

Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

Manufacturer	Pepperl + Fuchs SE
Address	Lilienthalstraße 200, Mannheim, 68307, Germany
Type	Control Systems
Description	Remote I/O System
Trade Name	LB Modules, FB Modules, MFT Multi-functional terminal
Application	Marine, offshore and industrial applications for use in environmental categories ENV1 and ENV2 as defined in Lloyd's Register's Type Approval System, Test Specification Number 1 – 2013.
Specified Standard	EN 50303: 2000 EN 60079-0: 2012 EN 60079-11: 2012 EN 60079-15: 2010 EN 60079-26: 2007 EN 61241-11: 2006
Other Conditions	Rating for application in hazardous areas are to be obtained from the relevant Ex Certificates.

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Type Approval Certificate

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

The Design Appraisal Document No. HTS/ETS 39965-20/HN/TW and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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Appendix

TYPES

LB Modules

Stations / Backplanes

BP	LB9022xxxxx ⁽¹⁾	LB-Backplane with 2 BUS coupler slots, 22 I/O slots and 3 supply slots.
BP	LB9023xxxxx ⁽¹⁾	LB-Backplane with 1 BUS coupler slot, 8 I/O slots and 1 sup slot.
BP	LB9024xxxxx ⁽¹⁾	LB-Backplane with 24 I/O slots and 3 supply slots.
BP	LB9025xxxxx ⁽¹⁾	LB-Backplane with 8 I/O slots and 1 supply slot.
BP	LB9026xxxxx ⁽¹⁾	LB-Backplane with 1 BUS coupler slot, 16 I/O slots and 2 supply slots.
BP	LB9027xxxxx ⁽¹⁾	LB-Backplane with 16 I/O slots and 2 supply slots.
BP	LB9029xxxxx ⁽¹⁾	LB-Backplane with 2 BUS coupler slot, 12 I/O slots and 3 supply slots.
BP	LB9035xxxxx ⁽¹⁾	LB-Backplane with 1 Bus coupler slot. 5 I/O slots and 1 supply slot
S	LB94xxxxx ⁽³⁾	LB-Station with 8 to 68 slots installation in Zone 2
S	LB95xxxxx ⁽³⁾	LB-Station with 8 to 68 slots installation in Zone 2 + 22
S	LB96xxxxx ⁽³⁾	LB-Station with 8 to 68 slots installation in Safe Area
S	LB97xxxxx ⁽³⁾	LB-Station with 8 to 68 slots installation in Zone 22

Power supply

PS	LB9006xxxxx ⁽¹⁾	24 VDC Power supply
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Communications unit

BK	LB8#05xxxxx ⁽¹⁾	PROFIBUS ComUnit (Standard)
BK	LB8#06xxxxx ⁽¹⁾	EasyCOM ComUnit (PROFIBUS)
BK	LB8#07xxxxx ⁽¹⁾	MODBUS ComUnit
BK	LB8#08xxxxx ⁽¹⁾	PROFIBUS ComUnit (Timestamp)
BK	LB8#09xxxxx ⁽¹⁾	PROFIBUS ComUnit (UniCom)
BK	LB8#10xxxxx ⁽¹⁾	FF ComUnit
BK	LB8#11xxxxx ⁽¹⁾	MODBUS TCP/IP ComUnit
BK	ISCM 8100xxxxx ⁽¹⁾	HDLC Fieldbus ComUnit

Digital input

BI	LB1#01xxxxx ⁽¹⁾	Digital inputs
BI	LB1#02xxxxx ⁽¹⁾	Digital inputs
BI	LB1#03xxxxx ⁽¹⁾	Digital inputs
BI	LB1#04xxxxx ⁽¹⁾	Digital inputs
BI	LB1#07xxxxx ⁽¹⁾	Digital inputs
BI	LB1#08xxxxx ⁽¹⁾	Digital inputs

TYPES (continued)

BI	LB1#09xxxxx ⁽¹⁾	Digital inputs
BI	LB1#15xxxxx ⁽¹⁾	Digital inputs
Digital output with feedback		
BO/BI	LB2#01xxxxx ⁽¹⁾	Digital output with feedback
BO/BI	LB2#02xxxxx ⁽¹⁾	Digital output with feedback
BO/BI	LB2#03xxxxx ⁽¹⁾	Digital output with feedback
BO/BI	LB2#04xxxxx ⁽¹⁾	Digital output with feedback
BO/BI	LB2#05xxxxx ⁽¹⁾	Digital output with feedback
BO/BI	LB2#12xxxxx ⁽¹⁾	Digital output with feedback
BO/BI	LB2#13xxxxx ⁽¹⁾	Digital output with feedback
Digital output (Relay)		
BO	LB6#01xxxxx ⁽¹⁾	Digital outputs
BO	LB6#05xxxxx ⁽¹⁾	Digital outputs
BO	LB6#06xxxxx ⁽¹⁾	Digital outputs
Digital output, active		
BO	LB6#08xxxxx ⁽¹⁾	Digital outputs
BO	LB6#10xxxxx ⁽¹⁾	Digital outputs
BO	LB6#11xxxxx ⁽¹⁾	Digital outputs
BO	LB6#12xxxxx ⁽¹⁾	Digital outputs
BO	LB6#13xxxxx ⁽¹⁾	Digital outputs
BO	LB6#14xxxxx ⁽¹⁾	Digital outputs
BO	LB6#15xxxxx ⁽¹⁾	Digital outputs
Analogue input (current)		
AI	LB3#01xxxxx ⁽¹⁾	Analogue input (successor A2)
AI	LB3#02xxxxx ⁽¹⁾	Analogue input (successor A1)
AI	LB3#02xxxxx ⁽¹⁾	Analogue input (successor A2)
AI	LB3#03xxxxx ⁽¹⁾	Analogue input (successor A2)
AI	LB3#04xxxxx ⁽¹⁾	Analogue inputs (successor A2)
AI	LB3#05xxxxx ⁽¹⁾	Analogue inputs (successor A2)
AI	LB3#06xxxxx ⁽¹⁾	Analogue inputs
Analogue output		
AO	LB4#01xxxxx ⁽¹⁾	Analogue output
AO	LB4#02xxxxx ⁽¹⁾	Analogue output
AO	LB4#04xxxxx ⁽¹⁾	Analogue outputs
AO	LB4#05xxxxx ⁽¹⁾	Analogue outputs
AO	LB4#06xxxxx ⁽¹⁾	Analogue outputs

TYPES (continued)

Analogue input (Voltage/RDT)		
AI	LB5#01xxxxx ⁽¹⁾	Analogue input (RTD)
AI	LB5#02xxxxx ⁽¹⁾	Analogue input (mV / thermocouple)
AI	LB5#04xxxxx ⁽¹⁾	Analogue inputs (RTD)
AI	LB5#05xxxxx ⁽¹⁾	Analogue inputs (mV / thermocouple)
AI	LB5#06xxxxx ⁽¹⁾	Analogue inputs (mV)
Universal input / output		
AI/AO	LB7#04xxxxx ⁽¹⁾	Universal I/O with 4 channels

- (1) The "#" (if applicable) in the module type labelling is a placeholder for classification regarding Ex - features and product lines (LB: no Ex, Ex- i). The "xxxxx" at the end of the module type labelling are placeholders for additional specifications regarding module variants with very less differences to the standard modules e.g.:
- product line classification LB
 - identification marker for additional functions (z. B. shutdown input, LFD)
 - ComUnit firmware version
 - classification regarding input filter,
 - classification regarding output values (V/mA).
- (3) The "xxxxx" at the end of the module type labelling are placeholders for additional specifications regarding module variants with very less differences to the standard modules e.g.:
- Number of slots
 - product line classification LB
 - identification marker for additional functions (z. B. shutdown input, LFD)
 - ComUnit firmware version,
 - classification regarding input filter,
 - classification regarding output values (V/mA).

S = Station; BP = Backplane; PS = Power supply; BI = Digital input;
 BO = Digital output; AI = Analogue input; AO = Analogue output;
 Z = Accessories

FB Modules

Stations / Backplane

S	FB9224xxxxx ⁽²⁾	Field station 24 I/O slots
S	FB9225xxxxx ⁽²⁾	Field station 24 I/O slots
S	FB9226xxxxx ⁽²⁾	Field station 10 I/O slots
S	FB9248xxxxx ⁽²⁾	Field station 48 I/O slots
S	FB9249xxxxx ⁽²⁾	Field station 48 I/O slots
S	FB9251xxxxx ⁽²⁾	Field station 5 I/O slots in different cabinets
S	FB9252xxxxx ⁽²⁾	Field station 5 I/O slots in different cabinets

TYPES (continued)

S	FB9202xxxxx ⁽²⁾	Field station for max 2PSUs
S	FB9210xxxxx ⁽²⁾	Field station 10 slots for I/O-modules
S	FB9211xxxxx ⁽²⁾	Field station 10 slots for I/O-modules
S	FB9220xxxxx ⁽²⁾	Field station 20 slots for I/O-modules
S	FB9240xxxxx ⁽²⁾	Field station 40 slots for I/O-modules
BP	FB9255xxxxx ⁽²⁾	Backplane for FB9205C
BP	FB9256xxxxx ⁽²⁾	Backplane for FB9215 or FB9216
S	FB9258xxxxx ⁽²⁾	Field station 58 slots for I/O-modules
BP	FB9261xxxxx ⁽²⁾	Backplane 10 slots
BP	FB9262xxxxx ⁽²⁾	Backplane 20 slots
S	FB92EUxxxxx ⁽²⁾	Field station 24 slots for I/O-modules
S	FB9324xxxxx ⁽²⁾	Field station 24 slots for I/O-modules
S	FB9325xxxxx ⁽²⁾	Field station 24 slots for I/O-modules
S	FB9348xxxxx ⁽²⁾	Field station 48 slots for I/O-modules
S	FB9349xxxxx ⁽²⁾	Field station 48 slots for I/O-modules
S	FB9358xxxxx ⁽²⁾	Field station 58 slots for I/O-modules
Power supplies		
PS	FB9206xxxxx ⁽²⁾	Power supply 24 V DC
PS	FB9215xxxxx ⁽²⁾	Power supply 110/230 V AC
PS	FB9205xxxxx ⁽²⁾	Power supply 95-230 V AC
Bus termination modules		
BT	FB9293xxxxx ⁽²⁾	Bus termination module for service bus
BT	FB9294xxxxx ⁽²⁾	Bus termination module for field bus
BT	FB9295xxxxx ⁽²⁾	Bus termination module for field- and service bus
Communication units		
BK	FB8#05xxxxx ⁽²⁾	PROFIBUS ComUnit (Standard)
BK	FB8#06xxxxx ⁽²⁾	EasyCOM ComUnit (PROFIBUS)
BK	FB8#07xxxxx ⁽²⁾	MODBUS ComUnit
BK	FB8#08xxxxx ⁽²⁾	PROFIBUS ComUnit (Timestamp)
BK	FB8#09xxxxx ⁽²⁾	PROFIBUS ComUnit (UniCom)
BK	FB8#10xxxxx ⁽²⁾	FF ComUnit
BK	FB8#11xxxxx ⁽²⁾	MODBUS TCP/IP ComUnit
BK	ISCM 8200xxxxx ⁽²⁾	HDLC Fieldbus ComUnit
Digital input		
BI	FB1#01xxxxx ⁽²⁾	Digital inputs
BI	FB1#02xxxxx ⁽²⁾	Digital inputs
BI	FB1#03xxxxx ⁽²⁾	Digital inputs
BI	FB1#04xxxxx ⁽²⁾	Digital inputs
BI	FB1#08xxxxx ⁽²⁾	Digital inputs

TYPES (continued)

Digital output with feedback

BO/BI	FB2#01xxxxx ⁽²⁾	Digital output with feedback
BO/BI	FB2#02xxxxx ⁽²⁾	Digital output with feedback
BO/BI	FB2#03xxxxx ⁽²⁾	Digital output with feedback
BO/BI	FB2#04xxxxx ⁽²⁾	Digital output with feedback
BO/BI	FB2#05xxxxx ⁽²⁾	Digital output with feedback
BO/BI	FB2#12xxxxx ⁽²⁾	Digital output with feedback
BO/BI	FB2#13xxxxx ⁽²⁾	Digital output with feedback

Digital output (relay) / active (low power source)

BO	FB6#01xxxxx ⁽²⁾	Digital outputs
BO	FB6#05xxxxx ⁽²⁾	Digital outputs
BO	FB6#06xxxxx ⁽²⁾	Digital outputs

Digital output, active (high power source)

BO	FB6#10xxxxx ⁽²⁾	Digital outputs
BO	FB6#11xxxxx ⁽²⁾	Digital outputs
BO	FB6#12xxxxx ⁽²⁾	Digital outputs
BO	FB6#13xxxxx ⁽²⁾	Digital outputs
BO	FB6#14xxxxx ⁽²⁾	Digital outputs
BO	FB6#15xxxxx ⁽²⁾	Digital outputs

Analogue input (current)

AI	FB3#01xxxxx ⁽²⁾	Analogue input
AI	FB3#02xxxxx ⁽²⁾	Analogue input
AI	FB3#03xxxxx ⁽²⁾	Analogue input
AI	FB3#04xxxxx ⁽²⁾	Analogue inputs
AI	FB3#05xxxxx ⁽²⁾	Analogue inputs
AI	FB3#01/2/3xxxxx ⁽²⁾	Analogue inputs
AI	FB3#04/5xxxxx ⁽²⁾	Analogue inputs

Analogue input (voltage/thermocouple)

AI	FB5#01xxxxx ⁽²⁾	Analogue input (resistor)
AI	FB5#02xxxxx ⁽²⁾	Analogue input (mV/thermocouple)
AI	FB5#04xxxxx ⁽²⁾	Analogue inputs (resistor)
AI	FB5#05xxxxx ⁽²⁾	Analogue inputs (mV/thermocouple)
AI	FB5#06xxxxx ⁽²⁾	Analogue input (mV)

Analogue output (current)

AO	FB4#01xxxxx ⁽²⁾	Analogue output
AO	FB4#02xxxxx ⁽²⁾	Analogue output
AO	FB4#04xxxxx ⁽²⁾	Analogue outputs
AO	FB4#05xxxxx ⁽²⁾	Analogue outputs

TYPES (continued)

- ⁽²⁾ The "#" (if applicable) in the module type labelling is a placeholder for classification regarding Ex - features and product lines (FB: Ex- i, Ex- e). The "xxxxx" at the end of the module type labelling are placeholders for additional specifications regarding module variants with very less differences to the standard modules e.g.:
- product line classification FB,
 - definition regarding connecting leads by Ex- e modules (length of lead, shielded/unshielded),
 - identification marker for additional functions (z.B. shutdown input, LFD),
 - ComUnit firmware version,
 - classification regarding input filter,
 - classification regarding output values (V/mA).

BP = Backplane; PS = Power supply; BT = Bus termination; BI = Digital input; BO = Digital output; AI = Analogue input; AO = Analogue output; Z = Accessories

Accessories

LB/FB- accessories

Z	LB9007A	Screw terminals connector, 6- pole, green
Z	LB9107A	Screw terminals connector, 6- pole, blue
Z	LB9013A	Screw terminals connector, 8- pole, green
Z	LB9113A	Screw terminals connector, 8- pole, blue
Z	LB9125A	Screw terminals connector, 8- pole, blue
Z	LB9014A	Screw terminals connector, 2 x 8- pole, green
Z	LB9124A	Screw terminals connector, 2 x 8- pole, blue
Z	LB9008A	Cover for connector, 6-pole, green
Z	LB9108A	Cover for connector, 6-pole, blue
Z	LB9010A	Cover for connector, 8-pole, green
Z	LB9120A	Cover for connector, 8-pole, blue
Z	LB9011A	Cold junction module with hood, green
Z	LB9111A	Cold junction module with hood, blue
Z	LB9012A	Screw terminals connector with voltage divider
Z	LB9107P	Wire clamp connector, 6-pole, blue
Z	LB9009A	Wire clamp connector, 6-pole, green
Z	LB9015A	Wire clamp connector, 8-pole, green
Z	LB9115A	Wire clamp connector, 8-pole, blue
Z	LB9126A	Wire clamp connector, 8- pole, blue
Z	LB9016A	Wire clamp connector, 2 x 8- pole, green
Z	LB9116A	Wire clamp connector, 2 x 8- pole, blue
Z	LB9130A	Wire clamp connector, 2 x 8- pole, blue
Z	LB9131A	Wire clamp connector, 2 x 8- pole, green
Z	LB9017A	Front screw terminals connector, 6- pole, green

TYPES (continued)			
Z	LB9117A		Front screw terminals connector, 6- pole, blue
Z	LB9018A		Front screw terminals connector, 8- pole, green
Z	LB9118A		Front screw terminals connector, 8- pole, blue (Pin: 1-8)
Z	196900		Front screw terminals connector, 8- pole, blue (Pin: 9-16)
Z	LB9019A		Front screw terminals connector, 2 x 8- pole, green
Z	LB9119A		Front screw terminals connector, 2 x 8- pole, blue
Z	LB9020A		Coding strip
Z	LB9099A		Dummy I/O module with socket 8-pole, green
Z	LB9199A		Dummy I/O module with socket 8-pole, blue
Z	LB9109A		DINA 4 label for TAG
Z	LB9153A		LB- connecting cable
Z	LB9001A		SUB D connector (out left)
Z	LB9002A		SUB D connector (out vertical)
Z	LB9003A		SUB D connector (out left) with bus monitor
Z	LB9110A		SUB D connector (out left)
Z	LTBM8001		Letterbug module with rotary switch (plugs into ISCM8x00)
Z	FB9271		FB- connecting cable redundancy/basic
Z	FB9272		FB- connecting cable basic/extension
Z	FB9273		FB- connecting cable redundancy/extension
Z	FB9283		FB- connecting cable BK/BK red
Z	542520		NAMUR replacement network for mech. contacts
Z	542555		Service bus converter RS232/RS485 inclusive wire set
Z	540233		Service bus converter RS232/RS485 inclusive wire set
Z	540235		Service bus converter RS232/RS485 inclusive wire set
Z	542160		Service bus converter RS232/RS485 inclusive wire set
Z	541037		Service bus converter USB inclusive wire set
Z	541038		Service bus converter USB inclusive wire set
Z	541039		Service bus converter USB inclusive wire set
Z	GHG4171302R0001		EMV line filter
Further products (Ex-Certified)			
Z	MFT-Base.2P.xxx ⁽⁴⁾		Socket for Multi-functional terminal 2-pole
Z	MFT-Base.4P.xxx ⁽⁴⁾		Socket for Multi-functional terminal 4-pole
Z	MFT-F.xxxx ⁽⁴⁾		Multi-functional terminal fuse
Z	MFT-2F.xxxx ⁽⁴⁾		Multi-functional terminal dual fuse
Z	MFT-R.xxxx ⁽⁴⁾		Multi-functional terminal resistor
Z	MFT-2R.xxxx ⁽⁴⁾		Multi-functional terminal dual resistor
Z	MFT-D.xxxx ⁽⁴⁾		Multi-functional terminal diode
Z	MFT-2D.xxxx ⁽⁴⁾		Multi-functional terminal dual diode

TYPES (continued)

Z	MFT-2L.xxxx ⁽⁴⁾	Multi-functional terminal jumper
Z	MFT-FT.xxxx ⁽⁴⁾	Multi-functional terminal bus termination
Z	MFT-RNO.xxxx ⁽⁴⁾	Multi-functional terminal relay; contact normal open
Z	MFT-RNC.xxxx ⁽⁴⁾	Multi-functional terminal relay; contact normal closed
Z	MFT-T.xxxx ⁽⁴⁾	Multi-functional terminal semiconductor relay
Enclosure		
Z	FB9349	Remote I/O enclosure
Z	FB9358	Remote I/O enclosure

⁽⁴⁾ The "xxxx" are placeholder for identifiers regarding different variants (e.g. value of resistor, value of fuse)

Z = Accessories