

Operating Instructions

FiberTxA-Mk2

Addressable

***Optical Fiber Attenuation Sensor
for dark and active fibers***



Contents

Ordering Data	2
Technical Data	3
General Information	4
Designated Use	4
Safety Instructions	4
Function	6
Connection	8
Electrical connection in a 19" drawer	8
Terminal assignment	8
Electrical connection in a wall housing	9
Terminal assignment	9
Option with CAN interface	10
The LANCIER Tx-Bus	10
Coding	10
Coding table	11
Function Test	11
Declaration of Conformity	12



Important!

It is imperative to read and observe all safety instructions prior to initial operation!

Ordering Data

Sensor FiberTxA-Mk2 **Order-No. 071840.0WA**
(W=Wavelength, A=Fiber connector according to technical data)

Options

LANCIER Tx-Bus interface **Order-No. 071700.000**

CAN interface **Order-No. 072050.000**

Other interfaces (RS232, RS485) upon request.

Accessories

Drawer 19" 1HE complete **Order-No. 071863.000**

Power supply unit 115-230 V AC / 48 V DC **Order-No. 070257.000**

Wall housing with power supply unit 48/60 V DC **Order-No. 072723.000**

Wall housing with power supply unit 115-230 V AC **Order-No. 072723.008**

Ethernet/CAN-Interface Type Mk2 **Order-No. 072240.000**

Technical Data

Measurement range	-9,9 - 50 dB
Resolution	0,1 dB
Max. measuring error	± 0,5 dB
Display	3-digit, LCD
Resolution error	± 1 Digit
Supply voltage	36 - 72 V DC
Power consumption	50 mA typ.
Operating temperature	0 - 50 °C
Storing temperature	-10 - 60 °C
Signal LEDs	red: alarm yellow: acknowledged alarm red: remote operation
Signal outputs	dry change-over contact
Max. switchable voltage	100 V DC
Max. switchable current	0,1 A DC
Dimensions	
FiberTxA-Mk2 (W x H x D)	129,0 x 43,3 x 167,0 mm
Drawer (W x H x D)	484 (19") x 42 (1 HE) x 278 to 353 mm plus bending radius of connected fiber
Wall housing	
with power supply unit 48/60 V DC	210 x 270 x 240 mm (W x H x D)
with power supply unit 230V AC	210 x 270 x 290 mm (W x H x D)
Weight	approx. 0,35 kg
Laser diode	
Light power output	-10 dBm
Possible deviation	± 0,3 dB
Wavelength	1310 nm Multimode (Order-No. W =7) 1310 nm Singlemode (Order-No. W =8) 1625 nm Singlemode (Order-No. W =9)
Photo diode	
Optical bandwidth	1.000 - 1.650 nm
Fiber connectors	ST (Order-No. A =2) SC/PC (Order-No. A =3) DIN/PC (Order-No. A =4) SC/APC (Order-No. A =5) FC/APC (Order-No. A =6) LC (Order-No. A =7) E2000 (Order-No. A =8) FC/PC (Order-No. A =9) others on request

General Information

These operating instructions should make it easier for you to become acquainted with the product. They contain important information to ensure safe, appropriate and cost-effective use of the equipment.

The operating instructions endorse the directives of national regulations for the prevention of accidents and the protection of the environment.



These operating instructions shall be read and adopted by anyone assigned to work with/on the equipment, e. g. during operation to include setting-up, maintenance trouble-shooting.

In addition to the operating instructions and the mandatory regulations for the prevention of accidents, applicable in the operator's country and at the place of use, the recognized technical regulations for safe and professional operation shall also be observed.

Designated Use

The Optical Fiber Attenuation Sensor FiberTxA-Mk2 is designed to measure the attenuation of optical fibers in telecommunications cables.

Any non-compliant use excludes the manufacturer from liability for any damages. The operator carries the risk!

Safety Instructions



Important!
Read and observe safety instructions prior to initial operation!

- Keep the operating instructions ready to hand!



Accident prevention!
All circuit lines must be dead before the opening of its housing!

- The unit should only be operated in technically-sound condition, for its designated use, with safety and risk awareness in mind, taking into account the operating instructions. In particular, operational faults, which can compromise safety, should be rectified immediately!
- Do not make any modifications to the equipment!



INVISIBLE LASER RADIATION!
Class 1 Laser Product

LASER CLASS 1

DIN EN 60825-1/10.2003

Laser Class 1 products are safe under reasonable foreseeable conditions of operation, including the use of optical instruments (e.g. eye loupes or magnifiers) to view the beam (DIN EN 60825-1/10.2003).

- Mounting, maintenance and repair work should only be performed by trained personnel!
- Only use original LANCIER replacement parts!

**Important!**

Obey handling instructions. Electrostatic discharge (ESD) damage.

**IMPORTANT!**

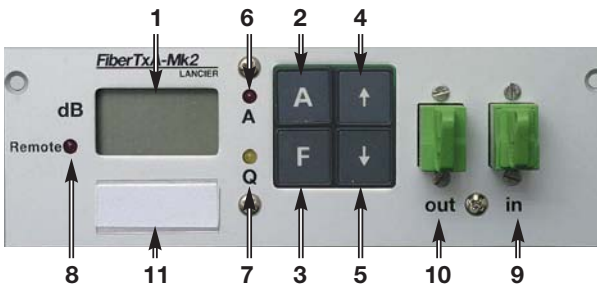
Observe the EMC directives!

When the sensor is mounted into a drawer:

Ground the drawer with a conductor of 0.75 mm² on its backside.

Function

The FiberTxA-Mk2 is a stand-alone measurement and monitoring device for optical attenuation. It uses one optical fiber of the cable as a measurement loop which is being measured continuously. The monitoring of a fiber between two stations is provided by the use of two fiberTxA. One is acting as a transmitter while the other acts as a receiver. The thresholds for the attenuation values are easily programmable with the built-in keys. The integrated display shows the measurement values and settings. All settings are stored in an internal non-volatile EEPROM.



1 Digital LC display, 3 digits

- Shows the actual measured attenuation value.
- Shows the stored alarm limit when button **A** [2] is held.

2 Button **A**

- Holding the button displays the stored **alarm limit**.
- Holding the button and simultaneously pressing the button **↑** [4] raises or button **↓** [5] lowers the stored alarm value gradually.

3 Button **F**

- Pressing shortly acknowledges the signal contact when an alarm is pending (yellow LED „Q“ [7] glows).

4 Button **↑**

- Pressing simultaneously with the button **A** [2] **raises** the alarm value gradually.

5 Button **↓**

- Pressing simultaneously with the button **A** [2] **lowers** the alarm value gradually.

6 Red LED „A“

- glows when the measured value exceeds the alarm limit (alarm).
- goes out when the measured value falls at least 0.4 dB below alarm limit.

7 Yellow LED „Q“

- glows when the signal contact is acknowledged by pressing the button **F** [3] and the measured value is still in alarm condition.
- goes out when the measured value falls at least 0.4 dB below alarm limit after the signal contact was acknowledged.

8 Red LED „Remote“

- glows when the sensor is remote read (when equipped with Tx or CAN module only).

9 Fiber connector input

- Standard connector is FC/APC, others are optional.

10 Fiber connector output

- Standard connector is FC/APC, others are optional.



INVISIBLE LASER RADIATION!

Class 1 Laser Product

LASER CLASS 1

DIN EN 60825-1/10.2003

Laser Class 1 products are safe under reasonable foreseeable conditions of operation, including the use of optical instruments (e.g. eye loupes or magnifiers) to view the beam (DIN EN 60825-1/10.2003).

11 Label

- Mark name of sensor, cable or other notes for the identification of the measuring point.

The FiberTxA-Mk2 has integrated dry contacts for remote alarming. It can be equipped additionally with interfaces for the LANCIER Tx-Bus or a CAN-Bus (see pages 9 to 11).

Connection

Electrical connection in a 19" drawer



Accident prevention!

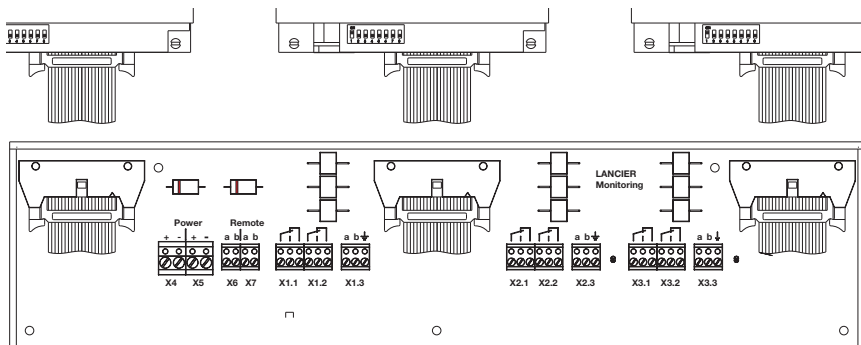
All circuit lines must be dead before opening on the instrument!



IMPORTANT!

Observe the EMC directives! Ground the drawer with a conductor of 0.75 mm² on its backside connector.

FiberTxA-sensors are connected to the bus PCB of the drawer by a 20-pin ribbon cable. A maximum of 3 sensors can be mounted into one drawer. All signal contacts can be connected as make or break contact (refer to print on PCB).



Terminal assignment

of the bus PCB:

Supply voltage

X4 Power supply

X5 Power supply for an additional drawer

Remote reading

X6 Interface for remote reading (for CAN: X6a - CAN_L, X6b - CAN_H)

X7 Interface for remote reading for an additional drawer

Sensor 1

X1.1 Signal contact

X1.2 Signal contact for second signalling path (same signal as X1.1)

X1.3 idle

Sensor 2

X2.1 Signal contact

X2.2 Signal contact for second signalling path (same signal as X2.1)

X2.3 idle

Sensor 3

X3.1 Signal contact

X3.2 Signal contact for second signalling path (same signal as X3.1)

X3.3 idle

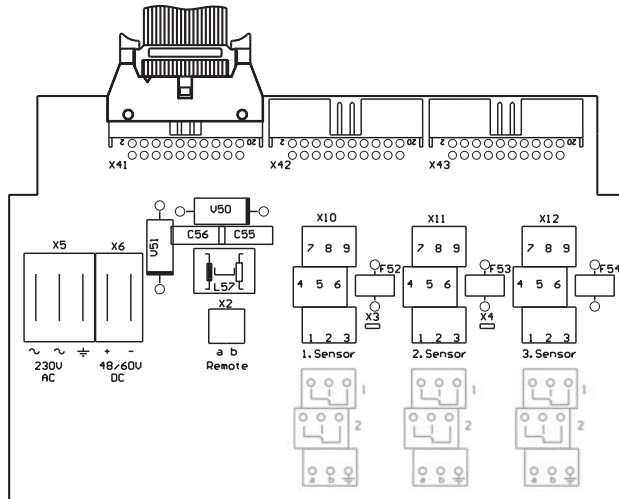
Electrical connection in a wall housing



Accident prevention!

All circuit lines must be dead before opening on the instrument!

FiberTxA-sensors are connected to the bus PCB of the wall housing by a 20-pin ribbon cable. A maximum of 3 sensors can be mounted into one wall housing. All signal contacts can be connected as make or break contact (refer to print on PCB).



Terminal assignment

of the bus PCB:

Supply voltage

X5 Power supply 230V AC (wall housing 072723.008 only)

X6 Power supply 48/60V DC

Remote reading

X2 Interface for remote reading (for CAN: X6a - CAN_L, X6b - CAN_H)

Sensor 1

X10.1 Signal contact

X10.2 Signal contact for second signalling path (same signal as X10.1)

X10.3 idle

Sensor 2

X11.1 Signal contact

X11.2 Signal contact for second signalling path (same signal as X11.1)

X11.3 idle

Sensor 3

X12.1 Signal contact

X12.2 Signal contact for second signalling path (same signal as X12.1)

X12.3 idle

Option with CAN interface

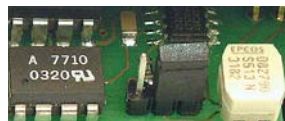
Before starting up

The last participant on the CAN bus must be equipped with a terminating resistor (considered from the RTU).

Last participant

(120 Ω resistor is activated).

Jumper at the sensor's back connects contacts J1 and J2.



Participant X

(120 Ω resistor is deactivated).

Jumper at the sensor's back connects contacts J2 and J3.



The LANCIER Tx-Bus

A maximum of 127 addressable sensors can be connected to one Tx-bus pair.

The measured values of all sensors connected to the LANCIER monitoring system are transmitted in time intervals. Therefore all sensors must be coded before installation.

Coding



Accident prevention!

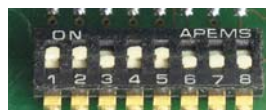
All circuit lines must be dead before opening on the instrument!

- The 8-pin DIP switch [16] is located at the back of the FiberTxA-Mk2 housing.
- Set the sensor's address at the DIP switch [16] by means of a small screw driver according to the coding table.
Switch at left side = 0 = „Off“ , switch at right side = 1 = „on“

The switches' values are as follows:

- Switch 1: value 1
- Switch 2: value 2
- Switch 3: value 4
- Switch 4: value 8
- Switch 5: value 16
- Switch 6: value 32
- Switch 7: value 64
- Switch 8: for testing purposes only

DIP switch [16]
set to address „27“



Coding table

Code	64	32	16	8	4	2	1
1							■
2						■	
3						■	■
4					■		
5					■	■	■
6					■	■	
7					■	■	■
8				■			
9				■		■	
10				■	■		■
11				■	■	■	■
12				■	■		
13				■		■	■
14				■	■	■	
15				■	■	■	■
16			■				
17			■				■
18			■			■	
19			■		■	■	
20			■		■	■	■
21			■		■		■
22			■		■	■	■
23			■		■	■	■
24			■	■			
25			■	■			
26			■	■		■	
27			■	■			
28			■	■	■		
29			■	■	■	■	
30			■	■	■	■	■
31			■	■	■	■	■
32			■				

■ switch in position „ON“

Code	64	32	16	8	4	2	1
33		■					■
34		■				■	
35		■				■	■
36		■			■		
37		■			■	■	■
38		■			■	■	
39		■			■	■	■
40		■		■			
41		■		■		■	
42		■		■		■	■
43		■		■		■	■
44		■		■	■		
45		■		■	■	■	■
46		■		■	■	■	■
47		■		■	■	■	■
48		■	■				
49		■	■				■
50		■	■			■	
51		■	■			■	■
52		■	■			■	■
53		■	■			■	■
54		■	■		■	■	■
55		■	■		■	■	■
56		■	■	■			
57		■	■	■			■
58		■	■	■		■	
59		■	■	■		■	■
60		■	■	■	■		
61		■	■	■	■	■	■
62		■	■	■	■	■	■
63		■	■	■	■	■	■
64	■						

Code	64	32	16	8	4	2	1
65	■						■
66	■					■	
67	■					■	■
68	■				■		
69	■				■	■	■
70	■				■	■	
71	■				■	■	■
72	■			■			
73	■			■		■	
74	■			■		■	■
75	■			■		■	■
76	■			■	■		
77	■			■	■	■	■
78	■			■	■	■	■
79	■			■	■	■	■
80	■		■				
81	■		■				■
82	■		■			■	
83	■		■			■	■
84	■		■			■	■
85	■		■		■		
86	■		■		■	■	■
87	■		■		■	■	■
88	■		■	■			
89	■		■	■			■
90	■		■	■		■	
91	■		■	■		■	■
92	■		■	■		■	■
93	■		■	■		■	■
94	■		■	■	■		
95	■		■	■	■	■	■
96	■	■					

□ switch in position „OFF“

Code	64	32	16	8	4	2	1
97	■	■					■
98	■	■					■
99	■	■					■
100	■	■				■	
101	■	■				■	■
102	■	■				■	■
103	■	■				■	■
104	■	■			■		
105	■	■			■		■
106	■	■			■		■
107	■	■			■		■
108	■	■			■	■	■
109	■	■			■	■	■
110	■	■			■	■	■
111	■	■			■	■	■
112	■	■			■		
113	■	■			■		■
114	■	■			■		■
115	■	■			■		■
116	■	■			■		■
117	■	■			■		■
118	■	■			■	■	■
119	■	■			■	■	■
120	■	■			■	■	■
121	■	■			■		■
122	■	■			■		■
123	■	■			■		■
124	■	■			■		■
125	■	■			■		■
126	■	■			■	■	■
127	■	■			■	■	■

Function Test

Each transducer has to be checked with the LANCIER Testbox (Order no. 050833.000) for accurate function and coding. The necessary steps are described in the manual of the Testbox.



Important!

Check all transducers before use, in order to avoid later malfunction!

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EC Declaration of Conformity

We declare under our sole responsibility, that the product

Make: LANCIER Monitoring
Type: FiberTxA Mk2

to which this declaration refers, meets the relevant health and safety requirements of the following EC directives:

2014/30/EU	Electromagnetic compatibility
2011/65/EU	RoHS-II

For proper implementation of the health and safety requirements named in the EC directives the following standard(s) and/or technical specification(s) have been consulted:

EN 61326-1	Electrical equipment for measurement, control and laboratory use - EMC requirements (class B)
EN 60825-1	Laser safety class

Münster, 20.11.2018


Research and Development


Managing Director