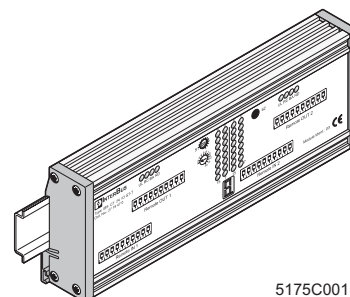


# IBS CT 24 IO GT-T IBS CT 24 IO GT-T/NPF

## Gateway Between Two INTERBUS Systems



5175C001

Data Sheet 517504

07/2003



This data sheet is only valid in association with the IBS SYS PRO INST UM E User Manual.

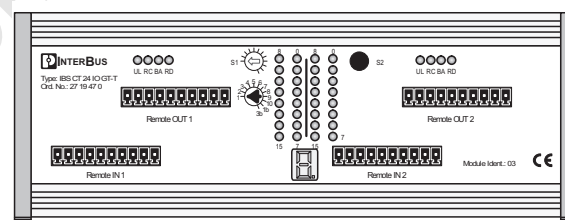


The item versions IBS CT 24 IO GT-T and IBS CT 24 IO GT-T/NPF only differ in "Two-way error message in the event of an INTERBUS system failure" (see page 9). Function and technical data are identical.

For greater clarity, the Order Designation IBS CT 24 IO GT-T is used throughout this document

### Features

- Remote bus connection via MINI-COMBICON
- Electrical isolation of INTERBUS systems
- Electrical isolation between supply voltage and communications power
- LED diagnostic and status indicators
- DIN rail mounting



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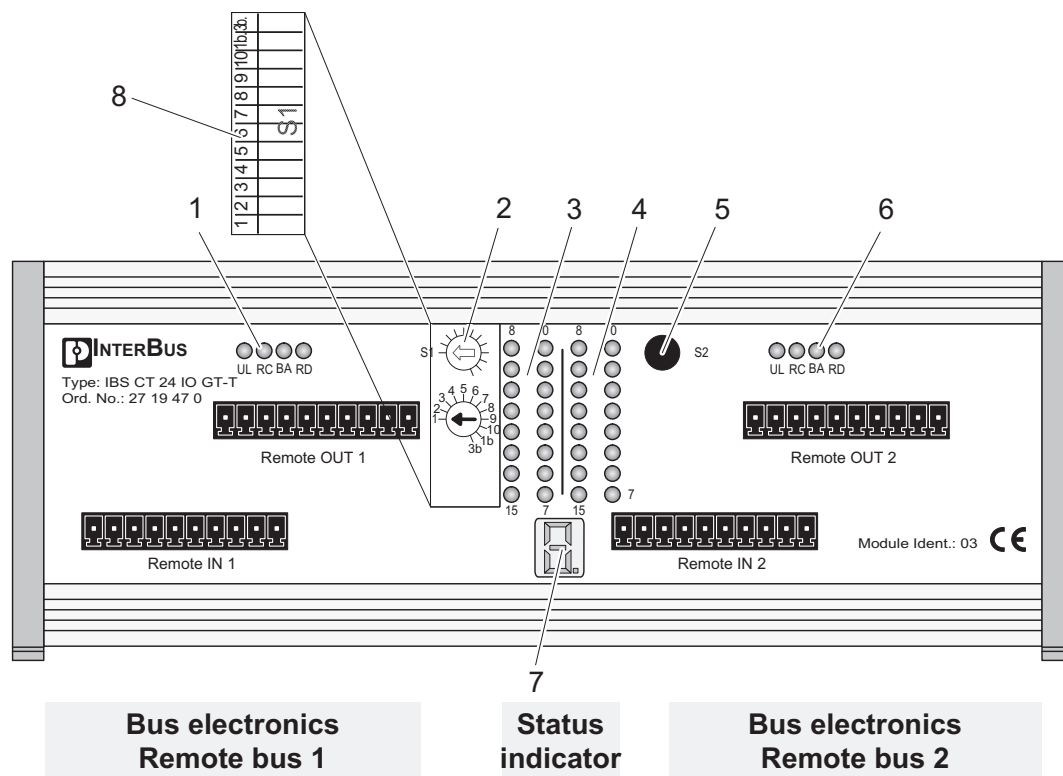
Figure 1 IBS CT 24 IO GT-T module

## Product Description

The module is used for the I/O connection of two INTERBUS systems. It has the same function as two standard I/O modules on which the inputs and outputs are cross wired. Cross wiring permits the transmission of data from one system part to another. Data width can be configured between one byte and ten words using a rotary switch.

## IBS CT 24 IO GT-T (/NPF)

### Positions of the Connections, Diagnostic and Status Indicators



5175C003

Figure 2 Front view of the module

- 1 Diagnostic indicators for remote bus 1
- 2 Configuration switch S1
- 3 Status indicators for remote bus 1
- 4 Status indicators for remote bus 2
- 5 Pushbutton S2
- 6 Diagnostic indicators for remote bus 2
- 7 7-segment display
- 8 Sticker, supplied with the module



The valid configuration can be entered on the sticker supplied, which can then be placed over the S1 selector switch to prevent accidental adjustment of the configuration.

## IBS CT 24 IO GT-T (/NPF)

### Connector Pin Assignment for Each Remote Bus

Terminal Sequence	Signal
Remote OUT x	Outgoing remote bus
Remote IN x	Incoming remote bus

### Local Diagnostic and Status Indicators

Des.	Color	Meaning
<b>7-Segment Display</b>		Module configuration (see page 4)
<b>For Each Remote Bus</b>		
<b>UL</b>	Green	Supply voltage for the bus interface
<b>RC</b>	Green	Remote bus cable check
<b>BA</b>	Green	Bus active
<b>RD</b>	Red	Remote bus disconnected
<b>0 to 15</b>	Yellow	Status indicators (see page 4)

### Configuration Switch S1



The configuration setting can only be read after power up. It is not possible to modify the configuration during operation. If the switch position is changed during operation, the configuration is only changed and displayed after a new power up. Power up after any changes to the configuration so that the configuration is read.

The configuration of the IBS CT 24 IO GT-T module can be modified using the configuration switch. Use a screwdriver to change the switch position. The set configuration is displayed on the 7-segment display when the system is switched on.

Possible configurations

Switch Setting	1	2	3	4	5	6	7	8	9	10	1b.	3b.	(X)			
Register Length	1	2	3	4	5	6	7	8	9	10	1	3	1	1	1	1
	Word(s)										Byte*		Word			
Length Code (hex)	01	02	03	04	05	06	07	08	09	0A	81	83	01	01	01	01
7-Segment Display	1	2	3	4	5	6	7	8	9	A	1.	3.	1	1	1	1

(X): Reserved, set internally to a register length of one word (modifications reserved)

\* Byte lengths can only be set when using a controller board of firmware version 4.x or later, or a controller board that supports byte operation.

## IBS CT 24 IO GT-T (/NPF)

### Pushbutton S2



Do **not** press the pushbutton during power up, otherwise an internal test function will be activated. This test mode can only be exited by switching off the supply voltage.

The pushbutton is used to select the word or byte number of the output information, which is to be displayed for each bus system using the 16 LEDs. The selected word or byte number is displayed on the 7-segment display.

Meaning of the display

No. of the Output Word or Byte	Word										Byte		
	1	2	3	4	5	6	7	8	9	10	1	2	3
Display	1	2	3	4	5	6	7	8	9	A	1.	2.	3.

### 7-Segment Display

Two pieces of information are shown on the 7-segment display:

- 1 The maximum word number, byte number or register length of the set configuration is always displayed when the supply voltage is switched on.
- 2 As soon as the pushbutton is pressed, the corresponding word or byte number of the output information, shown on the status display, is indicated. Once the maximum number for the corresponding configuration is reached, the first number is displayed again when the pushbutton is pressed.



Please note that the byte devices are indicated by a point after the displayed byte number.

### Status Indicators

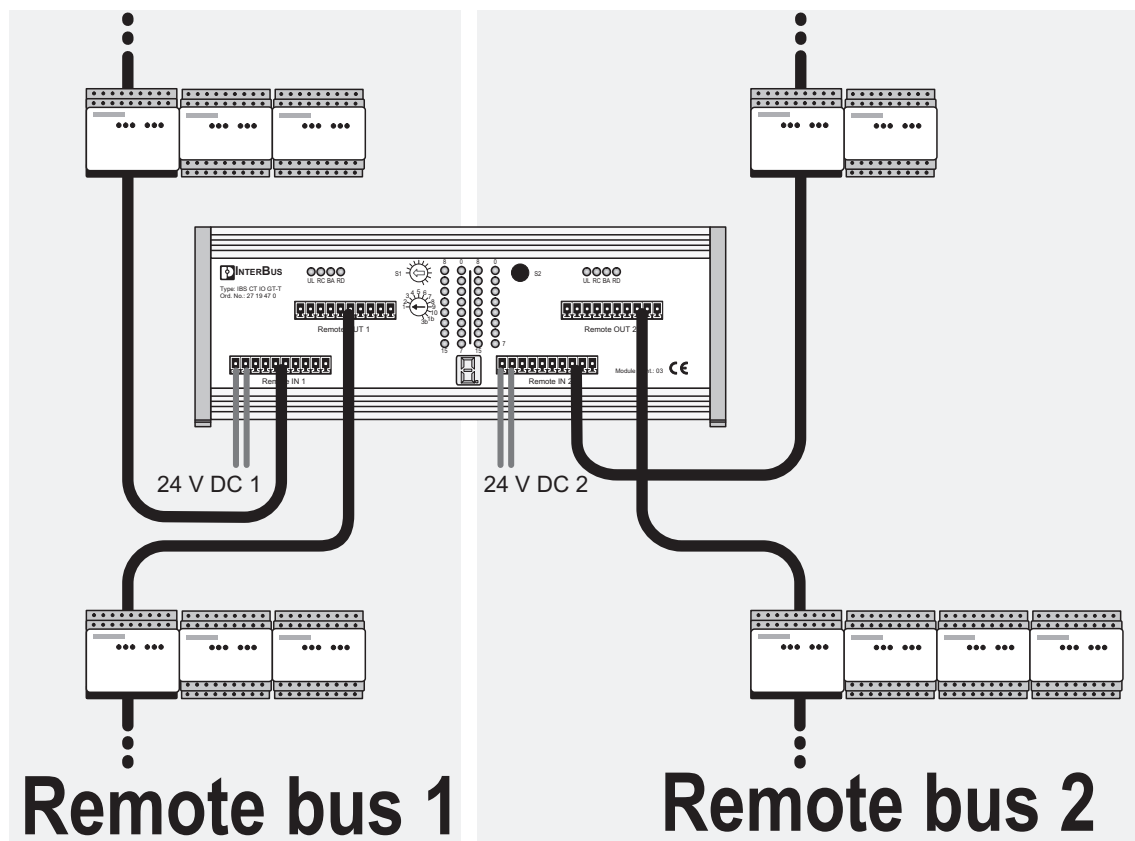
The 16 status LEDs per remote bus indicate the status of the output word or byte of the corresponding remote bus specified by the pushbutton. In byte operation the selected byte is displayed on LEDs 0 to 7, which correspond to the least significant byte.



The output information of one bus is the input information of another bus. Only the output information of each bus is displayed by the status indicators.

## IBS CT 24 IO GT-T (/NPF)

### Installation Example



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Figure 3 Installation diagram for the IBS CT 24 IO GT-T module



You must connect both supply voltages. The module has a redundant supply voltage enabling both INTERBUS systems to be operated separately. If the system fails, the other bus will continue to operate without restriction if the corresponding supply voltage is present.

## IBS CT 24 IO GT-T (/NPF)

### Remote Bus Connection With the Remote Bus Cable

- Snap the cable clip onto the module at the positions shown. The cable clips are designed for mounting the remote bus cables to the module and provide the strain relief for the remote bus cables.

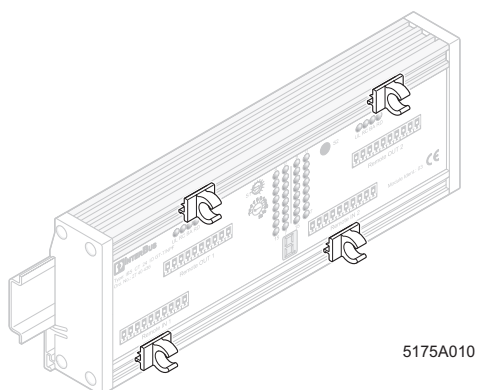


Figure 4 Position of cable clips

- The remote bus is connected to the module using a 10-pos. MINI-COMBICON connector. The cable shield is connected to the housing using a shield clamp at two MINI-COMBICON terminal points.
- Plug the connector into the corresponding terminal strips with the keying tabs facing downwards (Figure 5). Remote IN designates the incoming remote bus, remote OUT the outgoing remote bus. The supply voltage  $U_L$  for the module electronics must be supplied through terminals 1 ( $U_{L+}$ ) and 2 ( $U_{L-}$ ) of the REMOTE IN connector.

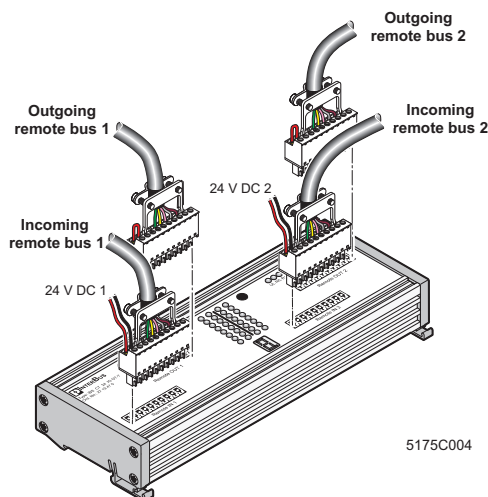


Figure 5 Positions of remote bus connectors

- Press the remote bus cables into the cable clips.



Observe the required bending radii (at least 8 x cable diameter).

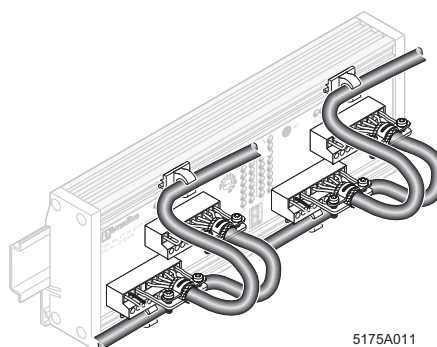








Figure 6 Completely wired module including strain relief

## IBS CT 24 IO GT-T (/NPF)

### Pin Assignment of the Remote IN Connector

Pin	1	2	3	4	5	6	7	8	9	10
Terminal Designation	U <sub>L</sub> +	U <sub>L</sub> -			A	B	C	D	E	
Signal Description	24 V	0 V	Shield	Shield	/DO	DO	/DI	DI	Ground	Shield
Wire Color					Green	Yellow	Pink	Gray	Brown	

### Pin Assignment of the Remote OUT Connector

Pin	1	2	3	4	5	6	7	8	9	10
Terminal Designation	L	M			F	G	H	J	K	
Signal Description	RBST	VCC	Shield	Shield	/DO	DO	/DI	DI	Ground	Shield
Wire Color					Green	Yellow	Pink	Gray	Brown	



Please note that if modules are followed by another module, a wire jumper must be installed between terminals 1 (L) and 2 (M) of the remote OUT connector.

### Programming Data

ID code	03 <sub>hex</sub> (03 <sub>dec</sub> )
Length code	1 byte to 20 bytes (2 bytes default)
Process data channel	8 bits to 160 bits (16 bits default)
Input address area	1 byte to 20 bytes
Output address area	1 byte to 20 bytes
Parameter channel (PCP)	0 bytes
Register length	1 byte to 20 bytes

## IBS CT 24 IO GT-T (/NPF)

### Technical Data

General Data	
Order Designation	Order Number
IBS CT 24 IO GT-T	27 19 47 0
IBS CT 24 IO GT-T/NPF	27 40 43 6
Housing dimensions (length x height x depth)	204 mm x 77 mm x 34 mm (8.031 in. x 3.031 in. x 1.339 in.)
Total power consumption (electronics; bus interface; I/O)	5.76 W typical
Permissible operating temperature	From -20°C to +70°C (-4°F to 158°F)
Permissible storage temperature	From -40°C to +85°C (-40°F to 185°F)
Degree of protection	IP20, DIN 40050, IEC 60529
Class of protection	Class 3 VDE 0106, IEC 60536
Humidity	30% to 75%
Air pressure (operation)	86 kPa to 106 kPa, 1500 m (4921 ft.) above sea level
Electrical isolation	Test voltage
Supply voltage/logic	500 V AC, 1 minute, 50 Hz
Supply voltage/functional earth ground	500 V AC, 1 minute, 50 Hz
Logic/functional earth ground	500 V AC, 1 minute, 50 Hz
INTERBUS system 1/INTERBUS system 2	500 V AC, 1 minute, 50 Hz
Preferred mounting position	Panel mounting on DIN rail
Protective ground	Using DIN rail
Weight	240 g, typical
Interface	
Protocol mode	2-wire asynchronous protocol, 500 kBd
Incoming remote bus	10-pos. MINI-COMBICON connector
Outgoing remote bus	10-pos. MINI-COMBICON connector
Maximum distance to the next remote bus device	400 m (1312.336 ft.)
Remote bus end encoding	Jumper on the MINI-COMBICON connector of the outgoing remote bus interface



## IBS CT 24 IO GT-T (/NPF)

Power Consumption	
Supply voltage $U_L$	24 V DC
Nominal current consumption at $U_L$	240 mA, typical
Power consumption at $U_L$ (24 V supply voltage)	5.76 W, typical

Supply Voltage ( $U_L$ )	
Nominal value	24 V DC
Permissible ripple	3.6 V <sub>pp</sub> within the permissible voltage range
Permissible voltage range (ripple included)	20 V DC to 30 V DC
Current consumption at $U_L$	240 mA, typical
Protection against polarity reversal	Yes, through diode connected in series
Surge voltage protection	35 V (0.5 s)
Failure detection	Yes
Power consumption at $U_L$ (24 V supply voltage)	5.76 W typical

Module Error Messages	
Failure of an INTERBUS device	Yes
Two-way error message in the event of an INTERBUS system failure	
IBS CT 24 IO GT-T	Yes
IBS CT 24 IO GT-T/NPF	No

## IBS CT 24 IO GT-T (/NPF)

### Ordering Data

Description	Order Designation	Order No.
INTERBUS coupling module	IBS CT 24 IO GT-T	27 19 47 0
INTERBUS coupling module	IBS CT 24 IO GT-T/NPF	27 40 43 6
Replacement cable clips (10 pcs)	IBS CT RELIEF	27 25 46 4
Replacement shield clamp (1 piece)	IBS RB-SHIELD	27 22 74 2
Replacement remote bus connector set	IBS RB PLSET/FRONT-MC 1,5/10	27 22 76 8
"Configuring and Installing INTERBUS" User Manual	IBS SYS PRO INST UM E	27 43 80 2



Make sure you always use the latest documentation.  
It is available to download on the Internet at [www.phoenixcontact.com](http://www.phoenixcontact.com).

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