Allowable operating temperature	0 to 55 °C
Allowable storage temperature	-25 to +70 °C
Allowable humidity	75 % without condensation

Electrical isolation

Remote bus IN/remote bus OUT	500 V DC
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INTERBUS data (Slave)

Number of process data words	configurable (1 byte to 25 words)
Number of PCP words	configurable (1 to 4 words)

Local diagnostics bus terminal block

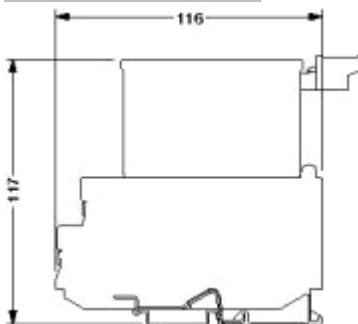
U_L, RC, BA, TR, RD

Local diagnostics submaster module

FC RUN	LED green
READY/RUN	LED yellow
Higher level bus error	LED yellow
I/O bus error	LED yellow
Bus system aborted	LED yellow
Error	LED red

¹ application submitted

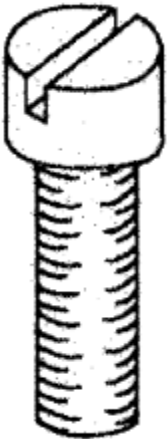
Dimensional drawing



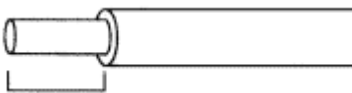
IB ST 24 V.24(RS232)



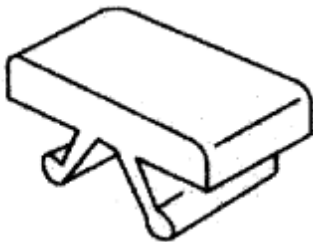
with RS-232-C, RS-485 and RS-422 interface



M 3



8



"...6"

Design width 118

A V ¹

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

Description	Type	Order No.	Pcs. Pkt.
INTERBUS module , for serial data transmission, protection IP 20	IB ST 24 V.24	27 25 48 0	1

Technical data

Interfaces

INTERBUS-ST local bus ST local bus connector

Power supply

Power supply voltage 24 V DC

Current consumption typ. 400 mA

Local diagnostics

Operating voltage display (U_L) LED green

ST local bus connection OK (CC) LED green

Bus active (BA) LED green

I/O error (E) LED red

PCP telegrams being transmitted (TR) LED green

Data being received/transmitted LED yellow

Electrical isolation

– Bus/I/O 500 V AC test voltage

Interface

Input buffer 4 kByte

Output buffer 4 kByte

Parity even, odd or no parity

Transmission rate 110 - 19200 baud, programmable

Hardware handshake RTS/CTS and DTR/DSR by RS-232

General data

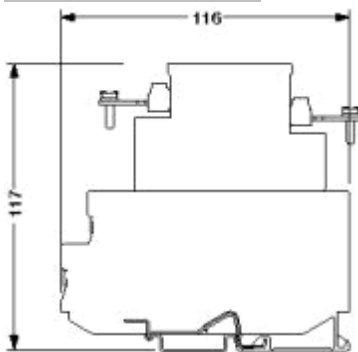
Operating temperature range 0 °C to + 55 °C

Degree of protection IP 20

Weight 220 g

¹ application submitted

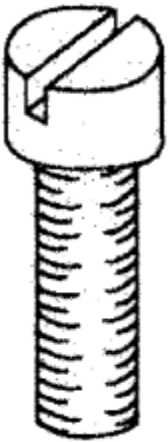
Dimensional drawing



IB ST 24 BAI 2/BP



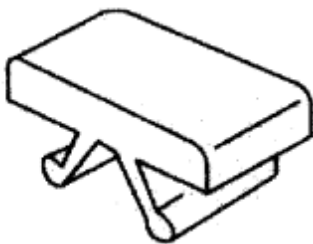
2 inputs, -20 to +20 mA, -10 to +10 V
Design width 81



M3



8




"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V 1

Description	Type	Order No.	Pcs. Pkt.
Analog input module , IP 20 protection, consisting of:			
– Terminal part with screw-clamp and electronics module	IB ST 24 BAI 2/BP	27 25 88 8	1
– Terminal part with spring-clamp and electronics module	IB ST ZF 24 BAI 2/BP	27 24 95 7	1
Accessories			
Replacement electronics module , without terminal part	IB STME 24 BAI 2/BP	27 25 21 5	1
Jumper , (only for screwf connection) separable, isolated comb spine			
Color: blue 80 pos.	EB 80-DIK BU	I _N : 26 A 27 15 94 0	5
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5
Technical data	for voltage inputs	for current inputs	
Interfaces			
INTERBUS-ST local bus	ST local bus connector		
Power supply			
Power supply voltage	module is		
– Nominal values	powerd from		
– Ripple	local bus		
– Allowable range			
Current consumption	typ. 140 mA		
– From the ST local bus			
Local diagnostics			
Operating voltage display (U _L)	LED green		
ST local bus connection OK (CC)	LED green		
Bus active (BA)	LED green		
Diagnostics message via the bus			
Power failure	yes, failure of internal analog supply		
Inputs			
Number of inputs	2 differential inputs, voltage or current can be chosen separately		
Connection method	2, 3, 4-wire		
Input range	-10 ... + 10 V	-20 to +20 mA	
Input resistance	> 200 kΩ	50 Ω	
Measurement principle	successive approximation		
Representation of measured value	16-bit two's complement		
Monitoring of measured value to control	both channels simultaneously in 2 process data words		
Measured value resolution	12 bit		
Quantization	4.88 mV	9.75 mA	
A/D conversion time per channel	10 μs		
Process data update	0.55 ms per channel/1.1 ms both channels		
3 dB threshold frequency	30 Hz		
Line break diagnostics	no		
Conversion to mean value	disable and config. channel for channel (32, 16 or 8 measured values)		
Basic error limit	+ 0.05 %	+ 0.1 %	

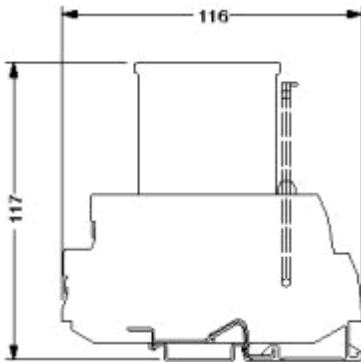
Basic error limit	± 0.05 %	± 0.1 %
Electrical isolation		
– Bus/inputs	500 V AC test voltage	
Transient protection of inputs	yes	

General data

Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	370 g

¹ application submitted

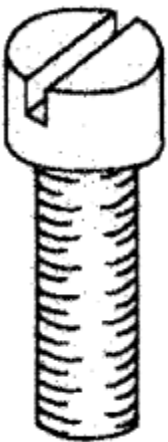
Dimensional drawing



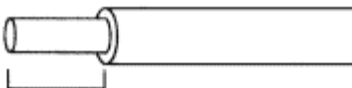
IB ST 24 BAI 2/SF



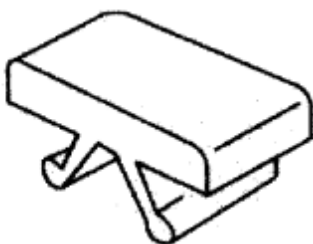
2 inputs, 0 to 20 mA, 4 to 20 mA, 0 to 10 V
Design width 81



M3



8




"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V 1

Description	Type	Order No.	Pcs. Pkt.
Analog input module , IP 20 protection, consisting of:			
– Terminal part with screw-clamp and electronics module	IB ST 24 BAI 2/SF	27 22 77 1	1
– Terminal part with spring-clamp and electronics module	IB ST ZF 24 BAI 2/SF	27 23 95 8	1
Accessories			
Replacement electronics module , without terminal part	IB STME 24 BAI 2/SF	27 23 96 1	1
Jumper , (only for screw connection) separable, isolated comb spine			
Color: blue 80 pos.	EB 80-DIK BU	I _N : 26 A 27 15 94 0	5
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5
Technical data	for voltage inputs	for current inputs	
Interfaces			
INTERBUS-ST local bus	ST local bus connector		
Power supply			
Power supply voltage	module is		
– Nominal values	powerd from		
– Ripple	local bus		
– Allowable range			
Current consumption	typ. 140 mA		
– From the ST local bus			
Local diagnostics			
Operating voltage display (U _L)	LED green		
ST local bus connection OK (CC)	LED green		
Bus active (BA)	LED green		
Diagnostics message via the bus			
Power failure	yes, failure of internal analog supply		
Inputs			
Number of inputs	2 differential inputs, voltage or current can be chosen separately		
Connection method	2-, 3-, 4-wire		
Input range	0 to 10 V	4 to 20 mA, 0 to 20 mA	
Input resistance	> 200 kΩ	50 Ω	
Measurement principle	successive approximation		
Representation of measured value	16-bit two's complement		
Monitoring of measured value to control	both channels simultaneously in 2 process data words		
Measured value resolution	12 bit		
Quantization	2.44 mV	3.91 μA, 4.88 μA	
A/D conversion time per channel	10 μs		
Process data update	0.55 ms per channel/1.1 ms all channels		
3 dB threshold frequency	30 Hz		
Line break diagnostics	no	diagnost. bit (4 to 20 mA)	
Conversion to mean value	disable and config. channel for channel (32, 16 or 8 MV)		
Basic error limit	± 0.05 %	± 0.1 %	

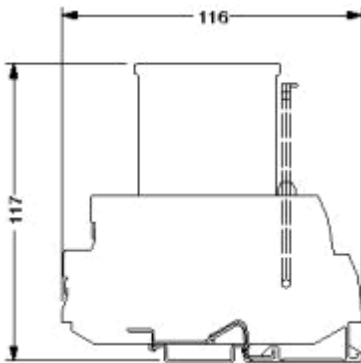
Electrical isolation	
– Bus/inputs	500 V AC test voltage
Transient protection of inputs	yes

General data

Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	370 g

¹ application submitted

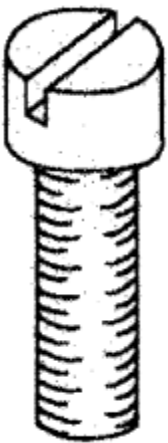
Dimensional drawing



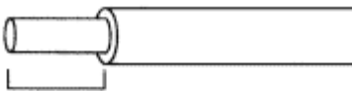
IB ST 24 BAI 8/I



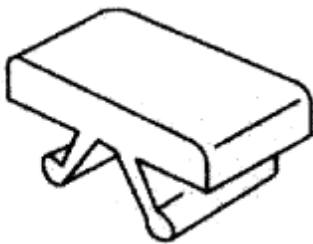
8 inputs, 4 to 20 mA, 0 to 20 mA, 0 to 40 mA, 0 to 60 mA
Design width 118



M3



8



"...6"


(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp 0.2-2.5 0.2-2.5 24-12

-Spring-clamp 0.2-1.5 0.2-1.5 24-16

A V 1

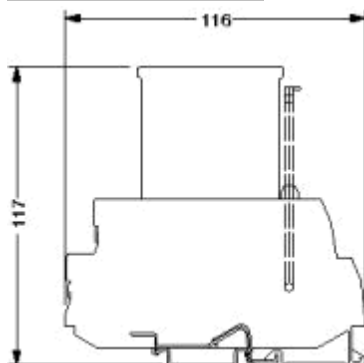
Description	Type	Order No.	Pcs. Pkt.
Analog input module , IP 20 protection, consisting of:			
– Terminal part with screw-clamp and electronics module	IB ST 24 BAI 8/I	27 21 02 8	1
– Terminal part with spring-clamp and electronics module	IB ST ZF 24 BAI 8/I	27 21 23 5	1
Accessories			
Replacement electronics module , without terminal part	IB STME 24 BAI 8/I	27 21 20 6	1
Replacement fuse	IBS TR5 0,2AM	27 53 45 2	5
	IBS TR5 0,4AT	27 53 47 8	5
Jumper , (only for screw-clamp terminals) separable, isolated comb spine 			
Color: blue 80 pos.	EB 80-DIK BU	I _N : 26 A 27 15 94 0	5
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5
Technical data		12-bit	8 Bit
	measured value resolution	measured value resolution	
Interfaces			
INTERBUS-ST local bus	ST local bus connector		
Power supply			
Power supply voltage			
– Nominal values	24 V DC		
– Ripple	3.6 V _{pp}		
– Allowable range	18.5 to 30.2 V DC		
Current consumption			
– With nom. voltage (without passive sensors)	typ. 68 mA, max. 125 mA		
– From the ST local bus	typ. 120 mA		
Local diagnostics			
Operating voltage display (U _L)	LED green		
Power supply voltage per group (U _S)	LED green		
ST local bus connection OK (CC)	LED green		
Bus active (BA)	LED green		
Diagnostics message via the bus			
Blown fuse	yes		
Power failure	yes		
Inputs			
Number of inputs	8 single-ended current inputs		
Connection method	2-wire		
Input range	4 to 20 mA, 0 to 20 mA, 0 to 40 mA, 0 to 60 mA		
Input resistance	77 Ω		
Measurement principle	successive approximation		
Representation of measured value	16-bit two's complement	8-bit straight binary	
Monitoring of measured value to control	multiplexed, per 4 channels	2 measured values per data word	
Measured value resolution	8/12 Bit (can be selected via software)		

Quantization	3.9 μ A	62.7 μ A
A/D conversion time per channel	10 μ s	
Process data update	0.4 ms per channel/1.6 ms four channels, 3.2 ms all channels	
3 dB threshold frequency	1 kHz	
Line break diagnostics	no	no
Conversion to mean value	no	no
Basic error limit	± 0.05 %	± 0.19 %
Bridge voltage for passive sensors	15 V ± 6 %, T _K 100 ppm, 25 mA per channel	
Electrical isolation		
– Bus/inputs	500 V AC test voltage	
– Power supply voltage/inputs	500 V AC test voltage	
Polarity reversal protection	yes	
Short circuit protection of bridge voltage	yes, with fuse	
Transient protection of inputs	yes	

General data

Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	600 g

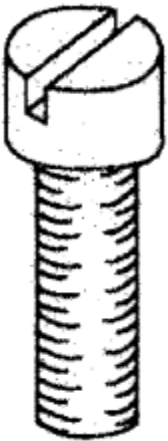
¹ application submitted

Dimensional drawing

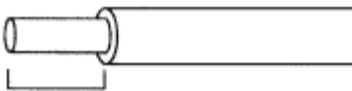
IB ST 24 BAI 8/U*



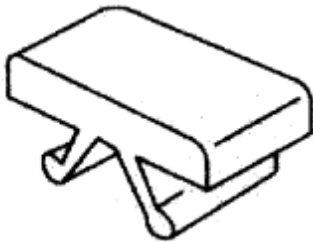
8 inputs, 0 to 10 V, 0 to 5 V, 0 to 25 V, 0 to 50 V
Design width 118



M3



8



"...6"


(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

–Screw-clamp 0.2-2.5 0.2-2.5 24-12

–Spring-clamp 0.2-1.5 0.2-1.5 24-16

A V 1

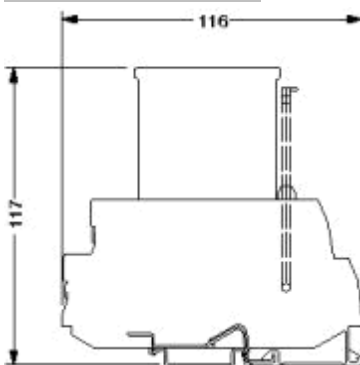
Description	Type	Order No.	Pcs.	Pkt.
Analog input module , IP 20 protection, consisting of:				
– Terminal part with screw-clamp and electronics module	IB ST 24 BAI 8/U	27 21 01 5	1	
– Terminal part with spring-clamp and electronics module	IB ST ZF 24 BAI 8/U	27 21 22 2	1	
Accessories				
Replacement electronics module , without terminal part	IB STME 24 BAI 8/U	27 21 21 9	1	
Replacement fuse	IBS TR5 0,2AM	27 53 45 2	5	
	IBS TR5 0,4AT	27 53 47 8	5	
Jumper , (only for screw connection) separable, isolated comb spine 				
Color: blue 80 pos.	EB 80-DIK BU	I_N : 26 A 27 15 94 0	5	
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5	
Technical data		12-bit	8-bit	
		measured value resolution	measured value resolution	
Interfaces				
INTERBUS-ST local bus	ST local bus connector			
Power supply				
Power supply voltage				
– Nominal values	24 V DC			
– Ripple	3.6 V _{pp}			
– Allowable range	18.5 to 30.2 V DC			
Current consumption				
– With nom. voltage (without passive sensors)	typ. 68 mA, max. 125 mA			
– From the ST local bus	typ. 120 mA			
Local diagnostics				
Operating voltage display (U _L)	LED green			
Power supply voltage per group (U _S)	LED green			
ST local bus connection OK (CC)	LED green			
Bus active (BA)	LED green			
Diagnostics message via the bus				
Blown fuse	yes			
Power failure	yes			
Inputs	yes			
Number of inputs	8 single-ended voltage inputs			
Connection method	2-wire			
Input range	0 to 10 V, 0 to 5 V, 0 to 25 V, 0 to 50 V			
Input resistance	> 150 kΩ			
Measurement principle	successive approximation			
Representation of measured value	16-bit two's complement	8-bit straight binary		
Monitoring of measured value to control	multiplexed, per 4 channels	2 measured values per data word		
Measured value resolution	8/12-bit (can be selected via software)			
Quantization	2.44 mV	30 mV		

Quantization	2.44 mV	39 mV
A/D conversion time per channel	10 μ s	
Process data update	0.3 ms per channel/ 1.4 ms four channels, 2.8 ms all channels	
3 dB threshold frequency	6 kHz	
Line break diagnostics	no	no
Conversion to mean value	no	no
Basic error limit	$\pm 0.025 \%$	$\pm 0.19 \%$
Bridge voltage for passive sensors	15 V $\pm 6 \%$, T _K 100 ppm, 25 mA per channel	
Electrical isolation		
– Bus/inputs	500 V AC test voltage	
– Power supply voltage/inputs	500 V AC test voltage	
Polarity reversal protection	yes	
Short circuit protection of bridge voltage	yes, with fuse	
Transient protection of inputs	yes	
General data		
Operating temperature range	0 °C to + 55 °C	
Degree of protection	IP 20	
Weight	600 g	

¹ application submitted

* On request this module is also available with 8 inputs (0 to 100 mV, 0 to 200 mV, 0 to 500 mV, 0 to 1 V) Designation: IBST 24 BA-T 8/U-MV

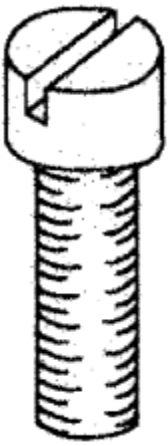
Dimensional drawing



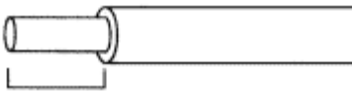
IB ST 24 BAO 8/U



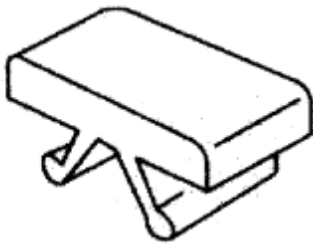
8 outputs, -10 to +10 V, -12 to +12 V
Design width 118



M3



8




"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V 1

Description	Type	Order No.	Pcs. Pkt.
Analog output modules , D/A resolution 13-bit, consisting of			
– Terminal part with screw connection and electronics module	IB ST 24 BAO 8/U	27 21 04 4	1
– Terminal part with spring connection and electronics module	IB ST ZF 24 BAO 8/U	27 21 25 1	1
Accessories			
Replacement electronics module , without terminal part	IB STME 24 BAO 8/U	27 21 18 3	1
Replacement fuse	IBS TR5 0,4AT	27 53 47 8	5
Jumper , (only for screw-clamp terminals) separable, isolated comb spine			
Color: blue 80 pos.	EB 80-DIK BU	I _N : 26 A 27 15 94 0	5
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5

Technical data**Interfaces**

INTERBUS-ST local bus ST local bus connector

Power supply

Power supply voltage

- Nominal values 24 V DC
- Ripple 3.6 V_{pp}
- Allowable range 18.5 to 30.2 V DC

Current consumption

- At nominal voltage typ. 150 mA
- From ST local bus typ. 100 mA, max.120 mA

Local diagnostics

Operating voltage display (U_L) LED green

Power supply voltage (U_S) LED green

ST local bus connection OK (CC) LED green

Bus active (BA) LED green

Diagnostics message via the bus

Blown fuse yes

Power failure yes

Outputs

Number of outputs 8

Connection method 2-wire

Output range – 10 V to + 10 V (max. 2 mA)/– 12 V to + 12 V (max. 1.2 mA)

Load impedance > 5 kΩ/> 10 kΩ

Representation of output value 16-bit two's complement

Transmission of output value from control multiplexed, per 4 channels

DAC resolution 13-bit

Quantization 2.44 mV/2.93 mV

Process data update (incl. slew rate) 3 ms

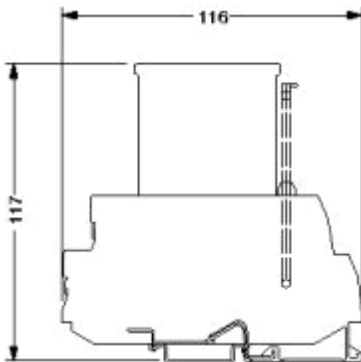
Process data update (incl. slew rate)	3 ms
Basic error limit	± 0,19 %
Electrical isolation	
– Bus/outputs	500 V AC test voltage
– Power supply voltage/outputs	500 V AC test voltage
– Between outputs	no
Polarity reversal protection	yes
Transient protection of outputs	yes

General data

Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	600 g

¹ application submitted

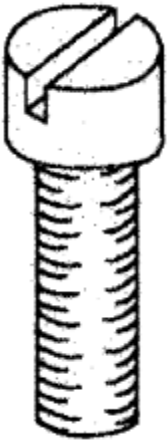
Dimensional drawing



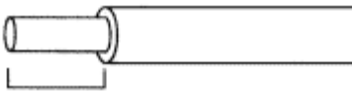
IB ST 24 BAO 8/U-8B



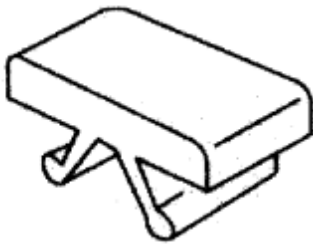
8 outputs, 0 to 10 V
Design width 118



M3



8




"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V 1

Description	Type	Order No.	Pcs.	Pkt.
Analog output modules , D/A resolution 13-bit, consisting of				
– Terminal part with screw connection and electronics module	IB ST 24 BAO 8/U-8B	27 21 03 1		1
– Terminal part with spring connection and electronics module	IB ST ZF 24 BAO 8/U-8B	27 21 24 8		1
Accessories				
Replacement electronics module , without terminal part	IB STME 24 BAO 8/U-8B	27 21 19 6		1
Replacement fuse	IBS TR5 0,4AT	27 53 47 8		5
Jumper , (only for screw-clamp terminals) separable, isolated comb spine				
Color: blue 80 pos.	EB 80-DIK BU	I_N : 26 A 27 15 94 0		5
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3		5

Technical data**Interfaces**

INTERBUS-ST local bus ST local bus connector

Power supply

Power supply voltage

- Nominal values 24 V DC
- Ripple 3.6 V_{pp}
- Allowable range 18.5 to 30.2 V DC

Current consumption

- At nominal voltage typ. 150 mA
- From ST local bus typ. 100 mA, max.120 mA

Local diagnostics

Operating voltage display (U_L) LED green

Power supply voltage (U_S) LED green

ST local bus connection OK (CC) LED green

Bus active (BA) LED green

Diagnostics message via the bus

Blown fuse yes

Power failure yes

Outputs

Number of outputs 8

Connection method 2-wire

Output range 0 to 10 V (max. 1 mA)

Load impedance > 10 kΩ

Representation of output value 8-bit straight binary

Transmission of output value from control all channels simult. in 4 process data words

DAC resolution 8-bit

Quantization 39 mV

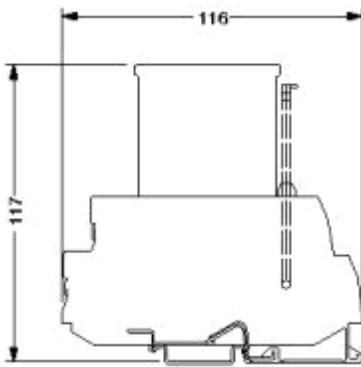
Process data update (incl. slew rate) 2.5 ms

Basic error limit	± 0,1 %
Electrical isolation	
– Bus/outputs	500 V AC test voltage
– Power supply voltage/outputs	500 V AC test voltage
– Between outputs	no
Polarity reversal protection	yes
Transient protection of outputs	no

General data

Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	600 g

¹ application submitted

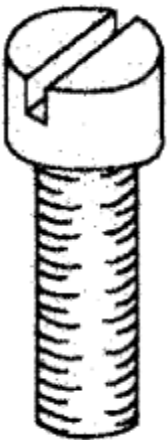
Dimensional drawing

IBS ST 24 BK-LK

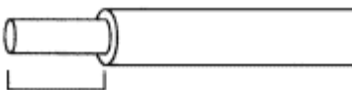


Bus Terminal Module INTERBUS, 24 V DC,
with optical fiber F-SMA Connector

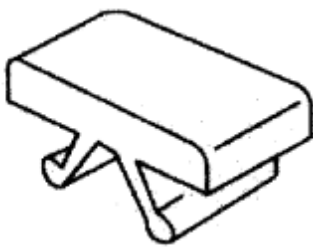
Design width 81



M3



8



"...6"



(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp 0.2-2.5 0.2-2.5 24-12

-Spring-clamp 0.2-1.5 0.2-1.5 24-16

A V 1

Description	Type	Order No.	Pcs. Pkt.
INTERBUS bus terminal module , IP 20 protection class, consisting of:			
– Terminal part with screw-clamp connections and electronics module	IBS ST 24 BK-LK	27 54 43 5	1
– Terminal part with spring-clamp connections and electronics module	IBS ST ZF 24 BK-LK	27 50 75 6	1
Accessories			
Replacement bus terminal electronics module	IBS STME 24 BK-LK	27 54 44 8	1
Fuse	IBS TR5 1AT	28 06 60 0	5
Technical data			
Interfaces			
INTERBUS remote bus (incoming/outgoing)	4 x F-SMA connector		
INTERBUS-ST local bus	ST local bus connector		
Power supply			
Power supply voltage			
– Nominal values	24 V DC		
– Ripple	3.6 V _{pp}		
– Allowable range	20 to 30 V DC (including ripple)		
Current consumption			
– Without connected ST I/O modules	80 mA		
– For max. terminal configuration	550 mA		
– Max. allowable total current consumption of all I/O modules	800 mA		
Electrical isolation			
Incoming remote bus/outgoing remote bus	500 V AC test voltage		
Incoming remote bus/ST local bus	500 V AC test voltage		
Power supply voltage/ST local bus	500 V AC test voltage		
INTERBUS data			
Max. distance to the next remote bus device	max. 50 m polymer fiber/ max. 300 m HCS fiber		
Max. no. of ST I/O modules	8 (observe allowable total curr. consumption)		
Programmable functions			
Disable local bus branch	yes		
Reset local bus	yes		
Disable remote bus (outgoing remote bus)	yes		
Reset remote bus	yes		
Local diagnostics			
Operating voltage display (U _L)	LED green		
Remote bus active (BA)	LED green		
Local bus error (E)	LED red		
Remote bus connection OK (RC)	LED green		
Disabled ST local bus branch (LD)	LED red		
Disabled outgoing remote bus (RD)	LED red		
Local functions			

Reconfiguration input

switch connection option via screw/spring-clamps

Alarm output

relay contact, 30 V DC / 0.1-0.5 A

General data

Operating temperature range

0 °C to + 55 °C

Degree of protection

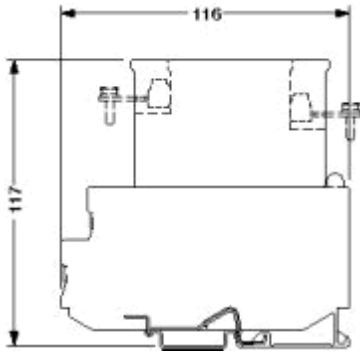
IP 20

Weight

470 g

¹ application submitted

Dimensional drawing

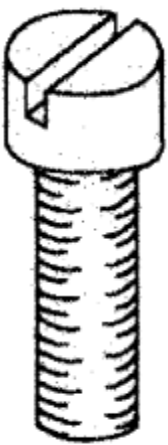


IBS ST 24 BK-T



Bus Terminal Module INTERBUS, 24 V DC,
with 9-pos. D-SUB connector

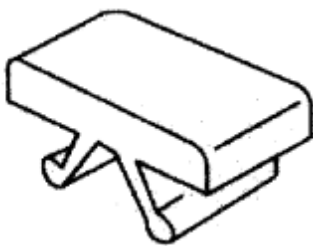
Design width 81



M3



8



"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V 1

Description	Type	Order No.	Pcs. Pkt.
INTERBUS bus terminal module , IP 20 protection class, consisting of:			
– Terminal part with screw-clamp connections and electronics module	IBS ST 24 BK-T	27 54 34 1	1
– Terminal part with spring-clamp connections and electronics module	IBS ST ZF 24 BK-T	27 50 74 3	1
Accessories			
Replacement bus terminal electronics module	IBS STME 24 BK-T	27 54 36 7	1
Fuse	IBS TR5 1AT	28 06 60 0	5
Technical data			
Interfaces			
INTERBUS remote bus (incoming/outgoing)	2 x 9-pos. D-SUB		
INTERBUS-ST local bus	ST local bus connector		
Power supply			
Power supply voltage			
– Nominal values	24 V DC		
– Ripple	3.6 V _{pp}		
– Allowable range	20 to 30 V DC (including ripple)		
Current consumption			
– Without connected ST I/O modules	150 mA		
– For max. terminal configuration	650 mA		
– Max. allowable total current consumption of all I/O modules	800 mA		
Electrical isolation			
Incoming remote bus/outgoing remote bus	500 V AC test voltage		
Incoming remote bus/ST local bus	500 V AC test voltage		
Power supply voltage/ST local bus	500 V AC test voltage		
INTERBUS data			
Max. distance to the next remote bus device	400 m		
Max. no. of ST I/O modules	8 (observe allowable total curr. consumption)		
Programmable functions			
Disable local bus branch	yes		
Reset local bus	yes		
Disable remote bus (outgoing remote bus)	yes		
Reset remote bus	yes		
Local diagnostics			
Operating voltage display (U _L)	LED green		
Remote bus active (BA)	LED green		
Local bus error (E)	LED red		
Remote bus connection OK (RC)	LED green		
Disabled ST local bus branch (LD)	LED red		
Disabled outgoing remote bus (RD)	LED red		
Local functions			

Reconfiguration input

switch connection option via screw/spring-clamps

Alarm output

relay contact, 30 V DC / 0.1-0.5 A

General data

Operating temperature range

0 °C to + 55 °C

Degree of protection

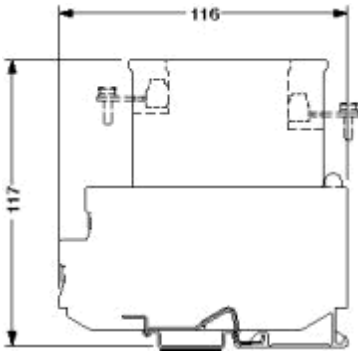
IP 20

Weight

470 g

¹ application submitted

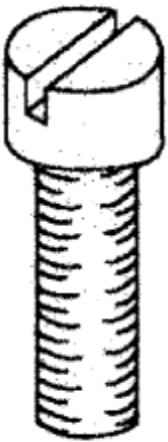
Dimensional drawing



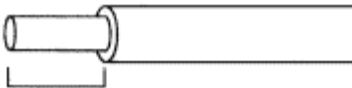
IBS ST 24 BKM-LK



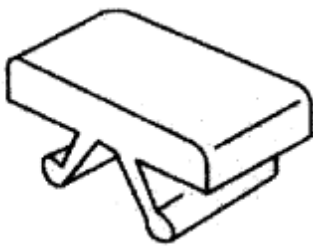
Bus Terminal Module INTERBUS, 24 V DC,
with optical fiber F-SMA Connector
Design width 44



M3



8



"...6"



(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V 1

Description	Type	Order No.	Pcs. Pkt.
INTERBUS bus terminal module , IP 20 protection class, consisting of:			
– Terminal part with screw-clamp connections and electronics module	IBS ST 24 BKM-LK	27 50 96 3	1
– Terminal part with spring-clamp connections and electronics module	IBS ST ZF 24 BKM-LK	27 21 68 8	1

Technical data

Interfaces

INTERBUS remote bus (incoming/outgoing)	4 x F-SMA connector
INTERBUS-ST local bus	ST local bus connector

Power supply

Power supply voltage

– Nominal values	24 V DC
– Ripple	3.6 V _{pp}
– Allowable range	20 to 30 V DC (including ripple)

Current consumption

– Without connected ST I/O modules	70 mA
– For max. terminal configuration	300 mA
– Max. allowable total current consumption of all I/O modules	500 mA

Electrical isolation

Incoming remote bus/outgoing remote bus	500 V AC test voltage
Incoming remote bus/ST local bus	500 V AC test voltage
Power supply voltage/ST local bus	500 V AC test voltage

INTERBUS data

Max. distance to the next remote bus device	max. 50 m polymer fiber/ max. 300 m HCS fiber
Max. no. of ST I/O modules	4 (observe allowable total curr. consumption)

Programmable functions

Disable local bus branch	yes
Reset local bus	yes
Disable remote bus (outgoing remote bus)	yes
Reset remote bus	yes

Local diagnostics

Operating voltage display (U _L)	LED green
Remote bus active (BA)	LED green
Local bus error (E)	LED red
Remote bus connection OK (RC)	LED green
Disabled ST local bus branch (LD)	LED red
Disabled outgoing remote bus (RD)	LED red

Local functions

Reconfiguration input	no
Alarm output	no

General data

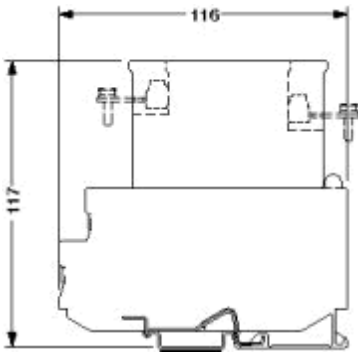
Operating temperature range	0 °C to + 55 °C
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Degree of protection IP 20

Weight 200 g

¹ application submitted

Dimensional drawing

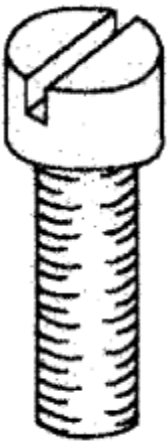


Courtesy of Steven Engineering, Inc. • 230 Ryan Way, South San Francisco, CA, 94080-6370 • Main Office: (650) 588-9200 • Outside Local Area: (800) 258-9200 • www.stevenengineering.com

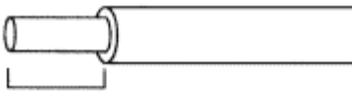
IBS ST 24 BKM-T



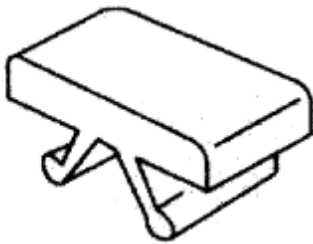
Bus Terminal Module INTERBUS, 24 V DC,
with 8-pos. MINI-COMBICON Connector
Design width 44



M3



8



"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V 1

Description	Type	Order No.	Pcs. Pkt.
INTERBUS bus terminal module , IP 20 protection class, consisting of:			
– Terminal part with screw-clamp connections and electronics module	IBS ST 24 BKM-T	27 50 15 4	1
– Terminal part with spring-clamp connections and electronics module	IBS ST ZF 24 BKM-T	27 24 96 0	1
Accessories			
Fuse	IBS TR5 1AT	28 06 60 0	5
Replacement shield clamp	IBS RB SHIELD	27 22 74 2	1
Replacement remote bus connector set	IBS RB PLSET/MC 1,5/8	27 22 75 5	2
Technical data			
Interfaces			
INTERBUS remote bus (incoming/outgoing)	2 x 8 pos. Mini-COMBICON		
INTERBUS-ST local bus	ST local bus connector		
Power supply			
Power supply voltage			
– Nominal values	24 V DC		
– Ripple	3.6 V _{pp}		
– Allowable range	20 to 30 V DC (including ripple)		
Current consumption			
– Without connected ST I/O modules	150 mA		
– For max. terminal configuration	350 mA		
– Max. allowable total current consumption of all I/O modules	500 mA		
Electrical isolation			
Incoming remote bus/outgoing remote bus	500 V AC test voltage		
Incoming remote bus/ST local bus	500 V AC test voltage		
Power supply voltage/ST local bus	500 V AC test voltage		
INTERBUS data			
Max. distance to the next remote bus device	400 m		
Max. no. of ST I/O modules	4 (observe allowable total curr. consumption)		
Programmable functions			
Disable local bus branch	yes		
Reset local bus	yes		
Disable remote bus (outgoing remote bus)	yes		
Reset remote bus	yes		
Local diagnostics			
Operating voltage display (U _L)	LED green		
Remote bus active (BA)	LED green		
Local bus error (E)	LED red		
Remote bus connection OK (RC)	LED green		
Disabled ST local bus branch (LD)	LED red		
Disabled outgoing remote bus (RD)	LED red		

Local functions

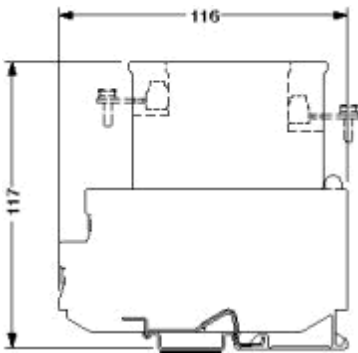
Reconfiguration input	no
Alarm output	no

General data

Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	200 g

¹ application submitted

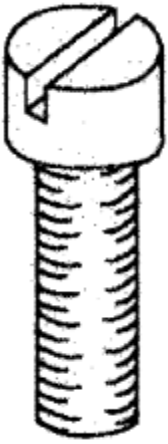
Dimensional drawing



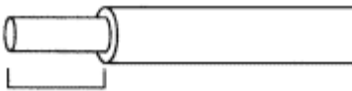
IB ST 24 BDI 16/4



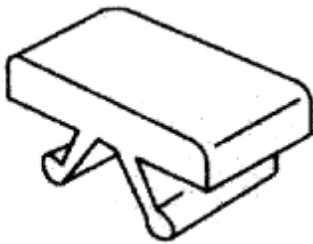
16 inputs, 24 V DC, 4-wire connections
Design width 118



M3



8



"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG


Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V 1

Description	Type	Order No.	Pcs. Pkt.
Digital input module , IP 20 protection class, consisting of:			
– Terminal part with screw-clamp connections and electronics module	IB ST 24 BDI 16/4	27 50 17 0	1
– Terminal part with spring-clamp connections and electronics module	IB ST ZF 24 BDI 16/4	27 50 73 0	1

Accessories

Replacement electronics module , without terminal part	IB STME 24 BDI 16/4	27 51 68 7	1
Replacement fuse	IBS TR5 1AT	28 06 60 0	5
Jumper , (only for screw-clamp terminals) separable, isolated comb spine 	EB 80-DIK BU	I_N : 26 A 27 15 94 0	5
Color: blue 80 pos. red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5

Technical data

Interfaces

INTERBUS-ST local bus ST local bus connector

Power supply

Power supply voltage

- Nominal values 24 V DC
- Ripple 3.6 V_{pp}
- Allowable range 20 to 30 V DC (including ripple)

Current consumption

- From the ST local bus 100 mA

Local diagnostics

Operating voltage display (U _L)	LED green
Power supply voltage per group (U _S)	LED green
ST local bus connection OK (CC)	LED green
Bus active (BA)	LED green
Status display per input	LED yellow

Diagnostics message via the bus

Blown fuse	yes
Power failure	yes
Short circuit, overload of an initiator power supply	yes, indirectly with fuse blown

Inputs

Number of inputs	16
Number of groups	1
Connection method	4-wire (signal, U _S , Gnd, PE)
Input current per channel	typ. 6 mA at 24 V DC
Allowable input voltage for	
– "1" signal	+ 15 to + 30 V DC
– "0" signal	– 30 to + 5 V DC
Signal change response time	approx. 50 s

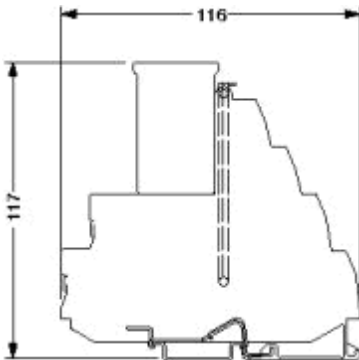
Electrical isolation	
– Bus electronics/inputs	500 V AC test voltage
Polarity reversal protection	with series diode and fuse
Short circuit protection of an initiator power supply	with fuse

General data

Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	755 g

¹ application submitted

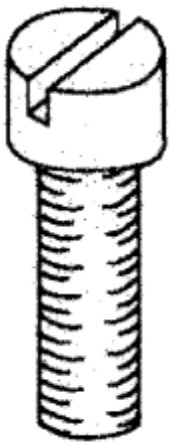
Dimensional drawing



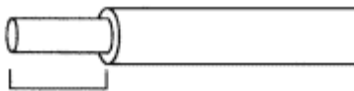
IB ST 24 BDI 8/4



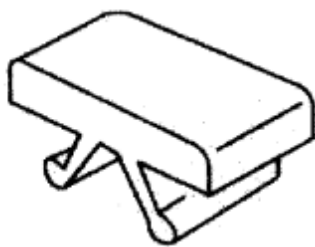
8 inputs, 24 V DC, 4-wire connections
Design width 81



M3



8



"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG


Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V 1

Description	Type	Order No.	Pcs. Pkt.
Digital input module , IP 20 protection class, consisting of:			
– Terminal part with screw-clamp connections and electronics module	IB ST 24 BDI 8/4	27 50 80 8	1
– Terminal part with spring-clamp connections and electronics module	IB ST ZF 24 BDI 8/4	27 50 71 4	1

Accessories

Replacement electronics module , without terminal part	IB STME 24 BDI 8/4	27 51 67 4	1
Replacement fuse	IBS TR5 0,4AT	27 53 47 8	5
Jumper , (only for screw-clamp terminals) separable, isolated comb spine 	EB 80-DIK BU	I_N : 26 A 27 15 94 0	5
Color: blue 80 pos. red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5

Technical data

Interfaces

INTERBUS-ST local bus ST local bus connector

Power supply

Power supply voltage

- Nominal values 24 V DC
- Ripple 3.6 V_{pp}
- Allowable range 20 to 30 V DC (including ripple)

Current consumption

- From the ST local bus 50 mA

Local diagnostics

Operating voltage display (U_L) LED green

Power supply voltage per group (U_S) LED green

ST local bus connection OK (CC) LED green

Bus active (BA) LED green

Status display per input LED yellow

Diagnostics message via the bus

Blown fuse yes

Power failure yes

Short circuit, overload of an initiator power supply yes, indirectly with fuse blown

Inputs

Number of inputs 8

Number of groups 1

Connection method 4-wire (signal, U_S, GND, PE)

Input current per channel typ. 6 mA at 24 V DC

Allowable input voltage for

- "1" signal + 15 to + 30 V DC
- "0" signal – 30 to + 5 V DC

Signal change response time approx. 50 s

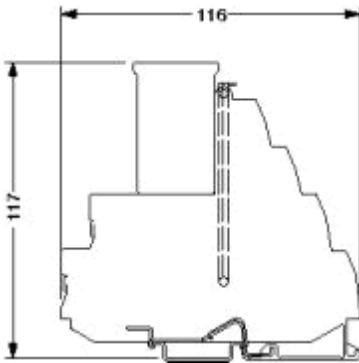
Electrical isolation	
– Bus electronics/inputs	500 V AC test voltage
Polarity reversal protection	with inverse-parallel diode and fuse
Short circuit protection of an initiator power supply	with fuse

General data

Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	485 g

¹ application submitted

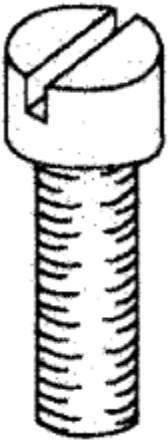
Dimensional drawing



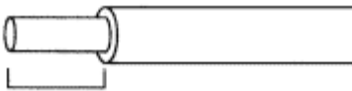
IB ST 24 DI 32/2



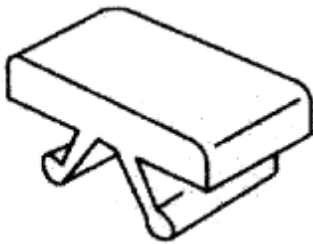
32 inputs, 24 V DC, 2-wire connections
Design width 118



M3



8



"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG


Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V 1

Description	Type	Order No.	Pcs. Pkt.
Digital input module , IP 20 protection class, consisting of:			
– Terminal part with screw-clamp connections and electronics module	IB ST 24 BDI 32/2	27 54 92 7	1
– Terminal part with spring-clamp connections and electronics module	IB ST ZF 24 BDI 32/2	27 50 67 5	1

Accessories

Replacement electronics module , without terminal part	IB STME 24 BDI 32/2	27 54 98 5	1
Replacement fuse	IBS TR5 2AT	27 52 50 5	5
Jumper , (only for screw-clamp terminals) separable, isolated comb spine 	EB 80-DIK BU	I_N : 26 A 27 15 94 0	5
Color: blue 80 pos. red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5

Technical data

Interfaces

INTERBUS-ST local bus ST local bus connector

Power supply

Power supply voltage

- Nominal values 24 V DC
- Ripple 3.6 V_{pp}
- Allowable range 20 to 30 V DC (including ripple)

Current consumption

- From the ST local bus 100 mA

Local diagnostics

Operating voltage display (U_L) LED green

Power supply voltage per group (U_S) LED green

ST local bus connection OK (CC) LED green

Bus active (BA) LED green

Status display per input LED yellow

Diagnostics message via the bus

Blown fuse yes

Power failure yes

Short circuit, overload of an initiator power supply yes, indirectly with fuse blown

Inputs

Number of inputs 32

Number of groups 1

Connection method 2-wire (signal, U_S)

Input current per channel typ. 5 mA bei 24 V DC

Allowable input voltage for

- "1" signal + 13 to + 30 V DC
- "0" signal – 30 to + 6 V DC

Signal change response time typ. 3 ms

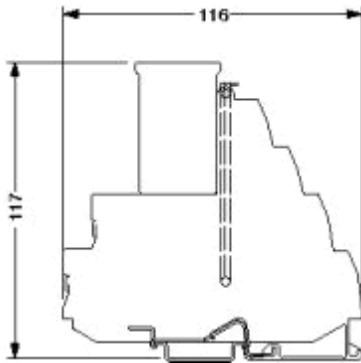
Electrical isolation	
– Bus electronics/inputs	500 V AC test voltage
Polarity reversal protection	with inverse-parallel diode and fuse
Short circuit protection of an initiator power supply	with fuse

General data

Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	740 g

¹ application submitted

Dimensional drawing

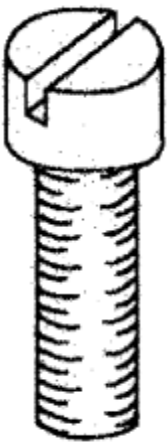


IB ST 24 BDO 16/3-250

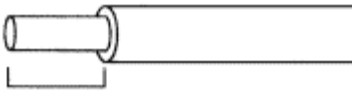


16 outputs, 24 VDC, 250 mA,
3-wire connection

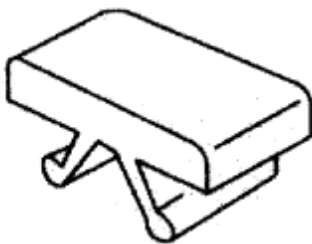
Design width 118



M3



8



"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG


Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V 1

Description	Type	Order No.	Pcs. Pkt.
Digital output module , IP 20 protection class, consisting of:			
– Terminal part with screw-clamp connections and electronics module	IB ST 24 BDO 16/3-250	27 50 16 7	1
– Terminal part with spring-clamp connections and electronics module	IB ST ZF 24 BDO 16/3-250	27 50 72 7	1

Accessories

Replacement electronics module , without terminal part	IB STME 24 BDO 16/3-250	27 51 70 0	1
Replacement fuse	IBS TR5 1,6AT	27 67 36 7	5
Jumper , (only for screw-clamp terminals) separable, isolated comb spine			
Color: blue 80 pos.	EB 80-DIK BU	I_N : 26 A 27 15 94 0	5
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5

Technical data

Interfaces

INTERBUS-ST local bus ST local bus connector

Power supply

Power supply voltage

- Nominal values 24 V DC
- Ripple 3.6 V_{pp}
- Allowable range 20 to 30 V DC (including ripple)

Current consumption

- From the ST local bus 100 mA

Local diagnostics

Operating voltage display (U _L)	LED green
Power supply voltage per group (U _S)	LED green
ST local bus connection OK (CC)	LED green
Bus active (BA)	LED green
I/O error per group (E)	LED red
Status display per input	LED yellow

Diagnostics message via the bus

Blown fuse	no
Power failure	no
Short circuit, overload of an output	yes

Outputs

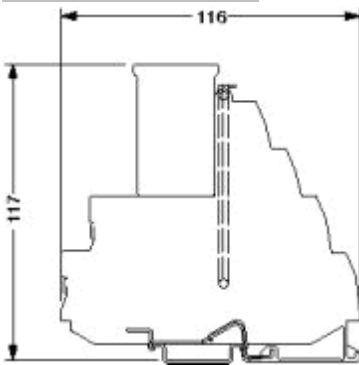
Number of outputs	16
Number of electrically isolated output groups	1
Connection method	3-wire
Output voltage	U _S -2 V
Output current	
– Max. per output	250 mA
– Min. per output	1 mA

– Max. per group	0.8 A for 4 channels
– Max. per module	3.2 A
Allowable load per output	
– Resistive load	12 W, max. 100 Hz at 47 Ohm
– Inductive load	12 VA (0.5 Hz at 1.2 H with 47 Ohm)
– Lamp load	6 W
Electrical isolation	
– Module electronics/outputs	500 V AC test voltage
Polarity reversal protection	with inverse-parallel diode and fuse
Protection against short circuits of outputs	electronic, in groups of 4 outputs

General data

Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	770 g

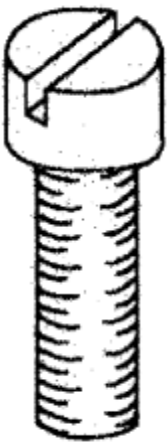
¹ application submitted

Dimensional drawing

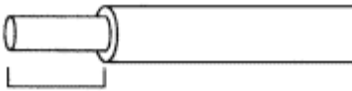
IB ST 24 BDO 16/3-500



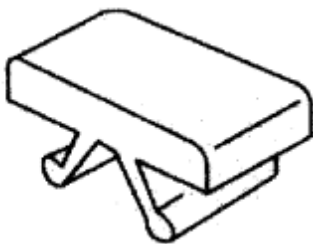
16 outputs, 24 VDC, 500 mA,
3-wire connection
Design width 118



M3



8




"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V 1

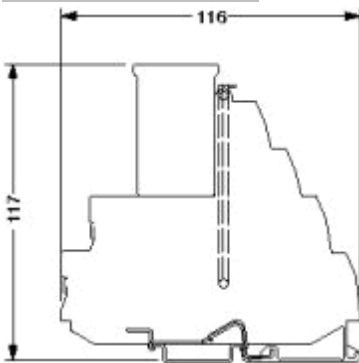
Description	Type	Order No.	Pcs.	Pkt.
Digital output module , IP 20 protection class, consisting of:				
– Terminal part with screw-clamp connections and electronics module	IB ST 24 BDO 16/3-500	27 24 93 1	1	
– Terminal part with spring-clamp connections and electronics module	IB ST ZF 24 BDO 16/3-500	27 24 91 5	1	
Accessories				
Replacement electronics module , without terminal part	IB STME 24 BDO 16/3-500	27 24 92 8	1	
Replacement fuse	IBS TR5 1,6AT	27 67 36 7	5	
Jumper , (only for screw-clamp terminals) separable, isolated comb spine				
Color: blue 80 pos.	EB 80-DIK BU	I_N : 26 A 27 15 94 0	5	
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5	
Technical data				
Interfaces				
INTERBUS-ST local bus	ST local bus connector			
Power supply				
Power supply voltage				
– Nominal values	24 V DC			
– Ripple	3.6 V _{pp}			
– Allowable range	20 to 30 V DC (including ripple)			
Current consumption				
– From the ST local bus	100 mA			
Local diagnostics				
Operating voltage display (U _L)	LED green			
Power supply voltage per group (U _S)	LED green			
ST local bus connection OK (CC)	LED green			
Bus active (BA)	LED green			
I/O error per group (E)	LED red			
Status display per output	LED yellow			
Diagnostics message via the bus				
Blown fuse	no			
Power failure	no			
Short circuit, overload of an output	yes			
Outputs				
Number of outputs	16			
Number of electrically isolated output groups	1			
Connection method	3-wire			
Output voltage	U _S -1 V			
Output current				
– Max. per output	500 mA			
– Min. per output	1 mA			

– Max. per group	4 A for 8 channels
– Max. per module	8 A
Allowable load per output	
– Resistive load	12 W, max. 100 Hz at 47 Ohm
– Inductive load	12 VA (0.5 Hz at 1.2 H with 47 Ohm)
– Lamp load	4 W
Electrical isolation	
– Module electronics/outputs	500 V AC test voltage
Polarity reversal protection	with inverse-parallel diode and fuse
Protection against short circuits of outputs	electronic, in groups of 4 outputs

General data

Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	760 g

¹ application submitted

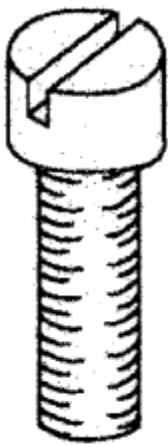
Dimensional drawing

IB ST 24 BDO 32/2

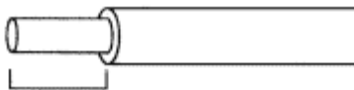


32 outputs, 24 V DC, 500 mA,
2-wire connection

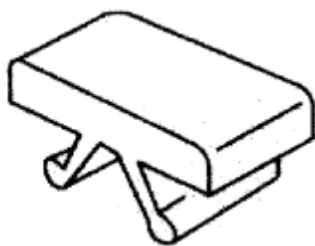
Design width 118



M3



8



"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG


Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V 1

Description	Type	Order No.	Pcs. Pkt.
Digital output module , IP 20 protection class, consisting of:			
– Terminal part with screw-clamp connections and electronics module	IB ST 24 BDO 32/2	27 50 82 4	1
– Terminal part with spring-clamp connections and electronics module	IB ST ZF 24 BDO 32/2	27 50 69 1	1

Accessories

Replacement electronics module , without terminal part	IB STME 24 BDO 32/2	27 51 71 3	1
Replacement fuse	IBS TR5 5AT	27 67 38 3	5
Jumper , (only for screw-clamp terminals) separable, isolated comb spine			
Color: blue 80 pos.	EB 80-DIK BU	I_N : 26 A 27 15 94 0	5
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5

Technical data

Interfaces

INTERBUS-ST local bus ST local bus connector

Power supply

Power supply voltage

- Nominal values 24 V DC
- Ripple 3.6 V_{pp}
- Allowable range 20 to 30 V DC (including ripple)

Current consumption

- From the ST local bus 100 mA

Local diagnostics

Operating voltage display (U_L)	LED green
Power supply voltage per group (U_S)	LED green
ST local bus connection OK (CC)	LED green
Bus active (BA)	LED green
I/O error per group (E)	LED red
Status display per output	LED yellow

Diagnostics message via the bus

Blown fuse	no
Power failure	no
Short circuit, overload of an output	yes

Outputs

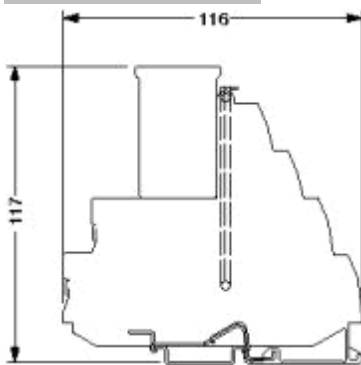
Number of outputs	32
Number of electrically isolated output groups	1
Connection method	2-wire
Output voltage	$U_S - 1$ V
Output current	
– Max. per output	500 mA
– Min. per output	1 mA

– Max. per group	4 A for 8 channels
– Max. per module	16 A
Allowable load per output	
– Resistive load	12 W, max. 100 Hz at 47 Ohm
– Inductive load	12 VA (0.5 Hz at 1.2 H mit 47 Ohm)
– Lamp load	4 W
Electrical isolation	
– Module electronics/outputs	500 V AC test voltage
Polarity reversal protection	with inverse-parallel diode and fuse
Protection against short circuits of outputs	electronic, in groups of 4 outputs

General data

Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	770 g

¹ application submitted

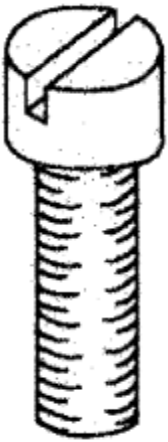
Dimensional drawing

IB ST 24 BDO 8/3

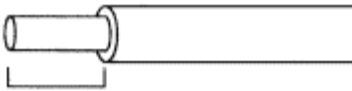


8 outputs, 24 V DC, 250 mA,
3-wire connection

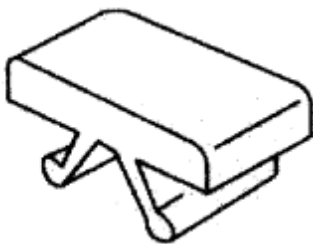
Design width 81



M3



8




"...6"

(IEC)	rigid	flexible	
[mm ²]	solid	stranded	AWG

Connection data

-Screw-clamp	0.2-2.5	0.2-2.5	24-12
-Spring-clamp	0.2-1.5	0.2-1.5	24-16

A V 1

Description	Type	Order No.	Pcs.	Pkt.
Digital output module , IP 20 protection class, consisting of:				
– Terminal part with screw-clamp connections and electronics module	IB ST 24 BDO 8/3	27 50 81 1	1	
– Terminal part with spring-clamp connections and electronics module	IB ST ZF 24 BDO 8/3	27 50 70 1	1	
Accessories				
Replacement electronics module , without terminal part	IB STME 24 BDO 8/3	27 51 69 0	1	
Replacement fuse	IBS TR5 1,6AT	27 67 36 7	5	
Jumper , (only for screw-clamp terminals) separable, isolated comb spine				
Color: blue 80 pos.	EB 80-DIK BU	I_N : 26 A 27 15 94 0	5	
red 80 pos.	EB 80-DIK RD	26 A 27 15 95 3	5	
Technical data				
Interfaces				
INTERBUS-ST local bus	ST local bus connector			
Power supply				
Power supply voltage				
– Nominal values	24 V DC			
– Ripple	3.6 V _{pp}			
– Allowable range	20 to 30 V DC (including ripple)			
Current consumption				
– From the ST local bus	50 mA			
Local diagnostics				
Operating voltage display (U _L)	LED green			
Power supply voltage per group (U _S)	LED green			
ST local bus connection OK (CC)	LED green			
Bus active (BA)	LED green			
I/O error per group (E)	LED red			
Status display per output	LED yellow			
Diagnostics message via the bus				
Blown fuse	no			
Power failure	no			
Short circuit, overload of an output	yes			
Outputs				
Number of outputs	8			
Number of electrically isolated output groups	1			
Connection method	3-wire			
Output voltage	U _S -2 V			
Output current				
– Max. per output	250 mA			
– Min. per output	1 mA			

– Max. per group	0.8 A for four channels
– Max. per module	1.6 A
Allowable load per output	
– Resistive load	6 W, max. 100 Hz at 96 Ω
– Inductive load	6 VA (0.5 Hz at 1.2 H with 96 Ω)
– Lamp load	6 W
Electrical isolation	
– Module electronics/outputs	500 V AC test voltage
Polarity reversal protection	with inverse-parallel diode and fuse
Protection against short circuits of outputs	electronic, in groups of 4 outputs

General data

Operating temperature range	0 °C to + 55 °C
Degree of protection	IP 20
Weight	495 g

¹ application submitted

Dimensional drawing

