

**TYPE APPROVAL CERTIFICATE****This is to certify:****That the Peripheral Equipment**

with type designation(s)

**Remote I/O LB/FB/MFT**

Issued to

**Pepperl+Fuchs GmbH  
Mannheim, Germany**

is found to comply with

**Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards****Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.****Location classes:**

<b>Temperature</b>	<b>D</b>
<b>Humidity</b>	<b>B</b>
<b>Vibration</b>	<b>A</b>
<b>EMC</b>	<b>B*</b>
<b>Enclosure</b>	<b>Required protection according to DNV Rules shall be provided upon installation on board</b>

**\* See limitations on page 7**This Certificate is valid until **2018-12-31**.Issued at **Høvik** on **2015-08-31**DNV GL local station: **Augsburg**Approval Engineer: **Nils Jarem**for **DNV GL**

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**Odd Magne Nesvåg  
Head of Section**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

## Product description

LB and FB remote I/O modules are signal conditioning devices for interfacing signals from the field to controllers or process control systems. The modules have simple plug and play design.

Type	Type designation – FB Modules	Description
<b>1</b>	<b>Stations</b>	
S	FB 9xxx-xxx-x-x-x-x-x <sup>(2)</sup>	Standard FB enclosure to accept I/O modules, communication units and power supplies
S	FB 9xxx-xxx-x-x-x-x-x-Yxxxxx <sup>(2)</sup>	Customized FB enclosure to accept I/O modules, communication units and power supplies
<b>2</b>	<b>Backplanes</b>	
BP	FB92xxBPxxxxx.x	Backplane to accept I/O modules, communication units and power supplies
<b>3</b>	<b>Power supplies</b>	
PS	FB 9206 xxxxx <sup>(1)</sup>	Power supply 24 V DC
PS	FB 9215 xxxxx <sup>(1)</sup>	Power supply 230 V AC
PS	FB 9216 xxxxx <sup>(1)</sup>	Power supply 115 V AC
PS	FB 9205 xxxxx <sup>(1)</sup>	Power supply 95-230 V AC
<b>4</b>	<b>Bus termination modules</b>	
BT	FB 9293 xxxxx <sup>(1)</sup>	Bus termination module for service bus
BT	FB 9294 xxxxx <sup>(1)</sup>	Bus termination module for field bus
BT	FB 9295 xxxxx <sup>(1)</sup>	Bus termination module for field- and service bus
<b>5</b>	<b>Communication units</b>	
BK	FB 8x05 xxxxx <sup>(1)</sup>	PROFIBUS ComUnit (Standard)
BK	FB 8x06 xxxxx <sup>(1)</sup>	EasyCOM ComUnit (PROFIBUS)
BK	FB 8x07 xxxxx <sup>(1)</sup>	MODBUS ComUnit
BK	FB 8x08 xxxxx <sup>(1)</sup>	PROFIBUS ComUnit (Timestamp)
BK	FB 8x09 xxxxx <sup>(1)</sup>	PROFIBUS ComUnit (UniCom)
BK	FB 8x10 xxxxx <sup>(1)</sup>	FF ComUnit
BK	FB 8x11 xxxxx <sup>(1)</sup>	MODBUS TCP/IP ComUnit
BK	ISCM 8x00 xxxxx <sup>(1)</sup>	HDLC Fieldbus ComUnit
<b>6</b>	<b>Digital input</b>	
BI	FB 1x01 xxxxx <sup>(1)</sup>	Digital inputs
BI	FB 1x02 xxxxx <sup>(1)</sup>	Digital inputs
BI	FB 1x03 xxxxx <sup>(1)</sup>	Digital inputs
BI	FB 1x04 xxxxx <sup>(1)</sup>	Digital inputs
BI	FB 1x08 xxxxx <sup>(1)</sup>	Digital inputs
BI	FB 1x09 xxxxx <sup>(1)</sup>	Digital inputs
<b>7</b>	<b>Digital output with feedback</b>	
BO/BI	FB 2x01 xxxxx <sup>(1)</sup>	Digital output with feedback
BO/BI	FB 2x02 xxxxx <sup>(1)</sup>	Digital output with feedback
BO/BI	FB 2x03 xxxxx <sup>(1)</sup>	Digital output with feedback
BO/BI	FB 2x04 xxxxx <sup>(1)</sup>	Digital output with feedback
BO/BI	FB 2x05 xxxxx <sup>(1)</sup>	Digital output with feedback
BO/BI	FB 2x12 xxxxx <sup>(1)</sup>	Digital output with feedback
BO/BI	FB 2x13 xxxxx <sup>(1)</sup>	Digital output with feedback
<b>8</b>	<b>Analog input (current)</b>	
AI	FB 3x01 xxxxx <sup>(1)</sup>	Analog input
AI	FB 3x02 xxxxx <sup>(1)</sup>	Analog input
AI	FB 3x03 xxxxx <sup>(1)</sup>	Analog input
AI	FB 3x04 xxxxx <sup>(1)</sup>	Analog inputs
AI	FB 3x05 xxxxx <sup>(1)</sup>	Analog inputs
<b>9</b>	<b>Analog output (current)</b>	
AO	FB 4x01 xxxxx <sup>(1)</sup>	Analog output

AO	FB 4x02 xxxxx <sup>(1)</sup>	Analog output
AO	FB 4x04 xxxxx <sup>(1)</sup>	Analog outputs
AO	FB 4x05 xxxxx <sup>(1)</sup>	Analog outputs
<b>10</b>	<b>Analog input (Voltage/Thermocouple)</b>	
AI	FB 5x01 xxxxx <sup>(1)</sup>	Analog input (resistor)
AI	FB 5x02 xxxxx <sup>(1)</sup>	Analog input (mV /thermocouple)
AI	FB 5x04 xxxxx <sup>(1)</sup>	Analog inputs (resistor)
AI	FB 5x05 xxxxx <sup>(1)</sup>	Analog inputs (mV /thermocouple)
AI	FB 5x06 xxxxx <sup>(1)</sup>	Analog input (mV)
<b>11</b>	<b>Digital output (Relay)</b>	
BO	FB 6x01 xxxxx <sup>(1)</sup>	Digital outputs
BO	FB 6x05 xxxxx <sup>(1)</sup>	Digital outputs
BO	FB 6x06 xxxxx <sup>(1)</sup>	Digital outputs
<b>12</b>	<b>Digital output active (low power source)</b>	
BO	FB 6x08 xxxxx <sup>(1)</sup>	Digital outputs
<b>13</b>	<b>Digital output, active (high power source)</b>	
BO	FB 6x10 xxxxx <sup>(1)</sup>	Digital outputs
BO	FB 6x11 xxxxx <sup>(1)</sup>	Digital outputs
BO	FB 6x13 xxxxx <sup>(1)</sup>	Digital outputs
BO	FB 6x14 xxxxx <sup>(1)</sup>	Digital outputs
BO	FB 6x15 xxxxx <sup>(1)</sup>	Digital outputs

(1) The first "x" in the module type labeling is a placeholder for classification regarding Ex - features and product lines (LB: no Ex, Ex- i; FB: Ex- i, Ex- e).  
The "xxxxx" at the end of the module type labeling are placeholders for additional specifications regarding module variants with very less differences to the standard modules e.g.:

- product line classification LB/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).

(2) The placeholders "x" are for additional specifications of the enclosure e.g.:

- Enclosure material
- Enclosure size
- Cable gland size and type

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

Type	Type designation – LB Modules	Description
1	<b>Stations</b>	
S	LB 9xxx-xxx-x-x-x-x <sup>(2)</sup>	Standard LB enclosure to accept I/O modules, communication units and power supplies
S	LB 9xxx-xxx-x-x-x-x-Yxxxxx <sup>(2)</sup>	Customized LB enclosure to accept I/O modules, communication units and power supplies
2	<b>Backplanes</b>	
BP	LB 9022 xxxxx <sup>(1)</sup>	Redundancy backplane - slots: 2x ComUnit, 3x Power supply, 22x I/O-modules
BP	LB 9023 xxxxx <sup>(1)</sup>	Base backplane - slots: 1x ComUnit, 1x Power supply, 8x I/O-modules
BP	LB 9024 xxxxx <sup>(1)</sup>	Extension backplane - slots: 3x Power supply, 24x I/O-modules
BP	LB 9025 xxxxx <sup>(1)</sup>	Extension backplane - slots: 1x Power supply, 8x I/O-modules
BP	LB 9026 xxxxx <sup>(1)</sup>	Base backplane - slots: 1x ComUnit, 2x Power supply, 16x I/O-modules

BP	LB 9027 xxxxx <sup>(1)</sup>	Extension backplane - slots: 2x Power supply, 16x I/O-modules
BP	LB 9029 xxxxx <sup>(1)</sup>	Redundancy backplane - slots: 2x ComUnit, 3x Power supply, 12x I/O-modules
BP	LB 9035 xxxxx <sup>(1)</sup>	Base backplane - slots: 1x ComUnit, 1x Power supply, 5x I/O-modules
<b>3</b>	<b>Power supply</b>	
PS	LB 9006 xxxxx <sup>(1)</sup>	
<b>4</b>	<b>Comunications unit</b>	
BK	LB 8x05 xxxxx <sup>(1)</sup>	PROFIBUS ComUnit (Standard)
BK	LB 8x06 xxxxx <sup>(1)</sup>	EasyCOM ComUnit (PROFIBUS)
BK	LB 8x07 xxxxx <sup>(1)</sup>	MODBUS ComUnit
BK	LB 8x08 xxxxx <sup>(1)</sup>	PROFIBUS ComUnit (Timestamp)
BK	LB 8x09 xxxxx <sup>(1)</sup>	PROFIBUS ComUnit (UniCom)
BK	LB 8x10 xxxxx <sup>(1)</sup>	FOUNDATION Fieldbus ComUnit
BK	LB 8x11 xxxxx <sup>(1)</sup>	MODBUS TCP/IP ComUnit
BK	ISCM 8x00 xxxxx <sup>(1)</sup>	HDLC Fieldbus ComUnit
<b>5</b>	<b>Digital Input</b>	
BI	LB 1x01 xxxxx <sup>(1)</sup>	Digital inputs
BI	LB 1x02 xxxxx <sup>(1)</sup>	Digital inputs
BI	LB 1x03 xxxxx <sup>(1)</sup>	Digital inputs
BI	LB 1x04 xxxxx <sup>(1)</sup>	Digital inputs
BI	LB 1x07 xxxxx <sup>(1)</sup>	Digital inputs
BI	LB 1x08 xxxxx <sup>(1)</sup>	Digital inputs
BI	LB 1x09 xxxxx <sup>(1)</sup>	Digital inputs
BI	LB 1x14 xxxxx <sup>(1)</sup>	Digital inputs
BI	LB 1x15 xxxxx <sup>(1)</sup>	Digital inputs
<b>6</b>	<b>Digital output with feedback</b>	
BO/BI	LB 2x01 xxxxx <sup>(1)</sup>	Digital output with feedback
BO/BI	LB 2x02 xxxxx <sup>(1)</sup>	Digital output with feedback
BO/BI	LB 2x03 xxxxx <sup>(1)</sup>	Digital output with feedback
BO/BI	LB 2x04 xxxxx <sup>(1)</sup>	Digital output with feedback
BO/BI	LB 2x05 xxxxx <sup>(1)</sup>	Digital output with feedback
BO/BI	LB 2x12 xxxxx <sup>(1)</sup>	Digital output with feedback
BO/BI	LB 2x13 xxxxx <sup>(1)</sup>	Digital output with feedback
<b>7</b>	<b>Analog input (current)</b>	
AI	LB 3x01 xxxxx <sup>(1)</sup>	Analog input
AI	LB 3x02 xxxxx <sup>(1)</sup>	Analog input
AI	LB 3x03 xxxxx <sup>(1)</sup>	Analog input
AI	LB 3x04 xxxxx <sup>(1)</sup>	Analog inputs
AI	LB 3x05 xxxxx <sup>(1)</sup>	Analog inputs
AI	LB 3x06 xxxxx <sup>(1)</sup>	Analog inputs
<b>8</b>	<b>Analog output (current)</b>	
AO	LB 4x01 xxxxx <sup>(1)</sup>	Analog output
AO	LB 4x02 xxxxx <sup>(1)</sup>	Analog output
AO	LB 4x04 xxxxx <sup>(1)</sup>	Analog outputs
AO	LB 4x05 xxxxx <sup>(1)</sup>	Analog outputs
AO	LB 4x06 xxxxx <sup>(1)</sup>	Analog outputs
<b>9</b>	<b>Analog input (Voltage/Themocouple)</b>	
AI	LB 5x01 xxxxx <sup>(1)</sup>	Analog input (resistor)
AI	LB 5x02 xxxxx <sup>(1)</sup>	Analog input (mV / thermocouple)
AI	LB 5x04 xxxxx <sup>(1)</sup>	Analog inputs (resistor)
AI	LB 5x05 xxxxx <sup>(1)</sup>	Analog inputs (mV / thermocouple)
AI	LB 5x06 xxxxx <sup>(1)</sup>	Analog input (mV)
<b>10</b>	<b>Digital output (Relay)</b>	

BO	LB 6x01 xxxxx <sup>(1)</sup>	Digital outputs
BO	LB 6x05 xxxxx <sup>(1)</sup>	Digital outputs
BO	LB 6x06 xxxxx <sup>(1)</sup>	Digital outputs
<b>11</b>	<b>Digital output, active (low power source)</b>	
BO	LB 6x08 xxxxx <sup>(1)</sup>	Digital outputs
<b>12</b>	<b>Digital output, active (high power source)</b>	
BO	LB 6x10 xxxxx <sup>(1)</sup>	Digital outputs
BO	LB 6x11 xxxxx <sup>(1)</sup>	Digital outputs
BO	LB 6x12 xxxxx <sup>(1)</sup>	Digital outputs
BO	LB 6x13 xxxxx <sup>(1)</sup>	Digital outputs
BO	LB 6x14 xxxxx <sup>(1)</sup>	Digital outputs
BO	LB 6x15 xxxxx <sup>(1)</sup>	Digital outputs
<b>13</b>	<b>Universal input / output</b>	
AI/AO	LB 7x04 xxxxx <sup>(1)</sup>	Universal I/O with 4 channels
<p>(1) The first "x" in the module type labeling is a placeholder for classification regarding Ex - features and product lines (LB: no Ex, Ex- i; FB: Ex- i, Ex- e).  The "xxxxx" at the end of the module type labeling are placeholders for additional specifications regarding module variants with very less differences to the standard modules e.g.:</p> <ul style="list-style-type: none"> <li>- product line classification LB/FB,</li> <li>- definition regarding connecting leads by Ex- e modules (length of lead, shielded/unshielded),</li> <li>- identification marker for additional functions ( z.B. shutdown input, LFD),</li> <li>- ComUnit firmware version,</li> <li>- classification regarding input filter,</li> <li>- classification regarding output values (V/mA).</li> </ul> <p>(2) The placeholders "x" are for additional specifications of the enclosure e.g.:</p> <ul style="list-style-type: none"> <li>- Enclosure material</li> <li>- Enclosure size</li> <li>- Cable gland size and type</li> </ul> <p>S = Station; BP = Backplane; PS = Power supply; BT = Bus termination; BI = Digital input; BO = Digital output; AI = Analog input; AO = Analog output; Z = Accessories</p>		

Type	Type designation LB/FB-accessories	Name
<b>1</b>	<b>LB/FB- accessories</b>	
Z	LB 9007 A	Screw terminals connector, 6- pole, green
Z	LB 9107 A	Screw terminals connector, 6- pole, blue
Z	LB 9013 A	Screw terminals connector, 8- pole, green
Z	LB 9113 A	Screw terminals connector, 8- pole, blue
Z	LB 9125 A	Screw terminals connector, 8- pole, blue
Z	LB 9014 A	Screw terminals connector, 2 x 8- pole, green
Z	LB 9124 A	Screw terminals connector, 2 x 8- pole, blue
Z	LB 9008 A	Cover for connector, 6-pole, green
Z	LB 9108 A	Cover for connector, 6-pole, blue
Z	LB 9010 A	Cover for connector, 8-pole, green
Z	LB 9120 A	Cover for connector, 8-pole, blue
Z	LB 9011A	Cold junction module with hood, green
Z	LB 9111 A	Cold junction module with hood, blue
Z	LB 9012 A	Screw terminals connector with voltage divider
Z	LB 9107 P	Wire clamp connector, 6-pole, blue
Z	LB 9009 A	Wire clamp connector, 6-pole, green
Z	LB 9015 A	Wire clamp connector, 8-pole, green
Z	LB 9115 A	Wire clamp connector, 8-pole, blue
Z	LB 9126 A	Wire clamp connector, 8- pole, blue
Z	LB 9130A	Wire clamp connector, 2 x 8-pole, blue
Z	LB 9131A	Wire clamp connector, 2 x 8-pole, green

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Z	LB 9016 A	Wire clamp connector, 2 x 8- pole, green
Z	LB 9116 A	Wire clamp connector, 2 x 8- pole, blue
Z	LB 9017 A	Front screw terminals connector, 6- pole, green
Z	LB 9117 A	Front screw terminals connector, 6- pole, blue
Z	LB 9018 A	Front screw terminals connector, 8- pole, green
Z	LB 9118 A	Front screw terminals connector, 8- pole, blue (1..8)
Z	LB 9127 A	Front screw terminals connector, 8- pole, blue (9..16)
Z	LB 9019 A	Front screw terminals connector, 2 x 8- pole, green
Z	LB 9119 A	Front screw terminals connector, 2 x 8- pole, blue
Z	LB 9020 A	Coding strip
Z	LB 9099 A	Dummy I/O module with socket 8-pole, green
Z	LB 9199 A	Dummy I/O module with socket 8-pole, blue
Z	LB 9109 A	DIN A4 label for TAG
Z	LB 9153 A	LB- connecting cable
Z	LB 9001 A	SUB D connector (out left)
Z	LB 9002 A	SUB D connector (out vertical)
Z	LB 9003 A	SUB D connector (out left) with busmonitor
Z	LB 9110 A	SUB D connector (out left)
Z	LTBM8001	Letterbug module with rotary switch (plugs into ISCM8x00)
Z	FB 9271-xxx(3)	FB- connecting cable redundancy/basic
Z	FB 9273-xxx(3)	FB- connecting cable redundancy/extension
Z	FB 9272-xxx(3)	FB- connecting cable basic/extension
Z	FB 9283-xxx(3)	FB- connecting cable BK/BK red
Z	542520	NAMUR replacement network for mech. Contacts
Z	542555 540233 540235 542160	Service bus converter RS232/RS485 inclusive wire set
Z	541039 541037 541038	Service bus converter USB inclusive wire set
Z	GHG4171302R0001	EMC line filter
Z	MFT-Base.2P.xxx (2)	Socket for Multi Functional Terminal 2-pole
Z	MFT-Base.4P.xxx (2)	Socket for Multi Functional Terminal 4-pole
Z	MFT-F.xxxx (2)	Multi Functional Terminal Fuse
Z	MFT-2F.xxxx (2)	Multi Functional Terminal Dual Fuse
Z	MFT-R.xxxx (2)	Multi Functional Terminal Resistor
Z	MFT-2R.xxxx (2)	Multi Functional Terminal Dual Resistor
Z	MFT-D.xxxx (2)	Multi Functional Terminal Diode
Z	MFT-2D.xxxx (2)	Multi Functional Terminal Dual Diode
Z	MFT-2L.xxxx (2)	Multi Functional Terminal Jumper
Z	MFT-FT.xxxx (2)	Multi Functional Terminal Bus Termination
Z	MFT-RNO.xxxx (2)	Multi Functional Terminal Relay; contact normal open
Z	MFT-RNC.xxxx (2)	Multi Functional Terminal Relay; contact normal closed
Z	MFT-T.xxxx (2)	Multi Functional Terminal Semiconductor Relay
Z	FB9349	Remote I/O enclosure
Z	FB9358	Remote I/O enclosure
(2) xxxx are placeholder for identifiers regarding different variants (e.g. value of resistor, value of fuse)		
(3) xxx length of the cable.		
S = Station; BP = Backplane; PS = Power supply; BT = Bus termination; BI = Digital input; BO = Digital output; AI = Analog input; AO = Analog output; Z = Accessories		

## Approval conditions

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

Ex-certification is not covered by this certificate. Application in hazardous area to be approved in each case according to the Rules and Ex-Certification/ Special Condition for Safe Use listed in valid Ex-certificate issued by a notified/recognized Certification Body.

## Application/Limitation

For the use on a ship the following conditions must be fulfilled to satisfy EMC requirements according to P+F Installation Instruction and Standard for Certification – No.2.4 for EMC Emission and Immunity:

- Hardware installed in metal cabinet
- EMC-Cable gland or separate screen rails inside the enclosure or cabinet to connect the screen of the signal cables
- Shielded signal cables
- EMC line filter (only relevant for EMC class B applications)

More information can be found in Pepperl + Fuchs GmbH Installation instruction for Remote I/O named "Application Note".

## Type Approval documentation

Drawings	Type of drawing	page (p)	Draw up date
16-617UL-04	Mechanical Drawings LB module enclosure parts	1-7	2009-Nov-27
<b>LB 1101</b>			
16-617PT-01	Circuit diagrams	1	2009-Feb-19
16-617PT -03	Comp. placements	1	2009-Feb-19
<b>LB 1102</b>			
16-617PT-01	Circuit diagrams	2	2009-Feb-19
16-617PT -03	Comp. placements	2	2009-Feb-19
<b>LB 1103/1104</b>			
16-617PT-01	Circuit diagrams	3	2009-Feb-19
16-617PT -03	Comp. placements	3	2009-Jun-22
<b>LB 1108</b>			
basic PCB			
16-617PT-01	Circuit diagrams	4	2009-Feb-19
16-617PT -03	Comp. placements	4	2009-Feb-19
extension PCB			
16-617PT-01	Circuit diagrams	5	2009-Feb-19
16-617PT -03	Comp. placements	5	2009-Feb-19
Diode array A02 LB 1x08			
16-617PT-03	Comp. placements	22	2009-Mar-17
<b>LB 21xx</b>			
16-617PT-01	Circuit diagrams	6	2009-Nov-25
16-617PT -03	Comp. placements	6 - 7	2009-Nov-25
Cooling PCB LB 21xx			
16-617PT -03	Comp. placements	23	2009-Nov-17
<b>LB 5101</b>			
16-617PT-01	Circuit diagrams	7	2009-Feb-19
16-617PT -03	Comp. placements	8	2009-Feb-19
<b>LB 5102</b>			
16-617PT-01	Circuit diagrams	8	2009-Feb-19
16-617PT -03	Comp. placements	9	2009-Feb-27
<b>LB 5104</b>			

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basic PCB			
16-617PT-01	Circuit diagrams	9	2009-Mar-17
16-617PT -03	Comp. placements	10	2009-Jun-22
extension PCB			
16-617PT-01	Circuit diagrams	10	2009-Mar-17
16-617PT -03	Comp. placements	11	2009-Apr-20
<b>LB 5105</b>			
basic PCB			
16-617PT-01	Circuit diagrams	11	2009-Feb-26
16-617PT -03	Comp. placements	12	2009-Feb-20
extension PCB			
16-617PT-01	Circuit diagrams	12	2009-Feb-19
16-617PT -03	Comp. placements	13	2009-Apr-20
<b>LB 5106</b>			
16-617PT-01	Circuit diagrams	13	2009-May-13
16-617PT -03	Comp. placements	14	2009-May-13
LB 6108 *			
basic PCB			
16-617PT-01	Circuit diagrams	14 - 15	2009-Jun-16
16-617PT -03	Comp. placements	15	2009-Jun-22
extension PCB			
16-617PT-01	Circuit diagrams	16	2009-Jun-02
16-617PT -03	Comp. placements	16 - 17	2009-Jun-02
<b>LB 611x</b>			
basic PCB			
16-617PT-01	Circuit diagrams	17	2009-Jun-02
16-617PT -03	Comp. placements	18	2009-Jun-23
extension PCB			
16-617PT-01	Circuit diagrams	18	2009-Jun-04
16-617PT -03	Comp. placements	19 - 20	2009-Jun-04
<b>LB 9x99</b>			
16-617PT -03	Comp. placements	21	2009-Apr-20
ISCM 8100			
16-640PT-01	Circuit diagrams	1-3	2008-Mar-28
16-640PT-03	Comp. placements	1	2008-Mar-28
LTBM 8001 (to ISCM 8100)			
16-617UL-03	Comp. placements	1	2008-Oct-10
<b>LB 9022 F</b>			
16-697UL-01	Circuit diagrams	1-7	2009-May-04
16-697UL-03	Comp. placements	1-3	2009-May-04
<b>LB 9023</b>			
16-697UL-01	Circuit diagrams	8-9	2009-May-04
16-697UL-03	Comp. placements	4-5	2009-May-04
<b>LB 9025</b>			
16-697UL-01	Circuit diagrams	10-11	2009-May-04
16-697UL-03	Comp. placements	6-7	2009-May-04
<b>LB 9026</b>			
16-697UL-01	Circuit diagrams	12-13	2009-May-04
16-697UL-03	Comp. placements	8-9	2009-May-04
<b>LB 9027</b>			
16-697UL-01	Circuit diagrams	14-15	2009-May-04
16-697UL-03	Comp. placements	10-11	2009-May-04
<b>LB 9029</b>			
16-697UL-01	Circuit diagrams	16-17	2009-May-04
16-697UL-03	Comp. placements	12-13	2009-May-04



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Test Plan Marine approval Remote I/O LB/FB dated 2008-11-03  
Pepperl + Fuchs EMC Test Report no. PRDE-7920B2 dated 2008-11-20  
Pepperl + Fuchs ENV Test Report no. PRDE-7920B3 dated 2008-11-20  
Pepperl + Fuchs Test Report for Vibration no. PRDE-7920B3 dated 2008-12-05  
Pepperl + Fuchs Bus-Systems Product Catalogue no. 195 317 dated 2007-11-07  
Pepperl + Fuchs Application Note doc. No. DOCT-2123 dated July 2010  
DNV Essen Initial Survey Report dated 2010-07-16.

At renewal 2015:

Pepperl + Fuchs EMC Test Report no. PRDE-7920B6 dated 2010-02-17  
Pepperl + Fuchs EMC Test Report no. PRDE-ASW1 dated 2012-11-28  
Pepperl + Fuchs EMC Test Report no. PRDE-AK09A dated 2012-09-13  
Pepperl + Fuchs EMC Test Report no. PRDE-AK05A dated 2013-03-04  
Pepperl + Fuchs EMC Test Report no. PRDE-AFZ9A dated 2011-10-14  
Pepperl + Fuchs ENV Test Report no. PRDE-AUM0 dated 2013-02-12  
Pepperl + Fuchs ENV Test Report no. PRDE-AUH6 dated 2013-02-04  
Pepperl + Fuchs ENV Test Report no. PRDE-AK21A dated 2012-09-13  
Pepperl + Fuchs ENV Test Report no. PRDE-AK16A dated 2013-03-04  
Pepperl + Fuchs ENV Test Report no. PRDE-AFN7B dated 2011-09-30

DNV GL Augsburg Type approval assessment report for A-11866 dated 2015-05-29

## Tests carried out

Applicable tests according to Standard for Certification No. 2.4, April 2006.

## Marking of product

The modules are marked with manufacturer name (Pepperl+Fuchs), model name as listed in Product description and a unique serial number

## Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE