



Safe evaluation unit PUS-F161-B31-WCS

- FailSafe over EtherCAT (FSoE)
- Certified up to SIL 3 according to IEC 61508 and up to PL_e according to EN 13849-1
- Safe evaluation unit for WCS3B-LS221-U1 and WCS3B-LS221-U2
- Reliable evaluation of position and speed

Safe evaluation unit for position and speed monitoring for WCS read heads; EtherCAT with FSoE protocol

Function

The PUS-F161-B**-WCS safe evaluation unit can be used to perform safety shutdowns and safety functions. The device can calculate safe position and velocity data for an axis using the data from the WCS3B-LS221-U1 and WCS3B-LS221-U2 read heads.

Technical Data

Functional safety related parameters	
Safety Integrity Level (SIL)	SIL 3
Performance level (PL)	PL e
Category	Cat. 4
Mission Time (T _M)	20 a
PFH	12.6 E-9
Supply	
Rated voltage	U _r 24 V DC
Rated current	I _r 2 A
Power consumption	≤ 6.8 W
Indicators/operating means	
LED indication	see manual
Interface	
Protocol	EtherCAT , FailSafe over EtherCAT (FSoE)
Input	
Number	14
Input type	safe digital inputs
Input current	20 mA Type 1 according to IEC 61131-2
Output	
Number	pp-switching: 4 (configurable via SafePLC) pn-switching: 2 (configurable via SafePLC)
Number/Type	2x Relay output 2x Auxiliary output 250 mA 2x Pulse output (clock output) 250 mA
Output type	safe digital outputs
Switching current	2 A
Ambient conditions	
Ambient temperature	0 ... 50 °C (32 ... 122 °F)
Storage temperature	-25 ... 70 °C (-13 ... 158 °F)
Relative humidity	5 % - 85 %
Altitude	max. 2000 m

Release date: 2023-07-13 Date of issue: 2023-07-13 Filename: 70146865_eng.pdf

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

Pepperl+Fuchs Group
www.pepperl-fuchs.com

USA: +1 330 486 0001
fa-info@us.pepperl-fuchs.com

Germany: +49 621 776 1111
fa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091
fa-info@sg.pepperl-fuchs.com

pf PEPPERL+FUCHS

Technical Data

Mechanical specifications	
Connection type	Inputs/Outputs screw terminals pluggable Ethernet RJ45 Read head RS-485
Housing length	115 mm
Housing width	90 mm
Housing height	100 mm
Degree of protection	IP20
Connection	at screw terminals min. Connection cross section : 0,2 mm ² / 24 AWG max. Connection cross section : 2.5 mm ² / 12 AWG
Mass	490 g
Mounting	DIN mounting rail

Connection Assignment

Interface for Voltage Supply and I/O

Terminal assignment		
Terminal	Pin	Description
X11	1 - A1.1	Voltage supply Device +24 V DC
	2 - A1.2	Voltage supply Device +24 V DC outputs
	3 - A2.1	Voltage supply Device 0 V DC
	4 - A2.2	
X12	1 - I13	Safe digital inputs
	2 - I14	
	3 - T1	Clock outputs
	4 - T2	
X13	1 - NC	No function
	2 - NC	
	3 - Y1	Auxiliary outputs
	4 - Y2	
X14	1 - I01	Safe digital inputs
	2 - I02	
	3 - I03	
	4 - I04	
X21	1 - Q1	Output pn-switching Q1_PP / pp-switching Q1
	2 - Q2	Output pn-switching Q2_PN / pp-switching Q2
	3 - Q3	Output pn-switching Q3_PP / pp-switching Q3
	4 - Q4	Output pn-switching Q4_PN / pp-switching Q4
X22	1 - Q5.1	Safe relay output
	2 - Q5.2	
	3 - Q6.1	Safe relay output
	4 - Q6.2	
X23	1 - I05	Safe digital inputs
	2 - I06	
	3 - I07	
	4 - I08	
X24	1 - I09	Safe digital inputs
	2 - I10	
	3 - I11	
	4 - I12	
X41	1 - UE5+	Read head voltage supply +24 V DC, X35-1
	2 - UE5-	Read head voltage supply 0 V DC, X35-1
	3 - UE6+	Read head voltage supply +24 V DC, X35-2
	4 - UE6-	Read head voltage supply 0 V DC, X35-2
X81	1 - SD_BUS_24V	SD-BUS voltage supply +24 V DC
	2 - SD_BUS_GND	SD-BUS voltage supply 0 V DC
	3 - SD_BUS_OUT	SD-BUS output
	4 - FUNC_EARTH	Functional earth

Release date: 2023-07-13 Date of issue: 2023-07-13 Filename: 70146865_eng.pdf

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

Pepperl+Fuchs Group
www.pepperl-fuchs.comUSA: +1 330 486 0001
fa-info@us.pepperl-fuchs.comGermany: +49 621 776 1111
fa-info@de.pepperl-fuchs.comSingapore: +65 6779 9091
fa-info@sg.pepperl-fuchs.com

PEPPERL+FUCHS

Connection Assignment

Diagnostics and Configuration Interface

RJ10 socket, 4-pin		
Interface	Pin	Designation
COM	1	GND
	2	RS-485-
	3	RS-485+
	4	VCCH

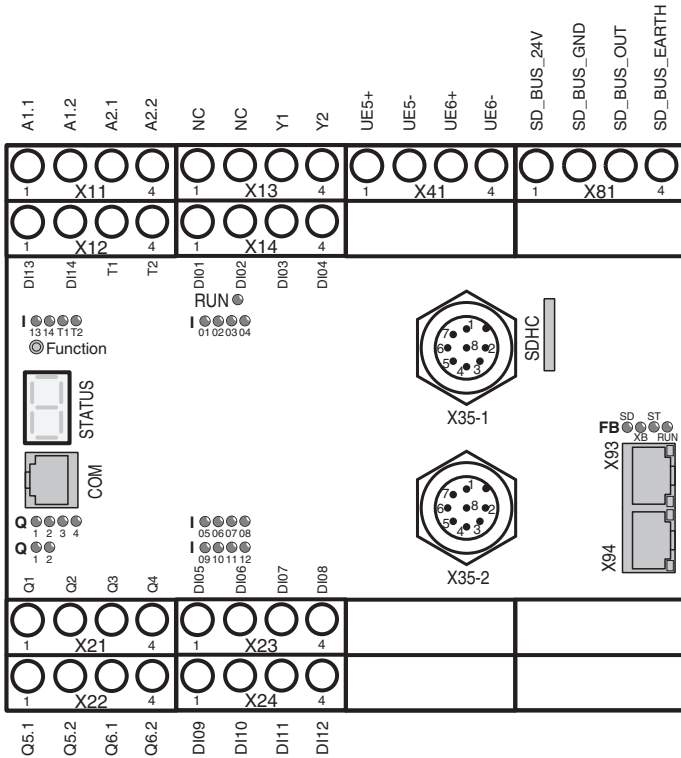
Fieldbus Interface

RJ45 socket fieldbus interface				
Interface	Pin	Designation	Description	Color
X93 / X94	1	TX+	Transmit data +	White-orange
	2	TX-	Transmit data -	Orange
	3	RX+	Receive data +	White-green
	4	nc	Not used	Blue
	5	nc	Not used	White-blue
	6	RX-	Receive data -	Green
	7	nc	Not used	White-brown
	8	nc	Not used	Brown

Read Head Interface

RS-485 interface for read head		
Interface	Pin	Designation
X35-1 / X35-2 2x M12 socket, 8-pin	1	NC
	2	UB+
	3	Data +
	4	Data -
	5	nc
	6	nc
	7	GND
	8	nc




Connection



Release date: 2023-07-13 Date of issue: 2023-07-13 Filename: 70146865_eng.pdf

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

Accessories

	PUS-USB-LIZ	License dongle for safeControl Expert
	PUS-USB-COMM	Parameterization adapter for parameterization and analysis of the PUS evaluation unit
	V1-G-BK5M-PUR-O2/CAN-V19-G-Y70	DeviceNet/CANOpen bus cable M12 socket straight A-coded 4-pin to M12 plug straight A-coded 8-pin, PUR cable 4-core twisted pairs black, shielded, UL approved, drag chain suitable, outdoor