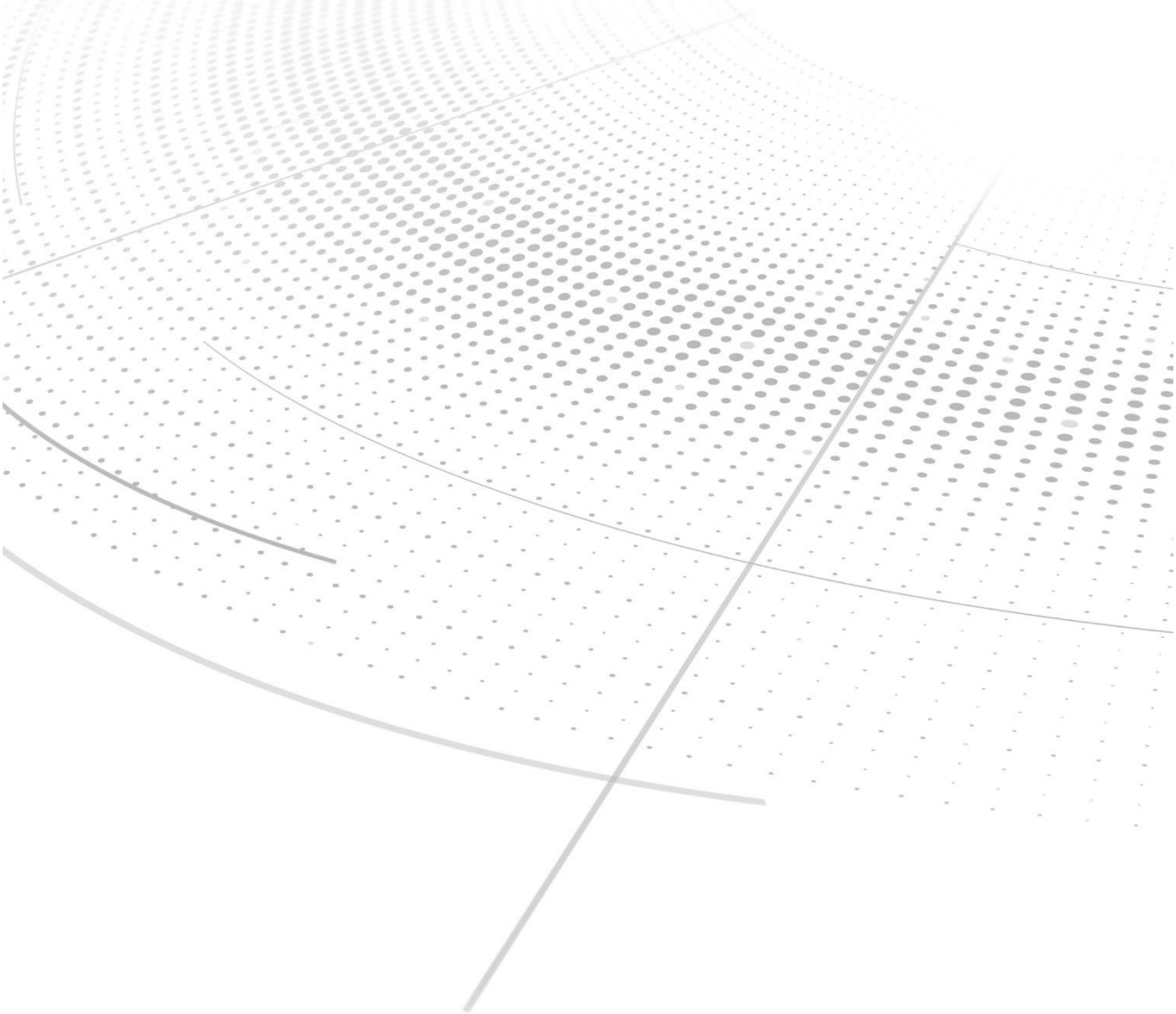
DeviceNet™

HE-65 CAN-BUS
(DeviceNet-Slave)



Technical Information

TR - ECE - TI - GB - 0021 - 01 03/30/2016

TR-Electronic GmbH
D-78647 Trossingen
Eglishalde 6
Tel.: (0049) 07425/228-0
Fax: (0049) 07425/228-33
email: info@tr-electronic.de
www.tr-electronic.com

Copyright protection

Subject to modifications

The right to make any changes in the interest of technical progress is reserved.

Document information

Release date / Rev. date:	03/30/2016
Document / Rev. no.:	TR - ECE - TI - GB - 0021 - 01
File name:	TR-ECE-TI-GB-0021-01.docx
Author:	ULH / MÜJ

Font styles

Italic or **bold** font styles are used for the title of a document or are used for highlighting.

`Courier` font displays text, which is visible on the display or screen and software menu selections.

″ < > ″ indicates keys on your computer keyboard (such as <RETURN>).

Brand names

DeviceNet is a trademark of ODVA, Inc.

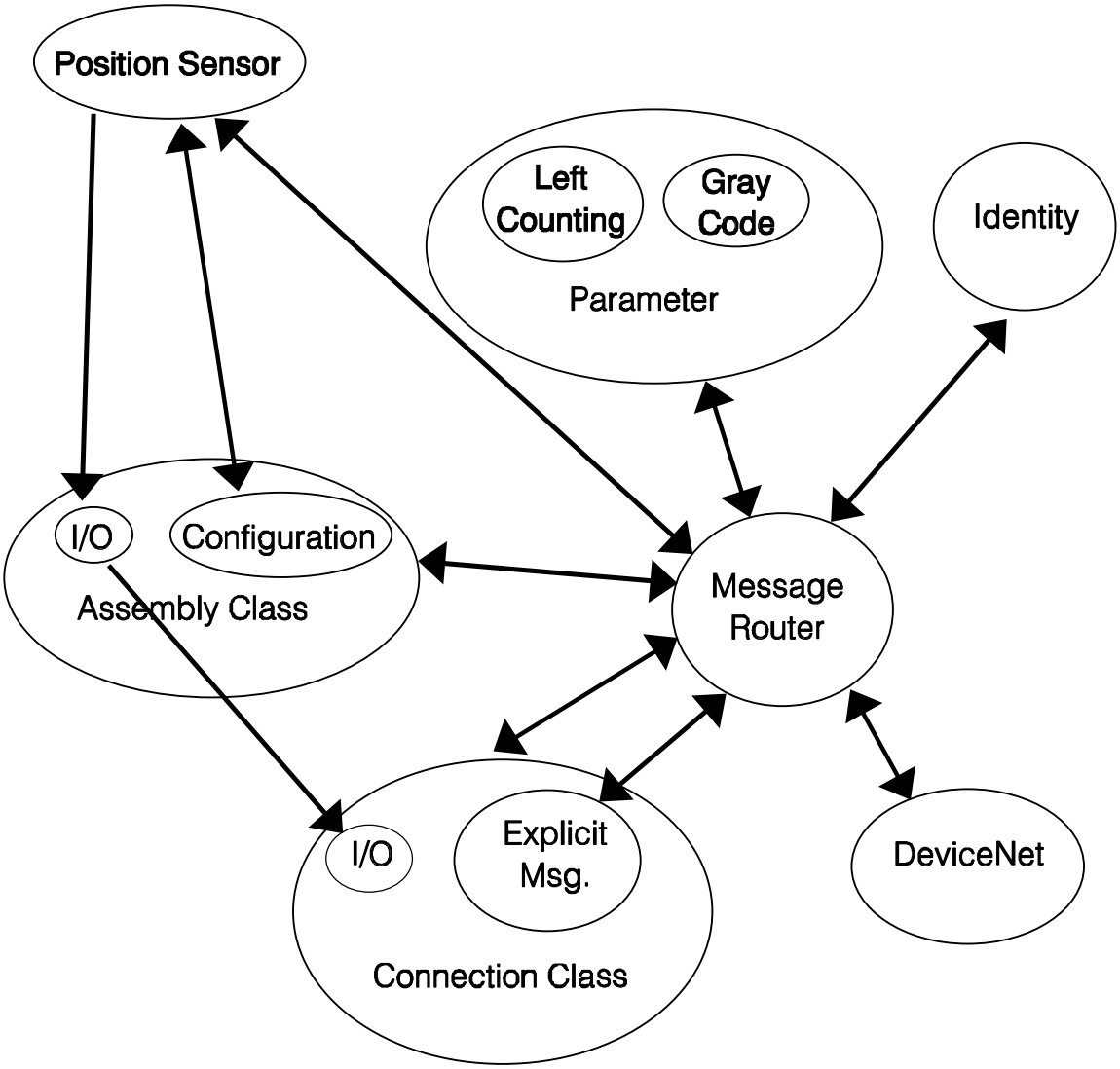
 Printed in the Federal Republic of Germany

Contents

Revision index

Revision	Date	Index
First release	03/17/97	00
General modifications	03/30/16	01

1 Device Net Profile



Object Class	# Instances
Identity	1
Message Router	1
DeviceNet	1
Connection	2
Assembly	2
Parameter	2
Position Sensor	1

1.1 I/O Assembly Instance

Number	Name
1	Value

1.2 I/O Assembly Data Attribute Format

Instance	Byte	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
1	0 1 2 3	Value							

1.3 Mapping I/O Assembly Data Attribute Components

Data Component Name	Class		Instance Number	Attribute		DataType
	Name	Nr		Name	Nr	
Value	Position Sensor	23	1	Value	3	UDINT

1.4 Configuration Assembly Instance

Number	Name
42	Configuration

1.5 Configuration Assembly Data Attribute Format

Instance	Byte	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
42	0	Direction							
	1	Coding							

1.6 Mapping Configuration Assembly Data Attribute Components

Data Component Name	Class		Instance Number	Attribute		DataType
	Name	Nr		Name	Nr	
Direction	Position Sensor	23	1	left Counting	10	BOOL
Coding	Position Sensor	23	1	Gray-Code	11	BOOL

1.7 Parameter Object Instances

Number	Name
1	Direction
2	Coding

1.8 Mapping Parameter Object Data

Configuration Parameter Name	Class		Instance Number	Attribute		DataType
	Name	Nr		Name	Nr	
Direction	Position Sensor	23	1	left Counting	10	BOOL
Coding	Position Sensor	23	1	Gray-Code	11	BOOL

2 Technical Data

2.1 Electrical Characteristic Data

Operating voltage:	11-27 V DC
Max. current consumption:	0,5 A (no load)
Output capacity:	24-bit (25-bit optional)
Resolution:	4096 steps/rev (12-bit)
Option:	8192 steps/rev (13-bit)
Measuring range:	4096 revolutions (12 Bit)
*** Output code:**	binary (default), gray (programmable)
*** Counting direction:**	counting clockwise (default), counting conter clockwise (programmable)
Baud rate:	125 kbps, line length up to 500 m 250 kbps, line length up to 250 m 500 kbps, line length up to 100 m
Encoder interface:	CAN-Bus-Interface
Data transfer:	CAN-BUS-Driver (ISO/DIS 11898)
Operating temperature range:	0 to 60°C, no condensation

* Programmed values are available until the power supply is failure.

2.2 Mechanical Characteristic Data

Mechanically permissible speed:	6000 RPM
Permissible shaft loading:	40 N axial, 60 N radial (at end of shaft)
Minimum bearing lifetime:	3.9×10^{10} revolutions at:
Operating speed:	3000 RPM
Shaft loading:	20 N axial, 30 N radial (at end of shaft)
Operating temperature:	60° C
Max. angular acceleration:	$\leq 10^4$ rad/s^2
Moment of inertia:	2.5×10^{-6} kg m^2
Starting torque at 20 °C:	2 Ncm
Vibration loading (50-2000 Hz):	≤ 100 m/s^2 (DIN IEC 68-2-6)
Shock loading (11 ms):	≤ 1000 m/s^2 (DIN IEC 68-2-27)

3 Pin Assignments

Explanation of terms:

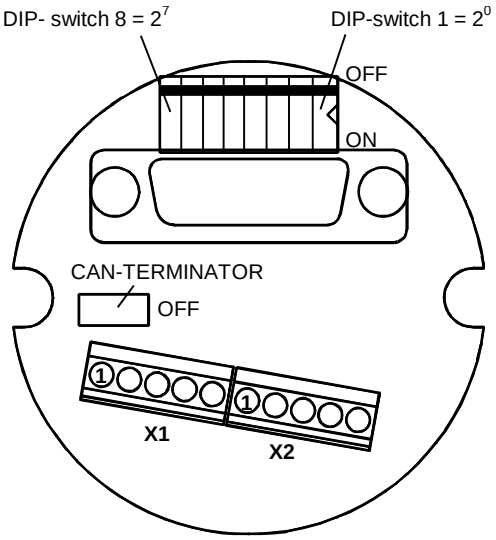
HE65:	Hardware-Encoder with ∅ 65 mm
MINI-COMBICON:	Connector Phoenix MINI-COMBICON 8A/125V, grid 3.5 mm
US:	Supply voltage, 11 - 27 V DC

X1 - MINI-COMBICON 5-pole

Pin 1	CAN_GND
Pin 2	CAN_H
Pin 3	CAN_L
Pin 4	CAN_H
Pin 5	CAN_L

X2 - MINI-COMBICON 5-pole

Pin 1	CAN_GND
Pin 2	NC
Pin 3	NC
Pin 4	0V-Ground
Pin 5	US-Power Supply



Identifier

DIP- switch 6 = identifier 2^5	DIP- switch 5 = identifier 2^4	DIP- switch 4 = identifier 2^3	DIP- switch 3 = identifier 2^2	DIP- switch 2 = identifier 2^1	DIP- switch 1 = identifier 2^0	Encoder address = identifier
off	off	off	off	off	off	0
off	off	off	off	off	on	1
off	off	off	off	on	off	2
off	off	off	off	on	on	3
.	.	.	.	.	.	.
.	.	.	.	.	.	.
on	on	on	on	on	off	62
on	on	on	on	on	on	63

Baud rate

DIP-switch 8	DIP- switch 7	Baud rate
off	off	125 kbps
off	on	250 kbps
on	off	500 kbps

CAN-TERMINATOR

	TERMINATOR ON	TERMINATOR OFF
Terminating impedance	YES 123 Ω between CAN_L and CAN_H	NO

3.1 Optical indications

for this state	LED is	to indicate
not powered / not on-line	off	Device is not on-line. - The device has not completed the Dup_MAC-ID test yet. - The device may not be powered.
Device operational and on-line, connected	green	The device is operating in a normal condition and the device is on-line with connections in the established state. - For a group 2 only device it means that the device is allocated to a master. - For a UCMM capable device it means that the device has one or more established connections.
Device operational and on-line, not connected or device on-line and device needs commissioning	flashing green	The device is operating in a normal condition and the device is on-line with no connections in the established state. - The device has passed the Dup-MAC-ID test, is on-line, but has no established connections to other nodes. - For a group 2 only device it means that this device is not allocated to a master. - For a UCMM capable device it means that the device has no established connections. - Configuration missing, incomplete or incorrect.
Minor fault and / or connection time-out	flashing red	Recoverable fault and / or one or more I/O-connections are in the timed-out state.
Critical fault or critical link failure	red	The device has an unrecoverable fault; may need replacing. Failed communication device. The device has detected an error that has rendered it incapable of communicating on the network (duplicate MAC-ID, or BUS-off).