

Operating Instructions

***Monitoring Station
RTU
equipped with OTDR***



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

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Technical Data RTU

DC/DC-power supply unit (specifications for 60V)*

Input voltage:	36 .. 75 V DC
Current consumption:	approx. 150 mA without measurement cards additionally approx. 40 mA per installed card
Power consumption:	<10 VA without measurement cards additionally approx. 2.5 VA per installed card

AC/DC-power supply unit (specifications for 230V)*

Input voltage:	100 .. 250 V AC/45 .. 65 Hz
Current consumption:	approx. 70 mA without measurement cards additionally approx. 10 mA per installed card
Power consumption:	<18 VA without measurement cards additionally approx. 2.5 VA per installed card
Output voltage:	$U_1 = 5 \text{ V DC (8 A)}$
galvanically isolated	$U_2 = 12 \text{ V DC (2 A)}$
and short-circuit proof	$U_3 = 12 \text{ V DC (2 A)}$
(maximum current)	$U_4 = 60 \text{ V DC (0,1 A)}$
LEDs:	U_1, U_2, U_3, U_4 (function check)

RTU

Operating temperature range:	0 .. +55 °C
Storing temperature range:	-20 .. +60 °C
Admissible humidity:	0 .. 95 % rel. humidity, non-condensing
Dimensions (H x W x D):	min. 266 x 483 x 310 mm dimension for mounting into 19"-Rack
Weight without cards:	< 10 kg
Slots:	12 for measurement cards in IEC format
Dimensions measur. cards:	Front plate: 4 DU x 3 HU PCB: approx. 100 x 160 mm

* **Note:**

Specifications on name plate (page 12) are maximum values, which are pre-determined by the maximum load of the power supply unit.

CPU card

Embedded Controller:	PowerPC MPC565 32-Bit 40 MHz
Operating system:	RTEMS
Storing capacity:	SRAM: 4 MB (8 MB Option) Flash: 2 MB (8 MB Option) RAMDisk: 4 MB (12 MB Option) SD-Card: 1 GB
Memory buffer:	approx. 1 year by battery
RTC	
Interfaces	
Ethernet:	10 Mbit BaseT, connector: RJ45
RS232:	9600 Baud 8N1, connector: female 9-pin SUB-D
CAN:	125 kbit 2.0B, connector: male 9-pin SUB-D
LEDs:	LINK, TRAFFIC
Operating elements:	Reset button
Dimensions:	Front plate: 4 DU x 3 HU PCB: approx. 100 x 160 mm

Software

Accessible hardware:	64 devices 10 measurement buses parallel measurement of all measurement cards
Storing capacity at 2 MB RAMDisk	max. 750 sensors and max. 15 OTDR-traces
Storing capacity at 12 MB RAMDisk	max. 2000 sensors and max. 100 OTDR-traces

Technical Data Optical Switch

Optical switch module

Module for up to 16 fibers: 19", 1 U, 44.45 mm height, 285 mm depth

Module for up to 32 fibers: 19", 2 U, 88.9 mm height, 285 mm depth

Wavelength range: 850 - 1655 nm

Insertion loss: < 1 dB, 0.6 dB typical

Return loss: < - 55 dB

Crosstalk: < -70 dB

Repeatability: < ±0.02 dB

Switching time: 65 ms + 10 ms /channel

Lifetime: > 10 million cycles

Operating temperature range: 0 .. +50 °C

Storing temperature range: -20 .. +60 °C

Admissible humidity: 0 .. 80 % rel. humidity, non-condensing

- All specifications referenced without connectors.
- All optical measurements taken after temperature has been stabilized for one hour.
- Return loss specifications based on 1 m pigtail length.
- All specifications are at speed 1 setting. Repeatability can be affected by increasing speed.

Technical Data OTDR

OTDR

Laser safety classes:

OTDR Type 152, 161 IEC 60825-1:2001 Class 1

OTDR Types 150, 257, 357, 163 IEC 60825-1:2001 Class 1M

Operating temperature range: 0 .. +40 °C

Storage temperature range: -40 .. +60°C

Admissible humidity: 80 % r.h. non condensing

Module dimensions: 19", 2 U, 88.9 mm height, 440 mm depth

The OTDR Module is placed in a separate housing which is installed above the RTU main module. Different OTDR types with various dynamic ranges and different wavelengths can be integrated. All OTDR operations are controlled by the RTU main module.

Spans

Single mode:

OTDR Type 1xx, 2xx 0,5, 1, 2,5, 5, 10, 25, 50, 100, 200 km

OTDR Type 3xx 0,5, 1, 2,5, 5, 10, 25, 50, 100, 200, 300 km

Multimode: 0,5, 1, 2.5, 5, 10, 25, 50, 100 km

Technical Data OTDR

Type	Wave-length ¹⁾	Fiber type	Pulse width	Dynamic range ²⁾	Dead zone (Fresnel) ³⁾	Dead zone (back scattering) ⁴⁾
150	1310 nm ±25 nm	Single Mode (SMF) 10/125 µm ITU-T G.652	3 ns 10 ns 20 ns 50 ns 100 ns 200 ns 500 ns 1000 ns 2000 ns 4000 ns 10000 ns 20000 ns	38,5 dB	≤ 1 m (0,8 m typ.)	≤ 5,0 m
152	1645 nm bis 1655 nm			33,5 dB		≤ 6,5 m
161	1625 nm ±25 nm			33,5 dB		≤ 6,0 m ≤ 6,5 m ≤ 7,5 m
257	1310 nm 1550 nm 1625 nm ±25 nm			40,0 dB ⁵⁾ 39,0 dB ⁵⁾ 38,0 dB ⁵⁾		≤ 3,8 m ≤ 4,3 m ≤ 4,8 m
357	1310 nm 1550 nm 1625 nm ±25 nm			45,0 dB 45,0 dB 43,0 dB		≤ 5,0 m ≤ 5,5 m
163	1310 nm 1550 nm ±25 nm 850 nm 1300 nm ±30 nm	HYBRID (SMF/MMF) 12	as SMF & MMF	38,0 dB 36,5 dB 28,0 dB 27,0 dB		≤ 4,0 m ≤ 5,0 m

1) 25 °C, pulse width: 1 µs (all except 850, 1300 nm), 850/1300 nm: 100 ns

2) Pulse width: 20 µs (Options 050 .. 063; 1310/ 1550 nm) at a range of 100 km

Pulse width: 4 µs (Option 063; 1300 nm) at a range of 25 k

Pulse width: 500 ns (Options 063; 850 nm) at a range of 25 km

Measurement time: 180 sec., SNR=1, 25 °C

3) Pulse width: 3 ns (Options 050 .. 061; 1550 nm)

Reflection loss: 40 dB, 25 °C

4) Pulse width 10 ns, Reflection loss 55 dB, Aberration ±0,5 dB, 25 °C (Options 050 .. 063; all except 850/1300 nm)

Pulse width 3 ns, Reflection loss 40 dB, Aberration ±0,5 dB, 25 °C (Option 063; 850/1300 nm)

5) Typical, 1 dB less is guaranteed

Ordering Data

Monitoring station RTU

36 .. 75 V DC (DC/DC power supply unit)	Order-No. 067400.000
100 .. 250 V AC/45 .. 65 Hz (AC/DC power supply unit)	Order-No. 067400.008

Spare parts / Accessories

CPU card RTU	Order-No. 072413.000
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Connection cable

RS232 , 1.8 m, 9-pin SUB-D male/female	Order-No. 073134.000
CAN , 3 m, 9-pin SUB-D female	Order-No. 073135.000

Router D-Link DIR-100 4-Port Ethernet	Order-No. 074526.000
--	-----------------------------

Interface card I-OSW	Order-No. 071517.000
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Further ordering data:

OTDR module , 2 HU, complete (router and patch cable included)	Order-No. 074522.0YY
--	-----------------------------

Optical switch module , Z HU, 1x X , complete	Order-No. 073XXX.0YY
--	-----------------------------

X, Y and Z depending on configuration

General Information

These operating instructions contain important instructions to ensure safe, appropriate and cost-effective operation of the equipment, to reduce repair costs and downtimes, as well as to raise the equipment's reliability and operational lifetime.

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

These operating instructions should always be available at the installation site.



These operating instructions shall be read and adopted by anyone assigned to work with/on the equipment, e.g. during maintenance, inspection and repair

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 recognised technical regulations for safe and professional operation, shall also be observed.

Designated Use

The RTU monitoring station was developed for logging and evaluating measurement readings in a LANCIER Monitoring System.

The monitoring station was developed to collect and analyse measurement data in a LANCIER Monitoring System.

Proper intended use includes adherence to all prescribed operating, service and repair conditions.



Important!
Obey handling instructions. Electrostatic discharge (ESD) damage.

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

Safety Instructions



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

- Keep the operating instructions ready to hand!



Risk of damage to property!
Disconnect the power supply before working on the equipment!



Danger to life!

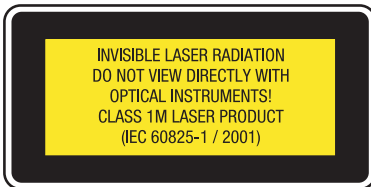
Disconnect the power supply before working on the equipment!

- The equipment 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.
- Malfunctions deleteriously affecting safety in particular must be remedied immediately!
- The monitoring station RTU may only be serviced and operated by persons familiar with it who have been informed of the possible risks.
- Do not modify the equipment in any way.



INVISIBLE LASER RADIATION!

Class 1M Laser Product



Under no circumstances look into the end of an optical cable attached to the optical output when the device is operational. The laser radiation can seriously damage your eyesight.



Risk of damage to property!

- Maintenance and repair work should only be performed by trained personnel!
- Only use original LANCIER Monitoring replacement parts!

Items supplied

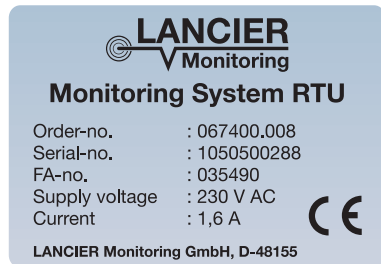
- 1 Monitoring station RTU
- 1 OTDR module with OTDR according to order specifications
- 1 Router with 1 power supply cable and 1 patch cable
- 1 Optical switch module according to order specifications
- 1 Interface card I-OSW for optical switch module
- 1 Connection cable Sub D 25 pins „interface card I-OSW to optical switch module“
- 1 Cable RS232, 9-pin, Sub D male/female
- 3 19” mounting set (4 grounded captive nuts, 4 screws)
- 1 Main power supply cable for RTU
- 1 Operating instructions with 1 EC Declaration of Conformity

Scope of delivery might differ, if RTU ist already mounted into a rack.

Identification marking

The monitoring station is clearly identified by the nameplate with technical data and particulars of the manufacturer. The nameplate (7) is located inside the housing at the right hand bottom.

Compliance with the directives in force is confirmed by the attached EC declaration of conformity (see back of these operating instructions).



LANCIER
Monitoring
Monitoring System RTU

Order-no.	: 067400.008
Serial-no.	: 1050500288
FA-no.	: 035490
Supply voltage	: 230 V AC
Current	: 1,6 A

CE

LANCIER Monitoring GmbH, D-48155

Conditions of use

Temperatures

- Permissible ambient temperature: 0 °C to + 55 °C
The monitoring station is guaranteed to function perfectly in this temperature range.

Ambient conditions

- Ambient media, particularly those of a chemically aggressive nature, may attack seals, wire and plastic.

Installation conditions

- The monitoring station RTU should be installed in a dry, dust-free and frost-free room, while adhering to the general guidelines

EMC conditions

- Operation must follow EMC regulations. The housing of the RTU is screened accordingly. The flap (front door) must be shut after mounting and configuration (lock screws). Observe EMC regulations and mounting instructions (see page 20) when mounting the housing into a 19" rack and during installation of power mains and measurement cables.

Storage

General storage information

- If the monitoring station is not installed and operated straightaway it must be kept under appropriate storage conditions in dry, dust-free and frost-free premises away from the sunlight.
- for storage purposes it should be plastic or foil wrapped.



If the above mentioned conditions of use are not observed, the monitoring systems operating mode cannot be guaranteed.

Description of the product

General

The RTU is an universal platform for all network and plant monitoring tasks. It collects and evaluates the measured parameters according to programmed thresholds. Alarms and information about actual device conditions are polled continually by a central server via intranet and SNMP.

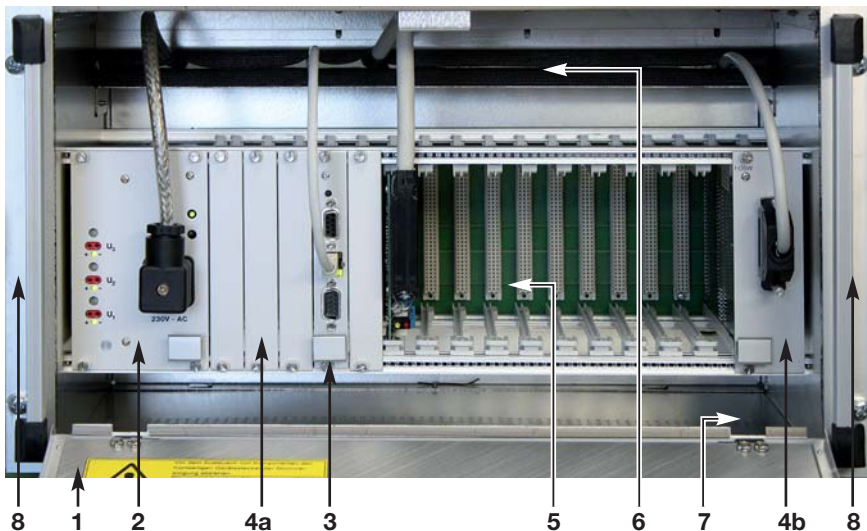
Module rack

- 1 Housing
- 2 Power supply unit
- 3 CPU card with interfaces
- 4 Free slots with dummy plates
 - a for communication module I-COM
 - b Interface card I-OSW for optical switch
- 5 12 slots for measurement cards
- 6 Cable outlet with EMC screen
- 7 Name plate
- 8 Handles

System design



- A RTU electronic module
- B OTDR module
- C Optical switch module



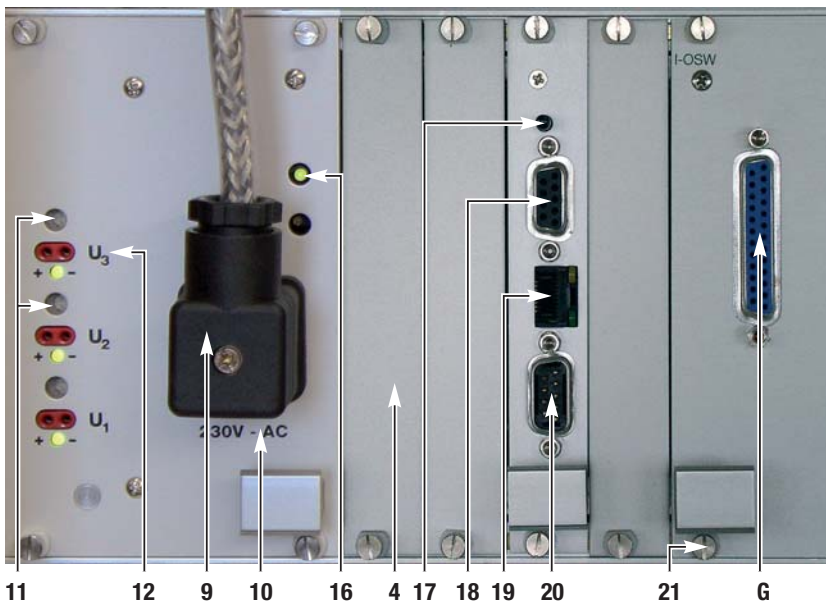
Components and connections

Power supply unit (2)

- 9 Power socket, power supply according to label (10)
- 10 Label for power supply (230 V AC/50 Hz or 36 - 75 V DC)
- 11 $U_1 - U_3$ = Trimmer for factory settings
- 12 $U_1 - U_3$ = Test jacks for factory voltage settings $U_1 - U_3$
with function check LEDs for internal voltage
 $U_1 = 5\text{ V}$
 $U_2 = 12\text{ V}$
 $U_3 = 12\text{ V}$
- 16 LED U_4 = Function check for measurement voltage 60 V DC, adjustable

CPU card with interfaces (3)

- 17 Reset button
 - 18 RS 232 interface port for service (RS 232 9-pin)
 - 19 Ethernet port with indicators for data stream (RJ45)
 - 20 CAN bus port (RS 232 9-pin)
 - G Interface port to optical switch (socket 25-pin SUB-D)
- 4 Free slot with dummy plate
- 21 Fixing screws



Pin assignment

18 RS 232 interface port

PIN 2: TX
PIN 3: RX
PIN 5: GND
PIN 7: RTS
PIN 8: CTS

19 Ethernet port with indicators for data stream

PIN 1: TX+
PIN 2: TXPIN
PIN 3: RX+
PIN 6: RX-

20 CAN bus port

PIN 2: CAN L
PIN 7: CAN H

Router for OTDR

The router connects the OTDR with the RTU by Ethernet.

It is mounted at the right sled wall of turn-key-systems.

The router network addresses are freely configurable for integration into the user's network (ref. page 32).



Interface card I-OSW

The interface card I-OSW is needed to connect optical switches to the RTU.

G Interface port optical switch (socket 25-pin SUB-D)

Optical switches must be connected only by the cable delivered with the „Optical switch module“ by LANCIER Monitoring (see page 9, ordering data). It is not included when the interface is ordered as spare part.



PLEASE MIND:

The interface card needs the space of two slots!

Dip switch settings



Important!

Obey handling instructions. Electrostatic discharge (ESD) damage.

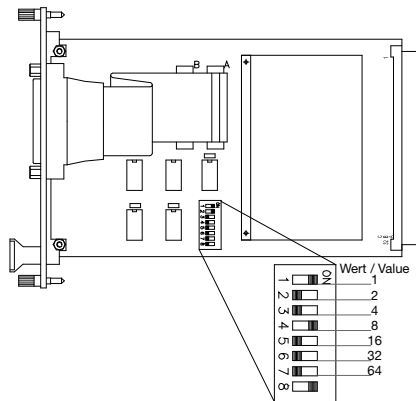
The interface card I-OSW must be set-up according to the number of the channels of the optical switch. The set-up is accomplished in binary code by a dip-switch on the PCB of the interface card. Dismount interface card I-OSW to get access to dip-switch.

The binary code is the number of channels, max. 127 channels.

Switch 8 must be set to „on“.

Binary code	Value
1	1
2	2
3	4
4	8
5	16
6	32
7	64

Example: Dip-switch set to code „9“



Settings for older types up to year of manufacture Sept. 2014:

Switch 8 must be set to „off“.

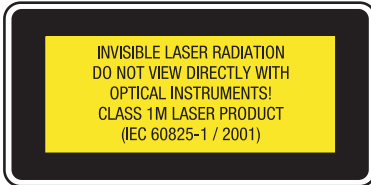
Binary code	No. of Channels	Switch type
1	2	Dicon, ver. 1.0
2	4	Dicon, ver. 1.0
3	10	Fitel, ver. 1.0
4	16	Fitel, ver. 1.1
5	20	Fitel, ver. 1.1
6	30	Fitel, ver. 1.1
7	50	Fitel, ver. 1.1
8	6	Fitel, ver. 1.3
10	3	Lighttech 1.5

9 and 11 to 127 are idle

OTDR module



INVISIBLE LASER RADIATION!
Class 1M Laser Product



Under no circumstances look into the end of an optical cable attached to the optical output when the device is operational. The laser radiation can seriously damage your eyesight.

Safety Information

All laser sources described in this operating instruction are classified depending on the implemented OTDR:

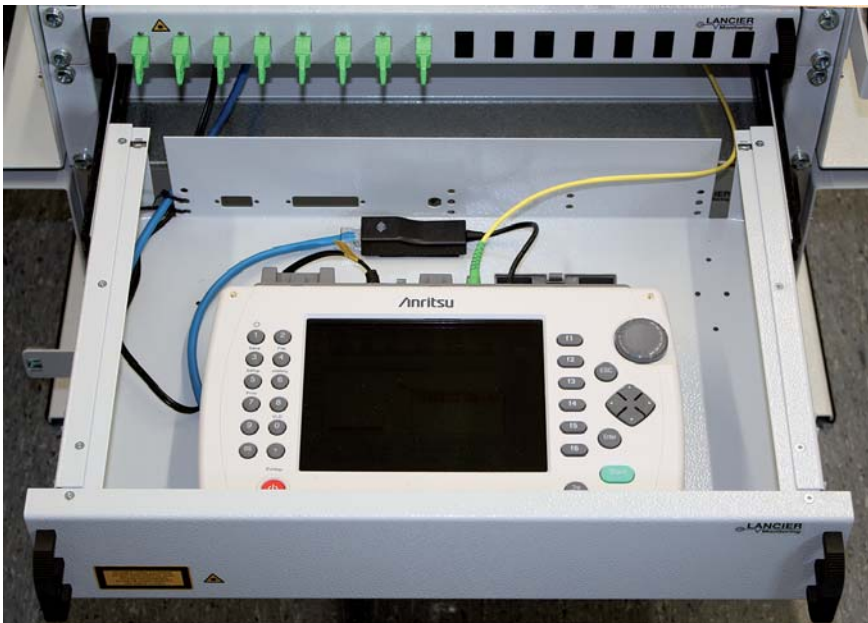
OTDR Typ 152, 161

IEC 60825-1:2001 Klasse1

OTDR Typ 150, 257, 357, 163

IEC 60825-1:2001 Klasse 1M.

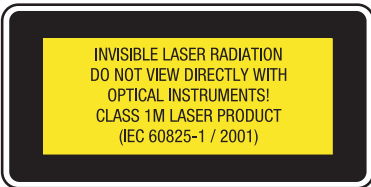
The OTDR is mounted into a closed drawer. Access is essential only for service reasons.



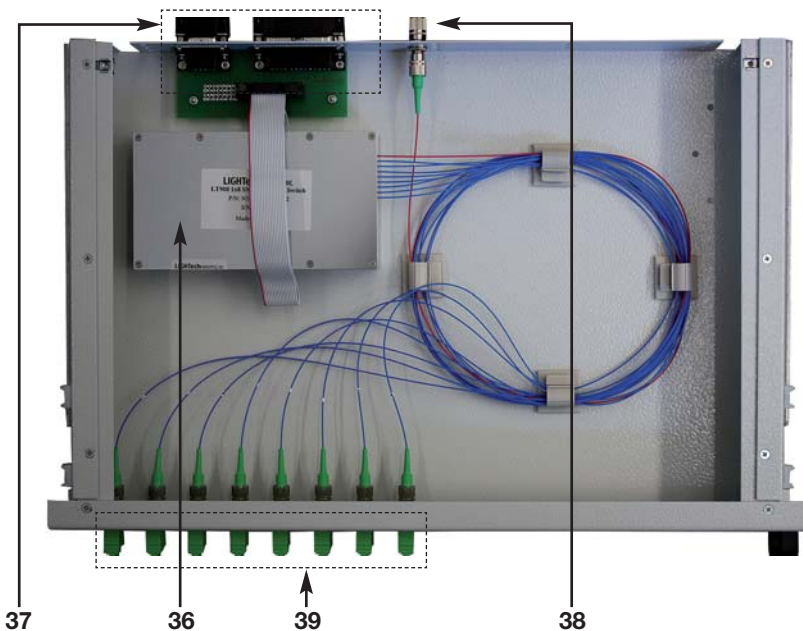
Optical switch module



INVISIBLE LASER RADIATION!
Class 1M Laser Product



Under no circumstances look into the end of an optical cable attached to the optical output when the device is operational. The laser radiation can seriously damage your eyesight.



36 Optical switch

37 Connectors for connection cable to interface card I-OSW (9 pins / 25 pins).

38 Fiber optic connector FC/APC „in“. Connected via patch cord to OTDR.

39 Fiber optic connectors „out“. Connection to fibers to be monitored via patch cord.

Note!

The module is equipped with connector type according to order specifications.

Installation



IMPORTANT!
Observe the EMC directives!

Installation into 19" rack

The RTU with OTDR and optical switch is pre assembled and tested in the factory. The unit can be installed in existing 19" cabinets or in 19" racks at the four pierced holes at the front next to the handles (8).

The place of mounting should be dry and swept clean.

- Insert the 4 grounded captive nuts into the adequate notches of the 19" rack.
 - **The 19" rack must be grounded.**
Use the delivered grounded captive nuts with contact claws only, to assure the necessary grounding!
 - Screw the housing with screws and washers tightly to the rack.
-

Cable connection



IMPORTANT! Observe the EMC directives!

- The screening (aluminium screens) of the connected cables must have contact to the EMC screen (6) and the strain relief bar (26) to assure grounding.



Deadly risk!

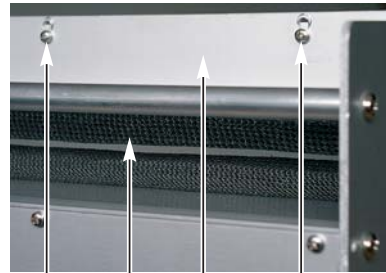
Switch off operating voltage,
Unscrew or disconnect back-up fuse!

Electrical connection must only be made by electrical specialists!

Open cable outlet with EMC screen (6).

To do so

- loosen 4 fixing screws (23), but do not remove them.
- push profile (24) with upper screen (6) upwards and fix it with screw (23).



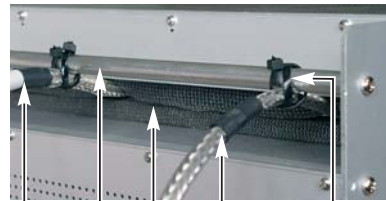
23 6 24 23

Power supply cable

- Slide delivered power supply cable (27) through open cable outlet.

The cable screening is stripped for about 10 cm.

- Place cable (27) so, that the stripped area contacts the strain relief bar (26) and the EMC screening (6).
- Fix power supply cable (27) in this position to the strain relief bar (26) by means of 2 cable ties (28).



30 26 6 27 28

- Connect plug (29) of the power supply cable (27) to the power socket (9) of the power supply unit (2). The cable must show upwards. Fix plug by tightening the center screw.
- Lead the other end of the power supply cable (27) to the terminal strip of the 19" rack or the wall cabinet and connect it according to the table clamp assignment (Page 22).



2 29 9 31 32 33

**ATTENTION**

Observe different clamp assignment for DC/DC and AC/DC power supply units!

Clamp assignment

Power supply unit / wire	yellow/green	black	grey	brown
230 V AC/45 .. 65 Hz	ground wire	phase	neutral wire	--
36 .. 75 V DC	ground wire	--	+ (plus)	- (minus)

-- wire is not used and should be cut off



Figure: terminal configuration at delivery of a complete system in a closet;
top terminal input: external power supply.

Connection to the TCP/IP network

Connect the TCP/IP connection cable to the RJ45 connector (3) of the CPU card.



3

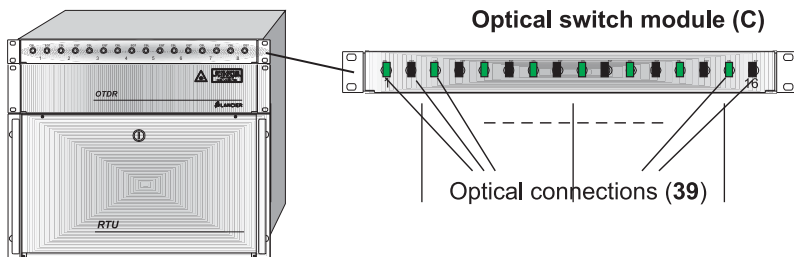
Fiber connections**INVISIBLE LASER RADIATION!**

Class 1M Laser Product

INVISIBLE LASER RADIATION
DO NOT VIEW DIRECTLY WITH
OPTICAL INSTRUMENTS!
CLASS 1M LASER PRODUCT
(IEC 60825-1 / 2001)

Under no circumstances look into the end of an optical cable attached to the optical output when the device is operational. The laser radiation can seriously damage your eyesight.

Connect the fibers to be monitored with a patch cord to the connectors (39) of the optical switch module (C).



Connection cable for measurement cards

- Slide delivered connection cable (30) through open cable outlet.
The cable screening is stripped for about 10 cm.
- Place cable (30) so, that the stripped area contacts the strain relief bar (26) and the EMC screening (6).
- Fix connection cable (30) in this position to the strain relief bar (26) by means of 2 cable ties (28)
- Connect plug (31) of the connection cable (30) to the socket (31) of the appropriate measuring card (32) and fix it with the clamps (33). The cable must show upwards.
- Lead the other end of the connection cable (30) to the terminal strip of the 19" rack or the wall cabinet and connect it according to the plan coming with the cable.

Close cable outlet (6) after all cables are connected. To do so

- Loosen clamping screw (23) and push down profile (24) with upper EMC screening (6) and hold it down there.
- Take care that the stripped areas of all cables contact the EMC screening (6) and the strain relief bar (26).
- Tighten all 4 fixing screws (23) while pushing the profile (24) downwards.

Proceed in analogue manner for later cable installations.

Measurement cards



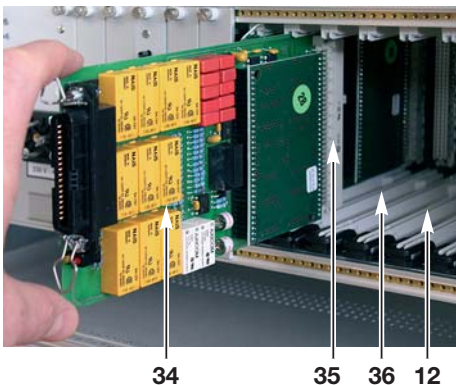
Important!
Obey handling instructions. Electrostatic discharge (ESD) damage.

LANCIER Monitoring provides measurement cards for various measurement tasks. The most popular are:

- Measurement cards QE 16 for addressable sensors
- Measurement cards R 10 for insulation and loop resistance sensors
- Measurement cards C 32 for the conditions of dry contacts (open/closed)
- Measurement cards V 32 for the conditions of wet contact
- Relais output cards
- Measurement cards SP4 for addressable Sparton sensors
- Measurement cards T36 for 20/40 step pressure and flow sensors
- Interface cards for optical switches (third-party supplier)

All measurement cards (34) are in IEC format and are mount into the RTU in a similar way:

- Each card (34) may be mount into any slot (12). Usually the slots are filled from the left to the right. Relais output cards are mounted into the slot placed at the right end.
- **Advice:** If measurement cards have to be replaced (e.g. because of repair), the same type of card must be put into the identical slot. Otherwise the allocation in the monitoring system will be out of joint.
- Hold the measurement card (34) at the upper and lower edge and slide it with the connector (35) in front along the mounting rail (36) into a slot. The unequipped PCB bottom shows to the left.
- Push measurement card (34) securely into the connector, until the bracket (37) snaps in.



Start-up

Switch-on power



Deadly risk!

When power is switched-on neither remove back panel of the RTU nor pull out the power supply unit!

- Switch on power and watch the LEDs of the power supply unit (2):
 - All 4 green LEDs „U₁“ to „U₄“ light up at once.
- The RJ45 socket (ethernet port) of the CPU card has 2 more LEDs with the following meaning:
 - The green LED „Link“ lights permanently when a LAN is connected.
 - The yellow LED „Traffic“ flashes, during data flow.
- Configure the RTU according to the procedures on the following pages and close the housing afterwards.



18

Configuration of the CPU card

Usually the RTU is configured ready to use before delivery according to user specifications. Configuration has to be executed only at later replacement of the CPU card or trouble-shooting.

Establish a connection

Configuration is executed via the RS232 interface (18) (9-pin SUB-D, cable not crossed).

- Connect the laptop or other PC to the CPU card via the RS232 interface
- Start up terminal program, adjust connection features and proceed with connection (illustrated below, using the Windows „Hyperterminal“ Program as an example).

- Run the „Hyperterminal“ software, i.e. under Windows „Start“ -> „(All) Programs“ -> „Accessories“ -> „Communication“ -> „Hyperterminal“
- Enter any name (example: RTU Konfiguration) in the „New connection“ window and confirm „OK“ by clicking on the button.

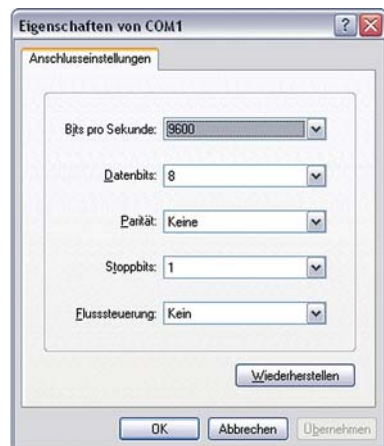


- Select the COM interface used from the pull-down menu in the „Connect with“ window.



- Insert the following values in the „COMX features“ window:
 - **9.600** bps
 - **8** databytes
 - **no** parity
 - **1** stop bit
 - **no** flow control

The CPU connection is configured.



Configure

Press the „Enter“ or „Return“ key in the „Hyperterminal“ window to start the configuration menu. A password is not needed.

The main menu of the RTU appears:

Help INFO

```

=====
<a> Modemserver      <g> Ping Host      <i> Ifconfig
<k> Show Config      <n> Sys Serial-No. <o> OTDR-Setup
<p> Telnet Password  <r> System Reset   <w> Powersupply
  
```

 = Changes are not effective before a restart of the CPU card (press reset button (17)).

For menu control enter the prefixed letters in pointed brackets (example: <c> for system configuration) and subsequent pressing of the „Enter“ or „Return“ key.

If the query is without result, the main menu appears again (e.g. after pressing <a> Modemserver, and no modem is built-in).

Show actual configuration

(k) Show Config

Press „k“ + „Enter“

Display in Hyperterminal:

Show Configuration

```

=====
Programm Version   : 0.63.0 May 22 2012 15:27:27
System Clock       : 40 MHz Quarz:4000000 Multi:10
Uptime             : 0 Days 1 Hours 49 Minutes 18 Seconds
Telnet User        : Lancier
Telnet Password    : Lancier
System Serial-No.  : 2147483644
Free RAMDiskSpace : 2077184Bytes  2028.50KBytes  1.98Mbytes
Network-IP         : 172.16.1.56
Network Netmask    : 255.255.0.0
Network Gateway    : 172.16.10.1
Network Nameserver : 255.255.255.255
Network MAC        : 00:50:C2:39:22:E0
  
```

Configure the ethernet interface

To configure the ethernet interface IP-address, Netmask and Gateway settings must be known. Please ask your network administrator.



Important!

Using the delivered router these settings must not be changed under no circumstances. Otherwise the the communication between OTDR and RTU is disconnected.

```
<i> Ifconfig
```

Press „i“ + „Enter“

Display in Hyperterminal:

```

      Current   NET-Config
=====
IP           = 192.168.0.10
Netmask      = 255.255.255.0
Gateway      = 192.168.0.1
Nameserver   = 192.168.0.1
MAC          = 00:50:C2:39:22:E0
```

```
TCP/IP Config Menu
```

```
=====
<1> Card-IP
<2> Netmask
<3> Gateway
<4> Nameserver
<5> Card-MAC
<0> Exit Menu
```

```
Input->_
```

Enter the dedicated number depending on which parameter shall be configurated. Example for the configuration of the IP address:

Press „1“ + „Enter“

Display in Hyperterminal:

```

Input->1
Current IP       : 192.168.0.10
Please enter IP   : _
```

Enter the new IP address and confirm by pressing the „Enter“ key.

To cancel the input press „Ctrl“+“C“.

In Hyperterminal the menu **TCP/IP Config Menu** is displayed.

Now further ethernet configurations can be executed.

If the address of „**Nameserver**“ is unknown, enter **192.168.0.1**.

Never change the **MAC hardware address** of the CPU card. It is labelled on the PCB of the CPU card.

Finish ethernet configuration

Press „0“ + „Enter“

Return to main menu (see page 28)



Important!

Changes are not effective before a restart of the CPU card (press reset button (17)).

The correct ethernet configuration has to be checked by sending a ping to the host (see the following chapter).

If the RTU is connected to a server protected by a firewall the ports 161, 162 and 23 have to be unlocked.

For other questions about your network ask your administrator!

Embedding an OTDRs in existing RTUs

These settings are only necessary, when an existing RTU shall be extended by an OTDR.

Determined IP addresses have to be used in order to allow the communication between both devices.

<o> OTDR-Setup

Press „o“ + „Enter“

Display in Hyperterminal:

Current OTDR-Setup

=====

IP = 192.168.0.100

OTDR-Setup Config Menu

=====

<1> OTDR-IP

<0> Exit Menu

Input->1

Current OTDR-IP : 192.168.0.100

Please enter OTDR-IP : _

Enter the new IP address of the OTDR and confirm by pressing the „Enter“ key.

To cancel the input press „Ctrl“+“C“.

In Hyperterminal the main menu **Help INFO** is displayed.

Important!

If a complete system including a router is delivered this IP address must not be changed under no circumstances.

Send a ping to the host

This function checks whether the RTU is connected to the host.

<g> Ping Host

Press „g“ + „Enter“

Display in Hyperterminal:

Ping a Host

Enter Host Name or IP :_

Enter the IP address of the requested host and confirm by pressing the „Enter“ key.

Display in Hyperterminal (server not found):

```
PING 192.168.1.100 (192.168.1.100): 56 data bytes
No Answer from 192.168.1.100
No Answer from 192.168.1.100
No Answer from 192.168.1.100
No Answer from 192.168.1.100
```

```
4 Packets send, 0 Packets received, 4 Packets lost.
```

Press „Enter“

Return to main menu (see page 28)

Retrieving internal voltages

The internal voltage levels can be retrieved for test purposes:

<w> Powersupply

Press „w“ + „Enter“

Display in Hyperterminal:

Current Powersupply

=====

```
ADC 12Volt=11.883
```

```
ADC 5Volt=5.049
```

```
ADC 3.3Volt=3.311
```

```
ADC 2.6Volt=2.620
```

By pressing „Enter“ the request will be closed.

In Hyperterminal the main menu **Help INFO** is displayed.

Configure the serial number

The RTU is identified in the monitoring system by its serial number. So if the CPU card is replaced (e.g. because of repair) the serial number of the RTU (see nameplate, page 12) must be assigned to the new CPU card to assure its proper identification in the monitoring system.

<n> SysSerial-No.

Press „n“ + „Enter“

Display in Hyperterminal:

System Serial-No. 1050500288

=====

<1> System Serial-No.

<0> Exit Menu

Input->1

System Serial-No. Enter: _

Enter the new serial number and confirm by pressing the „Enter“ key.

To cancel the input press „Ctrl“+“C“.

In Hyperterminal the **main menu** is displayed.

Configure the Telnet password

<p> Telnet Password

Press „p“ + „Enter“

Display in Hyperterminal:

Telnet-Password Config

=====

<0> Exit

<1> User : Lancier

<2> Password : Lancier

Input->_

Enter the dedicated number depending on which parameter shall be configured. Example for the configuration of the user:

Press „1“ + „Enter“

Display in Hyperterminal:

Input->1

Old User : Lancier

New User : _

Enter the new user's name and confirm by pressing the „Enter“ key.
 In order to keep the old user name, re-enter the previous entry.
 In Hyperterminal the menu **Telnet-Password Config** is displayed.
 Now the password can be edited in an analogous manner.

Finish Telnet password configuration

Press „0“ + „Enter“

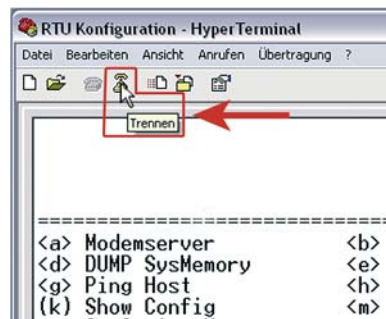
Return to main menu (see page 28)

Configure other parameters

All other parameters are installed for fault repair and debugging and may be used by qualified personnel of LANCIER Monitoring only. They must not be executed by any other user.

End connection

- Click on „Off“ button on the „Hyperterminal“ software menu bar.
- Close the „Hyperterminal“ software.



Important!

Changes are not effective before a restart of the CPU card (press reset button (17)).

Router configuration

The router network addresses are freely configurable for the integration into the user's network.

Establish connection

- Connect Laptop or other PC by Ethernet cable to the „WAN” socket of the router.
- Run Internet browser.
- Address browser to following IP address:
172.16.1.139:8080

Please make sure, that port 8080 is used instead of port 80.



Change WAN-IP

- Insert access data into the router login.
User Name: admin
Password: lmg6444

1. Select „Internet Setup”
2. Then select „Manual Internet Connection Setup”.

 A screenshot of the router's login page. At the top, there is a green header with the word "LOGIN" in white. Below the header, the text "Log in to the router:" is displayed. There are two input fields: "User Name" and "Password". The "User Name" field contains the text "admin". To the right of the "Password" field is a "Log In" button.

A screenshot of the D-Link DIR-100 web interface. The top navigation bar includes "DIR-100", "SETUP", "ADVANCED", and "MAINTENAN". The "SETUP" menu is expanded, showing "Internet Setup" with a red arrow and the number "1." pointing to it. Below the navigation bar, the "Internet Setup" page is displayed. It features a "D-Link" logo and a "MANUAL INTERNET CONNECTION OPTIONS" section. A red arrow and the number "2." point to the "Manual Internet Connection Setup" button in this section. The page also includes an "INTERNET CONNECTION SETUP WIZARD" section with a "Reboot" button at the bottom left.

- All necessary network addresses can be edited here*.
- Click „**Save Settings**” to store the data.
- Click „**Reboot**” for a restart of the router with the new settings.

The screenshot shows the configuration interface for a DIR-100 router. The main content area is titled "INTERNET CONNECTION" and includes a "Note" about PPPoE settings. Below this, there are sections for "INTERNET CONNECTION TYPE" and "STATIC IP ADDRESS INTERNET CONNECTION TYPE". The "Static IP" section contains several input fields for IP Address, Subnet Mask, ISP Gateway Address, MAC Address, Primary DNS Address, Secondary DNS Address, and MTU. The "Reboot" button in the left sidebar and the "Save Settings" button at the bottom are circled in red.

*) The necessary network addresses are also registered in the RTU or can be requested from the network administrator.

The router configuration can also be executed by the LAN interface. For that reason the laptop's or PC's IP address must be set to **192.168.0.5**.

The browser must be addressed to **192.168.0.1**

The further procedure is as described before.

Operation of the monitoring station

The RTU monitoring station can now operate independently.

Remote reading and evaluation are normally conducted via the UMS server.

Maintenance

CPU card

The CPU card is equipped with a battery for measurement data buffering. Under normal operating conditions it has no wear. But it should be replaced after a longer power failure to maintain its full ability, which is about 1 year of data buffering.

Battery replacement can be executed at LANCIER Monitoring works only.

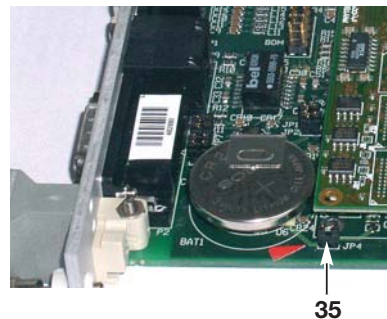
- Back-up stored measurement data by means of the monitoring system UMS (refer to software manual UMS).
- Loosen screws **(21)** of the CPU card **(3)** and pull it out at the handle **(34)**.
- Ship CPU card to LANCIER Monitoring GmbH (see last page for address).
- Mount replacement CPU card if available and fix screws **(21)**.
- Mount the repaired CPU card, when it is returned.



Storage

The RAM buffering should be deactivated if the RTU is stored to avoid a discharge of the battery.

- Dismount the CPU card as described in chapter „Maintenance“.
- Remove jumper „JP4“ **(35)** (red arrow on PCB) and put it up on one pin only for later reuse.
- Mount CPU card again.
- Place a note outside the RTU about the buffer deactivation.
- Reactivate the RAM buffering before the RTU is used again by installing the jumper „JP4“ **(35)** again.





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EC Declaration of Conformity

We declare under our sole responsibility, that the product

Make: LANCIER Monitoring
Type: Monitoring Station RTU with OTDR

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

2006/95/EG	Low voltage directive
2004/108/EG	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 60825-1/2001	Laser safety class
EN 60950-1	Information technology equipment - Safety
EN 61326-1	Electrical equipment for measurement, control and laboratory use - EMC requirements (class B)

Münster, 02.10.2013



Research and Development



Managing Director