

Extended service functions, e.g. primary data adaptations or changes in the switching tables are only possible with external software tools. Our Landis+Gyr MAP120 service program, which also has useful readout and parametrizing capabilities in addition to service functions, is specially suitable.

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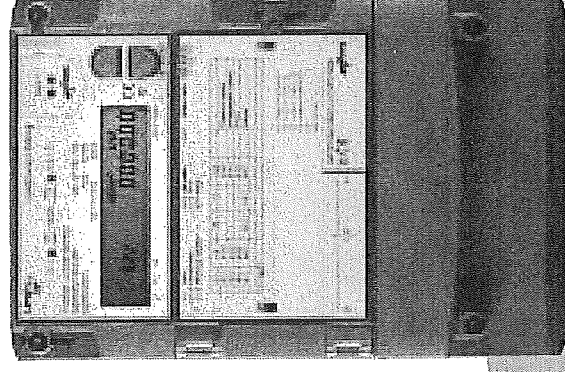
Electricity Meters IEC

## INDUSTRIAL AND COMMERCIAL

Landis+Gyr Dialog

### ZXD300/400 FAMILY QUICK START GUIDE

Landis+  
Gyr



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### Removal of voltage from meter

The connecting conductors at the point of installation must be voltage-free for installation of the meter. Contact with live components is dangerous to life. The relevant consumer fuses should therefore be removed and kept in a safe place until finishing work, so that they cannot be reinserted by other persons unnoticed.



### Short-circuiting current transformer

Before opening the unit, the secondary circuits of the current transformer must be short circuited (at the test terminal blocks). The high voltage produced at the open-circuited current transformer is dangerous to life and would destroy the current transformer.

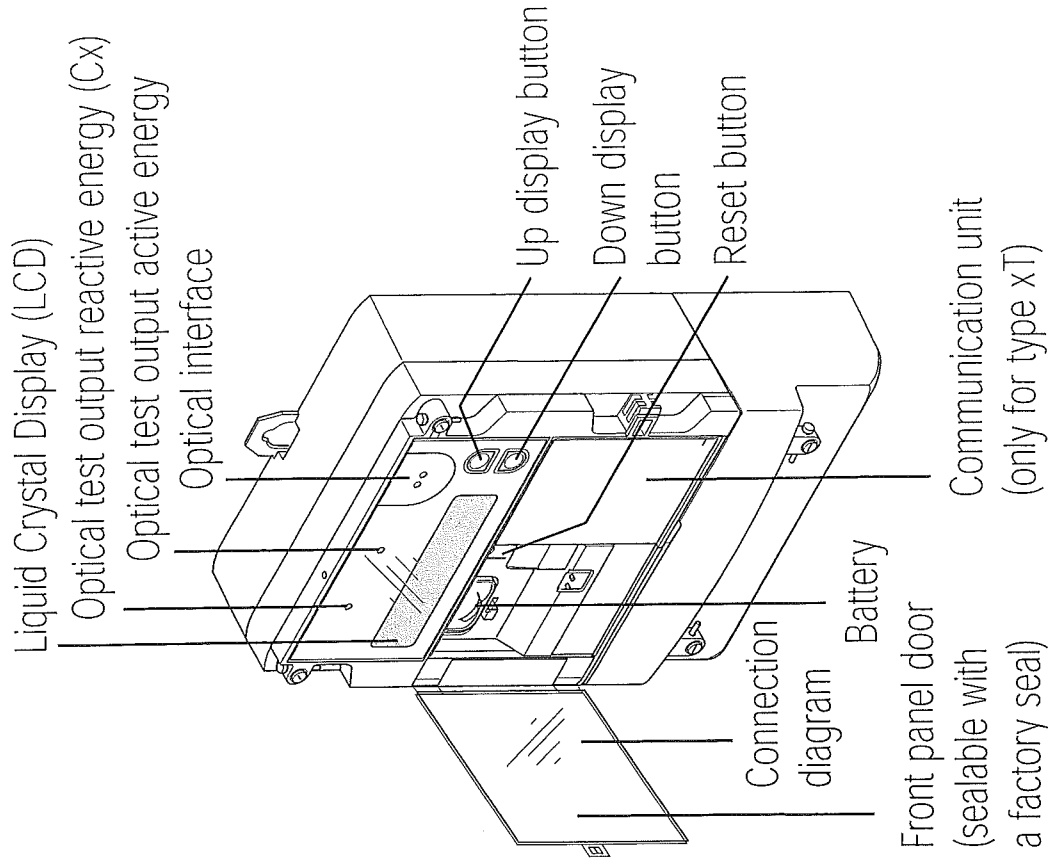


### Observing safety regulations

Adhere to all local safety regulations. Meter installation must be carried out by properly skilled and trained electricians.

## ZMD 410 CT 44 .4207

Type of circuit	ZFD	Three-phase three-wire network (F circuit, Aron circuit)
	ZMD	Three-phase four-wire network (M circuit)
Type of connection	3	Direct connection with digital measuring system
	4	Transformer connection with digital measuring system
Accuracy class	10	1 to IEC
	05	0.5 to IEC
Measured quantities	C	Active and reactive energy
	A	Active energy
Design	T	Complex tariff functions, modular communication
	R	Complex tariff functions, integrated interface
Version	21	Energy tariffs; external tariff control via control inputs
	24	Energy tariffs; internal tariff control via time switch (additionally possible via control inputs)
	41	Energy and demand tariffs; external tariff control via control inputs
	44	Energy and demand tariffs; internal tariff control via time switch (additionally possible via control inputs)
		All versions with 3 control inputs and 2 output contacts.
Additional functions	Additional control inputs on extension board	0 No additional control inputs 2 2 additional control inputs 4 4 additional control inputs
	Additional output contacts on extension board	0 No additional output contacts 2 2 additional output contacts 4 4 additional output contacts 6 6 additional output contacts
	Hardware functions on extension board	0 No additional hardware 3 Integrated ripple control receiver 5 Supplementary power supply
	Profile	0 No load profile 7 Load profile



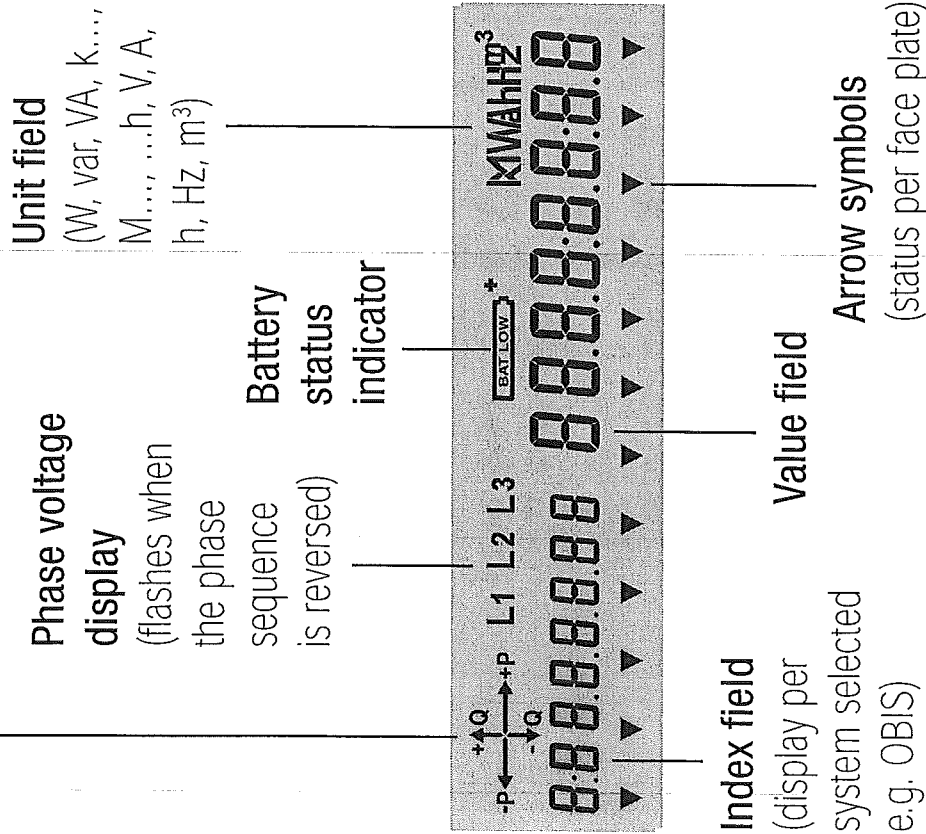
Type xR has an integral interface instead of the communication unit.

## Liquid Crystal Display (LCD)

### Energy direction indicator

P = active power, Q = reactive power (Cx)

+ = import, - = export



## Optical Test Outputs

The two red optical test outputs for **reactive energy** (left) and **active energy** (right) are used to test the meter. They transmit pulses corresponding to the power applied. In a no load state, when no current is flowing, the optical test outputs are continuously illuminated.

## Optical Interface

The optical interface allows **communication with the meter** (readout of meter data, transmission of formatted commands and parameterisation) via a magnetically attached optical reading head. The interface can also be used as an optical switch.

A light beam (e.g. from a torch) directed onto the **optical interface** has the same effect as pressing the "Down" display button. This allows reading to be carried out from a distance, e.g. through a protective glass screen in front of the meter.

The display is controlled using the “Up” (upper) and “Down” (lower) display buttons. In this guide, the following symbols are used to indicate button press modes.



**A short press** (< 2 seconds) of a single button:

- changes over from the operating display to display check.
- opens the display menu from the display check.
- runs sequentially through menus from item to item, and in lists from value to value (either forwards or backwards).



**A long press** (> 2 seconds) of a single button:

- opens a selected sub-menu.
- returns to the next higher level when “End” is displayed.
- browses through lists from main value to main value (either forwards or backwards).

**Simultaneous pressing** of both buttons cancels the function in use and exits to the operating display.



## **Reset Key**

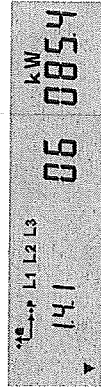
The main function of reset button R is to carry out a manual reset of the meter.



In addition, the reset button can be used during a display check to select the Service menu. A further application of the reset button is as a cursor in Set mode. In both these latter cases, no reset is triggered.

The reset button is located behind the sealed front panel door of the meter. To operate the reset button, the front door has to be opened, which requires the utility seal to be removed.

Basic state



Operational display

1

or

All segments of the LCD display are illuminated

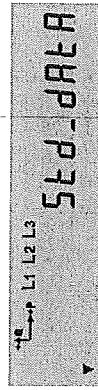


Display check

2

or

Display the first menu item



Display menu: Display List

3

or

Select the required menu item (available choices dependent on meter)



Display menu: Load Profile

or

back to operating display



Display menu: Event Log

or

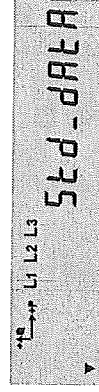


Display menu: End

**Note:** Depending on parameterisation, the load profile (P. 01) and the event log (P. 98) functions can be displayed in the Service menu instead of the Display menu.

1

Select Readout List from the Display menu (see page 10)



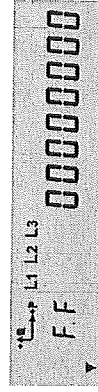
Display menu:

Display List

2

or

Open Display List

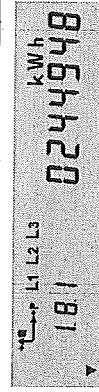


Display List: First main value

3

or

Select the required main value (available choices dependent on meter)

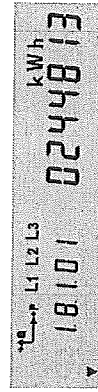


Display List: Other main values

4

or

Select the required value (main value or stored value)



Display List: Stored or main value

5

Repeat points 3 and 4 for all readouts required

- Long button press: display only main values
- Short button press: display stored and main values

6

or

Back to Display menu



Display List: End

1

Select Event Log from the Display menu (see page 10)



Display menu:  
Event Log

2



Open Event Log

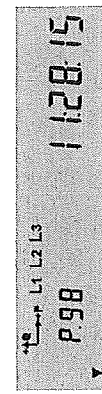


Event Log:  
Date of last  
entry

3



Select the required entry



Event Log:  
Time

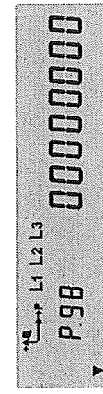
4



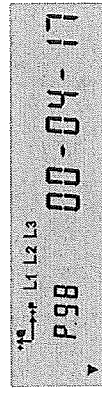
Additional registers at the time of triggering (dependent on parameterisation)



Event Log:  
Code for trig-  
gering



Error register at  
the time of  
triggering



Event Log:  
Date of  
next entry

5



Repeat point 3 for all entries to be checked

6



Back to Display or Service menu



Event Log:  
End

The event log allows a wide range of events, exceptional states, etc., to be recorded and displayed later. The parameterisation of the meter determines which events are recorded. The information recorded is the time and date of the event, together with a code describing the triggering of the event. The most important codes are:

- 3 Data profile memory cleared
- 5 Battery charge low
- 7 Battery voltage ok
- 8 Reset performed
- 9 Summer/winter time changeover
- 10 Time and date newly set (old values)
- 11 Time and date newly set (new values)
- 13 Control inputs status changed
- 17-22 Over and undervoltage events
- 23 Voltage failure
- 24 Voltage return
- 65-96 Event log entries resulting from error messages

A complete list of all codes can be found in the meter user manual.



## Display Load Profile (optional)

1 Select Load Profile from the Display menu (see page 10)



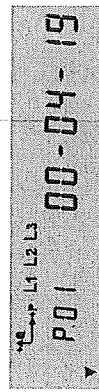
Display menu:  
Load Profile

8 or ◀ ▶ Back to date selection



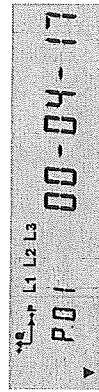
Value List:  
End

2 or ◀ ▶ Open Load Profile



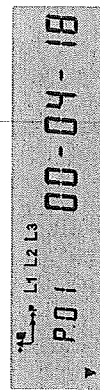
Load Profile:  
Date of last entry

9 or ◀ ▶ Select the next date, open list as per point 4



Load Profile:  
Date y

3 or ◀ ▶ Select the required date



Load Profile:  
Date x

10 or ◀ ▶ At the end of the date list, back to Display menu



Load Profile:  
End

4 or ◀ ▶ Open related Load Profile Value List



Value List:  
Time of first entry

5 or ◀ ▶ Select the desired time for AutoScroll (Point 6)



Value List:  
Time of next entry

6 Automatic display of all entries (max. 16) (change at 2-second intervals)

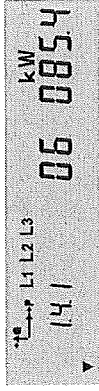


Value List:  
AutoScroll

7 Repeat points 5 and 6 for all entries to be checked



Basic state



Operational display

1

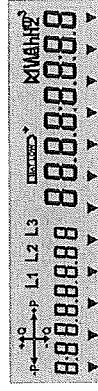
Select Service List from the Service menu (see page 16)



Service menu: Service List

1

All segments of the LCD display are illuminated



Display check

2

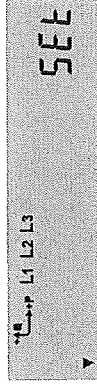
Open Service List



Service List: First main value

2

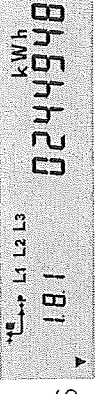
Display of the first menu item



Service menu: Set Mode

3

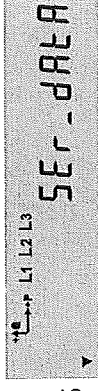
Select the required main value (available choices dependent on meter)



Service List: Other main values

3

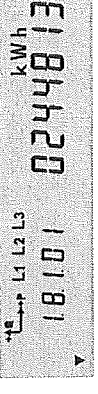
Select the required main value (available choices dependent on meter)



Service menu: Service List

4

Select the required value (main value or stored value)



Service List: Stored or main values

followed by access of functions described on pages 17 to 20

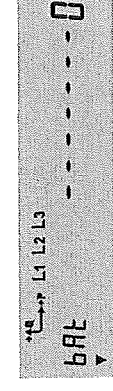


Service menu: Test Mode

5

Repeat points 3 and 4 for all values you wish to check

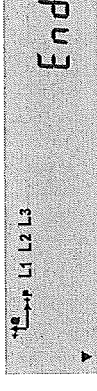
Service menu: Battery Symbol



Service menu: Battery Symbol

or

or back to operational display



Service menu: End

6

Back to Service menu



Service List: End

**Note:** Depending on parameterisation, the load profile (P. 01) and the event log (P. 98) functions can be displayed in the Display menu instead of the Service menu.

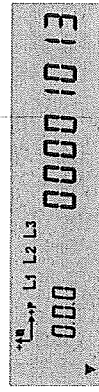
## Change Values in Set Mode

**1** Select Set Mode from the Service menu (see page 16)



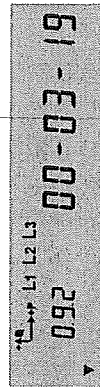
Service menu:  
Set Mode

**2** Open Set Mode



Set Mode:  
Setting 1

**3** Select the required setting (available choices dependent on meter)



Set Mode:  
Setting x,  
old value

**4** Select the digit to be changed

**5** Change the digit value

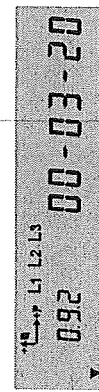
The digit to be changed flashes

**6** Confirm the new digit value

**7** Repeat points 4 to 6 for all digits to be changed

All digits flash simultaneously

**8** Confirm the new setting



Set Mode:  
Setting x,  
new value

**9** Back to Service menu



Set Mode:  
End

**Note:** If a reactive energy value is displayed in test mode (depending on parameterisation), the right optical test output transmits reactive energy pulses instead of active energy pulses.

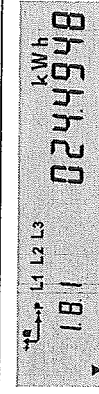
## Activate Test Mode

Select Test Mode from the Service menu (see page 16)



Service menu: Test Mode

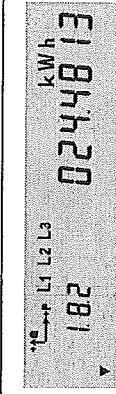
Open Test Mode



Test Mode:  
First value,  
high resol.

The Display List of the operational display is shown without automatic scrolling.

Select the required value (available choices dependent on meter)

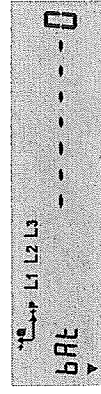


Test Mode:  
Value x,  
high resol.

Repeat point 3 for all values you wish to test

1

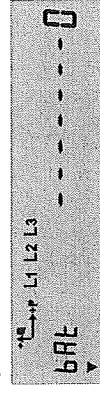
Select Battery Symbol  
from the Service menu  
(see page 16)



Service  
menu:  
Battery  
Symbol

2

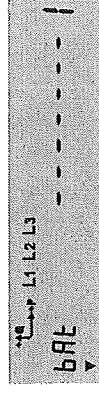
Switching battery  
symbol on or off



Battery  
Symbol:  
switched off

3

Back to operating  
display



Battery  
Symbol:  
switched on

**Note:** If a battery is fitted in the meter, the battery symbol must be switched on.

F.F 00000008

### Setting mode not concluded

The error is deleted automatically when the next similar setting command is correctly concluded.

F.F 01000000

### Insufficient battery voltage

The error is deleted automatically when the battery voltage has again reached a sufficient value (e.g. after inserting a new battery).

F.F 02000000

### Invalid time / invalid date

The error is deleted automatically when the time and date have been set correctly by the relevant formatted command or manually in the set mode.

### Other error messages

For all other error messages the meter must be removed according to the directions in the meter user manual and sent to the nearest service department for repair.

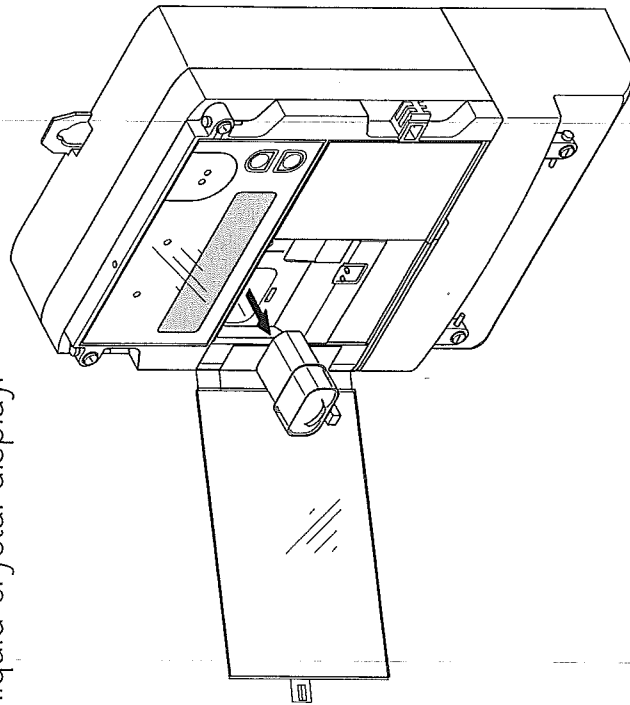


### **Dangerous voltage in battery compartment**

The contacts in the battery compartment may have mains voltage applied (F circuit). Therefore, only remove the battery with the existing battery holder and insert the new battery only with the battery holder. Ensure that the contacts are never touched.

### **Procedure:**

- 1** Open the front door. The battery compartment is on the left hand side underneath the liquid crystal display.



- 2** Lightly press the latch of the plastic battery holder into the meter casing (to disengage the latch) and pull out the battery holder with the old battery (see illustration).
- 3** Make a note of the current date on the new battery (use only a 6-Volt rated lithium battery).
- 4** Remove the old battery from the battery holder and insert the new battery (the old battery must be treated as special waste for disposal).
- 5** Push the battery holder with the battery into the battery compartment until the latch engages.
- 6** In Set mode, reset the battery hour counter to zero (see page 18).
- 7** Check whether the battery symbol is switched on (see page 20).
- 8** Close the front door and, if necessary, reapply the seal.

**Note:** Only type xT meters can be fitted with a communication unit.

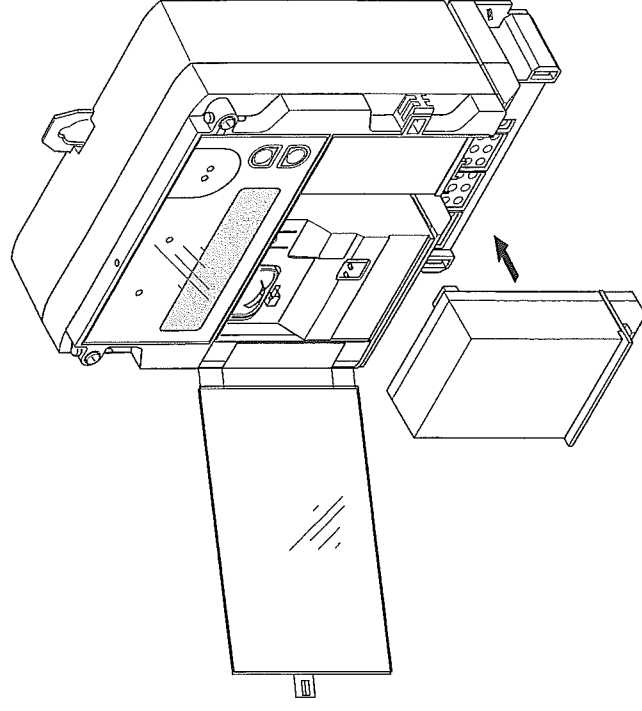


### Removal of voltage from meter

The meter connections must not be under voltage during installation of the communication unit. Contact with live parts is dangerous to life. The relevant fuses should therefore be removed and kept in a safe place until the work is completed, so that other persons cannot replace them unnoticed.

### Procedure:

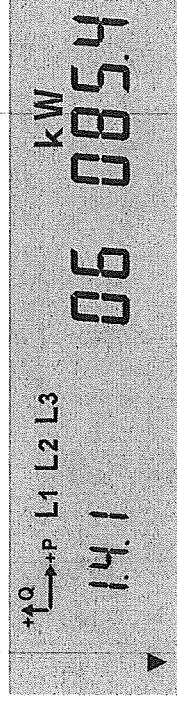
- 1** Ensure that the meter is not connected to the voltage (the phase voltage display should no longer be visible).
- 2** Open the front door and remove the terminal cover.
- 3** Remove the communication unit already fitted (either a dummy or a different operating communication unit).
- 4** Carefully insert the new communication unit into the space provided in the meter (see illustration). Ensure that the plug and socket are properly engaged.



- 5** Connect the connecting wires to the terminals of the communication unit.
- 6** Carry out functional tests appropriate to the type of communication unit to ensure that it is operating properly.
- 7** Replace the terminal cover, apply and tighten the screw and reseal.
- 8** Close the front panel door and, if necessary, reapply the seal.

**Requirement:**

Voltage must be applied to the meter and all phases must be loaded (see optical test outputs page 7).

**Phases and phase sequence indicator**

The phase indicators, L1, L2 and L3 are displayed when the phase voltages are present ( $> 20\text{ V}$ ) and the phase sequence is correct. If a phase is not present, the corresponding symbol is not displayed. If the phase sequence is reversed, the symbols flash.

**Energy direction indicator**

The energy direction arrows indicate whether energy is being imported (+) or exported (-).  
P = active energy, Q = reactive energy.

If the phases are connected incorrectly, the arrow with the smaller amount of energy flashes.

**Phase voltages, currents, angles and frequency**

These values can be displayed in the Service List (see page 17).

All values are secondary values and instantaneous values.

Voltage L1:	OBIS index	32.7
Voltage L2:	OBIS index	52.7
Voltage L3:	OBIS index	72.7
Current L1:	OBIS index	31.7
Current L2:	OBIS index	51.7
Current L3:	OBIS index	71.7
Current N:	OBIS index	91.7
Frequency:	OBIS index	34.7
6 phase angles:	OBIS index	81.7.1
		to
		81.7.6
Power factor:	OBIS index	13.3