L U M E L
EVERYTHING COUNTS

PROGRAMMER WITH A USB LINK
PD14

USER'S MANUAL

$C\mathcal{E}$

PROGRAMMER WITH a USB LINK PD14 TYPE

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1. APPLICATION

The PD14 programmer with USB link is destined to program transducers of P11 and P12 series and readout archived parameters in the P12 transducers, in the windows 95/98/2000/NT/XP environment.

The software applied in PD14 (PD11 programmer) enables:

– modification of transducer work parameters,
– write and readout of set transducer parameters in the file under an optional name,
– two modes of program work:
  - programming mode (edition mode connected with the simultaneous write of changed parameters into the transducer),
  - edition mode (edition of transducer parameters with the possibility of their printout, readout or write to the file),
– readout of process parameters from the transducer (minimum, maximum, measured value, etc.), parameters calculated and recorded (only for P12),
- clearing of minimal and maximal values,
- protection of the access to transducer parameters by a password,
- automatic memorizing of the program configuration before its closure.

The programmer software works in following Windows systems: Windows 95/98/2000/NT/XP

2. PROGRAMMER SET

The PD14 programmer set is composed of:

- PD14 programmer .... 1 pc
- Diskette with software .... 1 pc
- USB connecting cable .... 1 pc
- User's manual .... 1 pc

When unpacking the programmer, please check whether the type and execution code on the plate correspond to the order code.

3. REQUIREMENTS

- Windows 95/98/2000/NT/XP
- Ca 10 MB of empty place on the diskette
- Minimum 16 MB RAM memory
- USB port

4. PROGRAMMER INSTALLATION

4.1. Basic requirements, operational safety

Symbols located in this service manual mean:

WARNING!
Warning of potential, hazardous situations.
Especially important. One must acquaint with this before connecting the programmer. The non-observance of notices marked by these symbols can occasion severe injuries of the personnel and the damage of the device.

CAUTION!
Designates a general useful note. If you observe it, handling of the device is made easier. One must take note of this, when the device is working inconsistently to the expectations.
Possible consequences if disregarded !

In the security scope the programmer meets the requirements of the EN 61010 -1 standard.

Remarks concerning the operator safety:

1. GENERAL

- The PD14 programmers are destined to be mounted in accordance with customer's requirements.
- Non-authorized removal of the required housing, inappropriate use, incorrect installation or operation creates the risk of injury to personnel or damage to equipment. For more detailed information please study the User's Manual.
- All operations concerning transport, installation, and commissioning as well as maintenance must be carried out by qualified, skilled personnel and national regulations for the prevention of accidents must be observed.
- According to this basic safety information, qualified, skilled personnel are persons who are familiar with the installation, assembly, commissioning, and operation of the product and who have qualifications necessary for their occupation.

2. TRANSPORT, STORAGE

- Please observe the notes on transport, storage and appropriate handling.
- Observe the climatic conditions given in Technical Data.

3. INSTALLATION

- The PD14 programmer must be installed according to the regulation and instructions given in this User's Manual.
- Ensure proper handling and avoid mechanical stress.
- Do not bend any components and do not change any insulation distances.
- Do not touch any electronic components and contacts.
- Devices may contain electrostatically sensitive components, which can easily be damaged by inappropriate handling.

Do not damage or destroy any electrical components since this might endanger your health!

4. ELECTRICAL CONNECTION

- Before switching the device on, one must check the correctness of connection to the network.
- In case of the protection terminal connection with a separate lead one must remember to connect it before the connection of the device to the mains.
- When working on live devices, the applicable national regulations for the prevention of accidents must be observed.
- The electrical installation must be carried out according to the appropriate regulations (cable cross-sections, fuses, PE connection). Additional information can be obtained from the user's guide.
- The documentation contains information about installation in compliance with EMC (shielding, grounding, filters and cables). These notes must be observed for all CE-marked products.
- The manufacturer of the programmer or installed devices is responsible for the compliance with the required limit values demanded by the EMC legislation.
- Do not connect the programmer to the mains through an autotransformer.

5. OPERATION

- Measuring systems including PD14 programmers must be equipped with protection devices according to the corresponding standard and regulations for prevention of accidents.
- After the programmer has been disconnected from the supply voltage, live components and power connections must not be touched immediately because capacitors can be charged.
- The housing must be closed during operation.
- The protection degree ensured by the housing is defined as IP40 and IP10 from the connection side.

- Please observe the manufacturer's documentation.
- Read all product-specific safety and application notes in this User's Manual.
- Before taking the device housing out, one must turn the supply off.
- The removal of the device housing during the guaranty contract period may cause its cancellation.

4. 2. Assembling the programmer

The programmer is a portable device supplied from the USB bus and transducer. The drawing with overall dimensions of the PD14 programmer is presented on the fig. 1

To the programmer

To the computer USB port

50.8   42.8
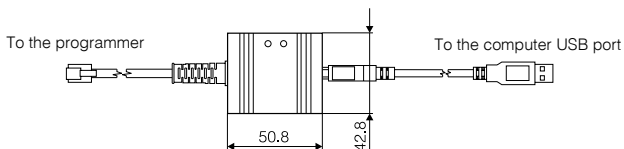
Fig. 1 Dimensional assembly drawing of the PD14 programmer

There are two diodes on the frontal plate:
   Green (RxD) - signals the reception of data from the transducer
   Yellow (TxD) - signals the transmission of data to the transducer.

4.3. Installing COM port drivers in the computer

The PD14 programmer takes advantage of FTDIBUS DRIVER and FTDIPORT DRIVER, licensed by the Future Technology Devices International Ltd. Company.

This software creates in the system, a new USB Serial transducer device and assigned to it, the Port (COM) – The USB.

The installation of the driver in the Windows system causes the addition of a successive COM serial port to the list of ports serviced by the operating system. On the CD added to the programmer, there are catalogues with drivers for following operating systems

- WIN_98: Windows 98 and ME,

- WIN_XP: Windows 2000, Windows XP, Windows Vista, Windows Server 2003.

- WIN_XP_64: Windows Vista x64, Windows XP x64, Windows Server 2003 x64.

- Installation in Windows 98 and ME systems

In order to install drivers for Windows 98 and ME systems, one must carry out following operations: connect the programmer to the USB port, the system asks for drivers for the device, then one must insert the CD disk and indicate the catalogue with drivers for the system.

When installing drivers, information may occur, that the Software did not pass tests of goodness of fit with the Windows system. One must ignore this information, and continue the installation. After the successful installation, the system will inform about the installation of new equipment.

- Installation in Windows 2000, Windows XP, Windows Vista
* and Windows Server 2003 systems.*

In order to install drivers for these systems, one must start the program carried out from the catalogue with the appropriate driver for the given system:
- WIN_XP\CDM_Setup.exe (for Windows 2000, Windows XP, Windows Vista and Windows Server 2003),
- WIN_XP_64\ CDM_x64_Setup.exe (for Windows XP x64, Windows Vista x64 and Windows Server 2003 x64).

This software will install drivers in the system for new devices and ports. Next, one must connect the transducer, which will be found and identified by the system as USB serial transducer, and the **Port(Com) - USB Serial Port** will be assigned to it.

4.4. Installing the software of the PD14 programmer

The PD14 programmer co-operates with the software of the PD14 programmer. In order to install the programmer software under Windows, one must:
1. Insert the installation diskette in the CDROM drive
2. Click the Start key on the Windows task bar and choose Start...
3. Write the access path, e.g. e:\setup.exe
4. after starting the installation program, define the in-coming path.

5. DESCRIPTION OF THE PD11 PROGRAM

The PD11 program realizes two work functions:
- **Edition mode**, in which, one can edit parameters of the selected transducer, write and read them out from the file.
- **Programming mode**, realizes the same as the edition mode with the possibility to the direct write of changed parameters to the transducer.

The program start follows after clicking the icon of the "PD11" program. After starting, the program works in the edition mode.

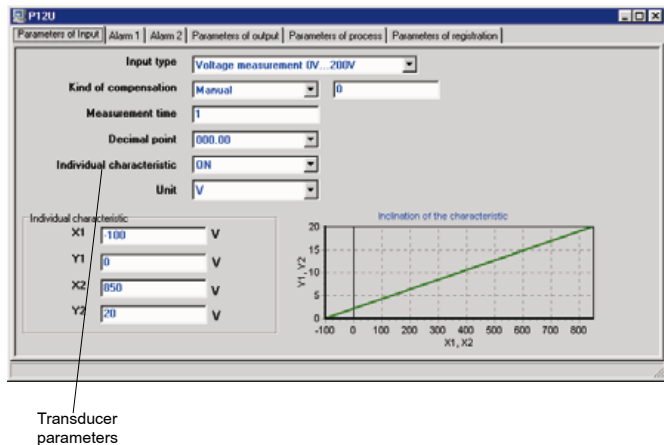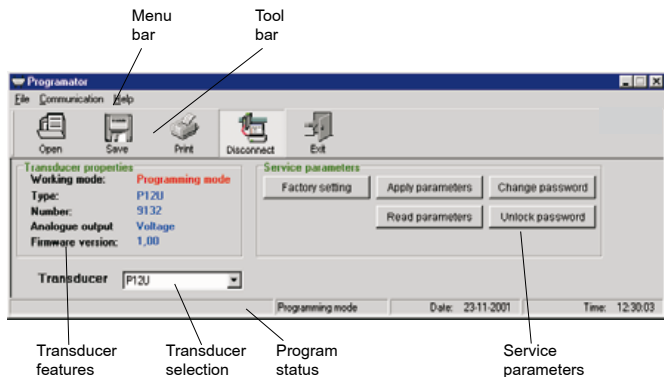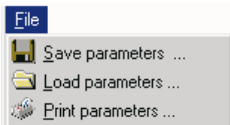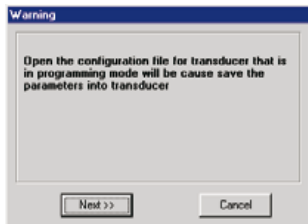The program main window is shown on the Fig. 2

Fig. 2. The main program windows

5.1 Menu bar

File
📁 Save parameters ...
📂 Load parameters ...
🖨 Print parameters ...

The **File** menu makes available the save of transducer parameters into the file, their read-out and printout.

Save parameters.......displays the standard save file dialogue, enabling the storage of currently chosen parameters.

Load parameters......displays the standard open file dialogue, enabling the read-out of currently chosen transducer parameters.

Warning

Open the configuration file for transducer that is in programming mode will be cause save the parameters into transducer

Next >>   Cancel

Fig. 3

In case when the chosen transducer works in the programming mode, the standard opening dialogue of the file is preceded by the dialogue display on the fig.3:

A pressure on the „**next** >>" key causes the read-out of transducer parameters from the file, and then the save of these parameters into the transducer.

Print parameters....- displays the standard print dialogue of the printout, enabling the printout of currently chosen transducer parameters.

Communication
COM1...
✔ COM2...
COM3...
COM4...

The **Communication** menu enables the choice of the communication port for the communication to the transducer. The chosen port is automatically opened, configured and marked by the sign ✔
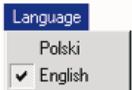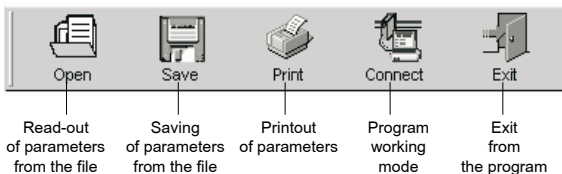
The **Language** menu enables the choose of the program language version. The chosen language is marked by ✔ .
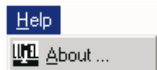
The **Help** menu displays information about the PD11 program version and the producer address.

5.2. Tool bar

Open	Save	Print	Connect	Exit
Read-out of parameters from the file	Saving of parameters from the file	Printout of parameters	Program working mode	Exit from the program

The most of keys included on the tool bar is described in the Menu bar.
The program working mode realises two functions:

- edition mode

Connect

- programming mode

Disconnect

5.3. Edition mode

In the edition mode it is possible to edit parameters of the chosen transducer, save and read-out from the file and the printout of set parameters.

5.4. Programming mode

The programming mode realises the same function as the edition mode enabling additionally the save of changed parameters into the transducer and the read-out of process parameters.

Transiting from the edition mode into the programming mode it is necessary to give the access password. (fig. 4).
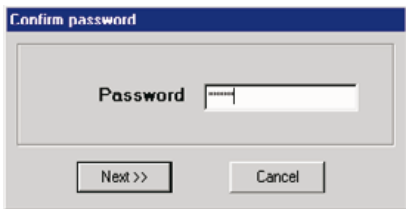
Fig. 4 Dialogue window of the access password

In case of a correct password, after pressing the "**Next >>**" key the dialogue (fig.5) will be displayed. A wrong password causes the display of the error message:

"**Password unconformed with the password in the transducer. Try again.**" The dialogue from the fig. 5 enables the parameters save into the transducer "**Save" key**, or their read-out from the transducer ("**Read**" key).
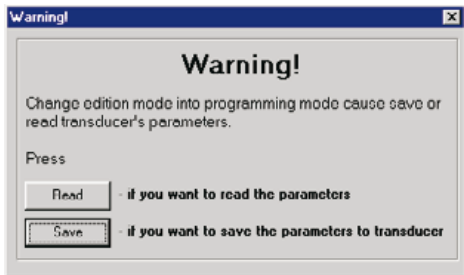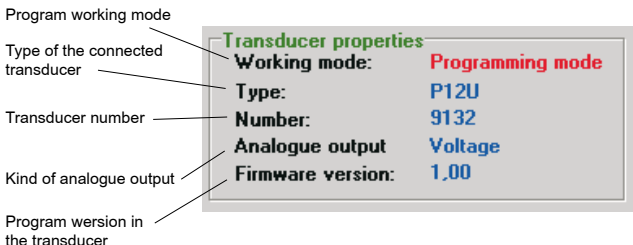

Fig.5 Warning dialogue

5.5. Field - transducer properties

Information concerning the connected transducer is displayed in the field of properties.

Program working mode

Type of the connected
transducer

Transducer number

Kind of analogue output

Program wersion in
the transducer

Fig. 6. Properties of the transducer

Working mode   - defines the kind of program work.

Transducer type   - informs about which of transducers works in the
                            programming Mode.

Transducer number   - necessary in case when the user forgot the access
                            code to the transducer. In order to obtain the
                            unlocking code one should contact the
                            manufacturer's Export Dept. The displayed number
                            of the transducer is changed after each unlocking
                            of the password.

Analogue output   - the kind of analogue output existing in the
                            transducer.

**Transducer program
version**   - up-to-date version of the transducer program.

5.6. Field - Service parameters

Service parameters are presented on the fig. 7. 5 keys are accessible in the service parameter field:

- **factory settings**,
- **apply parameters** - active in the programming mode,
- **read parameters** - active in the programming mode,
- **change password** - active in the programming mode,
- **unlock password**.
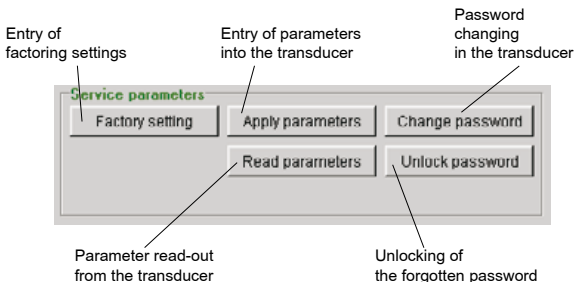
Fig. 7. Service parameters

Entry of factory settings - the pressure on this key causes the setting of parameters of the currently chosen transducer on the factory values.

In case when the chosen transducer works in the programming mode, the save of factory parameters is also carried out in the transducer what is signalled by the message „**Factory settings were saved**".

Entry of parameters into the transducer - (active in the programming mode only) enables the save of all set parameters into the transducer.

Read-out of parameters from the transducer - (active in the programming mode only) enables the read-out of all parameters from the transducer.

The read-out and the entry of parameters into the transducer are signalled in the progress window.
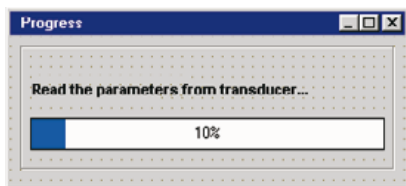
Fig.8. Progress window during the data transmission.

The change of password in the transducer - (active in the programming mode only) enables the change of the password in the transducer (fig. 9.)

In order to change the password it is necessary to give the old password (the same which was given in the moment of connection to the transducer), and give the new password together with its renewed confirmation.

Fig. 9. Window of the password change

In case when by error an old password was given, the message "**Incorrect old password**" is displayed.

In case of the incompatibility confirmation of a new password with the new password, the message "**Incorrect password confirmation**" is displayed.

Unlocking of a forgotten password - enables the password setting in the transducer on the „ 0 „ factory value. in case when the user does not remember the currently set value of the password.

In order to unlock the password it is necessary to connect physically the transducer to the programmer. In case when this condition is not fulfilled, immediately after the key pressure, the following message about the error „**Cannot connected to the transducer - transducer does not reply**" is displayed.

When the transducer is connected, the pressure of the „**unlock**" key causes the display of the password unlocking dialogue (Fig. 10.), which one should give the appropriate unlocking code for.
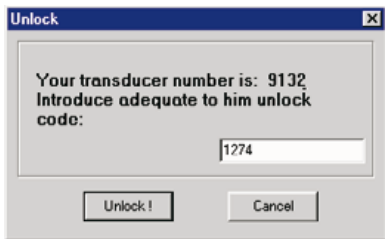
Fig.10. Window of password unlocking

In order to obtain the unlocking code one should contact the LUMEL's Export Department (tel./fax (48-68) 325 49 91).

When an incorrect unlocking password was given, the following message „**Bad unlock code**" appears.

The reset of the password causes the change of the transducer number and the display of the message: „**Transducer was unlocked. The password value is 0**„. After the password reset a new transducer number is generated.

Caution!
The unlocking code is a single code and one cannot use the same code to a renewed reset of the password. It is necessary to contact every time the producer.

5.7 Field - Transducer parameters

It serves to change transducer parameters, choose the transducer type and move between parameter groups.
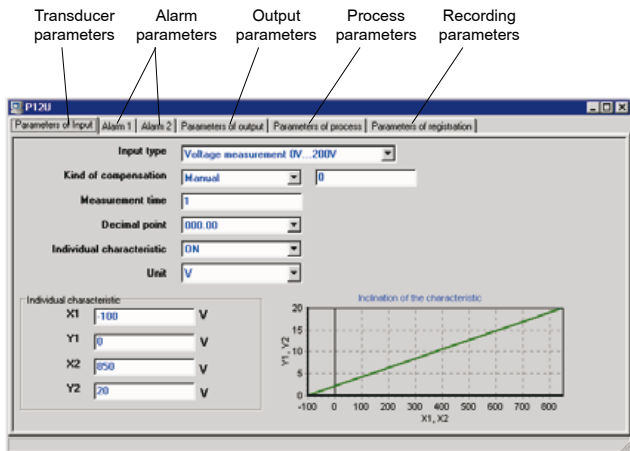

Fig.11. Transducer parameters

5.7.1. Input parameters

They enable the change of the measured quantity, the averaging time of measurements, the decimal point. An additional measured quantity can be recalculated on the base of the individual characteristic. (in P12 series transducers)

Individual characteristic

Fig. 12 Input parameters

5.7.2. Alarm parameters

Parameters of **Alarm 1** and **Alarm 2** are identical and occur in P12 series transducer only.

They enable to define the alarm type, the lower threshold and the upper threshold, the time-lag of the alarm activation and the maintenance of the alarm signalling after its retreat.

The operation principle of the chosen alarm type is also visually presented.

Fig. 13. Alarm parameters

5.7.3. Output parameters

They enable the configuration of the characteristic of the analogue output. It is also possible to configure parameters of the RS-485 interface but only in P12 series transducers
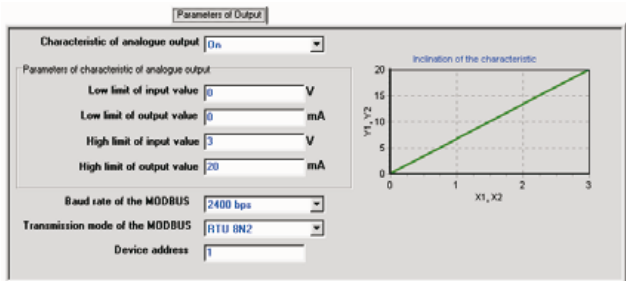

Fig. 14. Output parameters

5.7.4. Process parameters

They make available the read-out of measured, minimal and maximal values for the input value, the read-out of the current time in the transducer and the percentage value of the analogue output steering-out

The read-out of process parameters takes place through the pressure of the „Refresh „ key and is only possible in the programming mode.
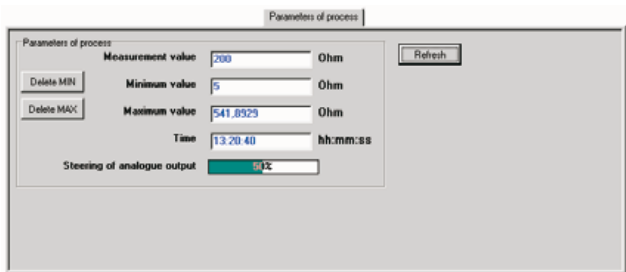

Fig. 15. Output parameters

Additionally the possibility to reset the minimal and maximal value is also made available.

5.7.5. Registration parameters

They serve to set the date and hour of the registration beginning, its interval and enable the read-out of registered values.

CAUTION !

The date of the registration start is an informing parameter. It does not serve to define the date which the registration is to start from but only inform when the registration has started (except the P12 transducer where this date is taken in consideration).
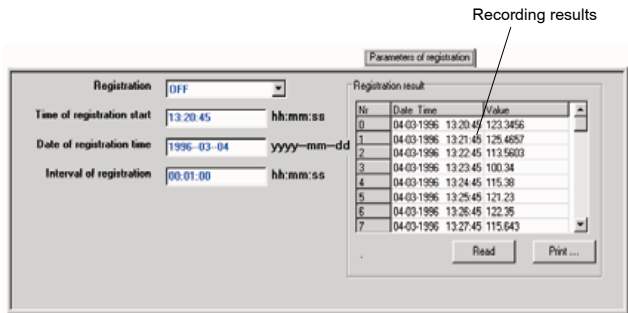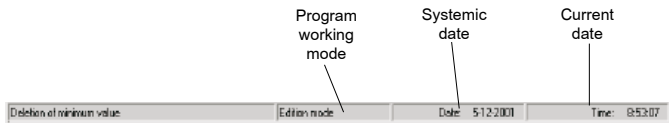

Fig. 16 Registration parameters

5.8. Program status

The program status includes information about the program working mode, date and system hour, and also displays short descriptions of indicated objects.

6. TECHNICAL DATA

Galvanic isolation	3000 V d.c.

Operation rated conditions:
- supply voltage   from the transducer and USB port
- ambient temperature   - 20...**23**...60°C
- storage temperature   - 20...+ 70°C
- air relative humidity   < 95% (condensation inadmissible)
- work position   any

Communication parameters:
- baud rate   9600 bit/s
- information unit   8N1 (8 data bites without parity bit, 1 stop bit)

Ensured protection degree	IP 20
Dimensions	43 x 51 mm
Conductor length	1.5 m.

Electromagnetic compatibility:
- immunity   acc. EN 61000-6-2
- emission   acc. EN 61000-6-4

7. MESSAGES ABOUT ERRORS

It.	Error message	Message cause	Solution
1.	„Error during the password save"	The transducer cannot accept the access password during its change.	The introduced numerical value for the access password is too high or too low.
2.	„Incorrect new password"	The confirmation of the new password is different from the new access password.	The new access password and the confirmation of the new password must be the same.
3.	„Bad unlock code"	The unlocking code is not tally with the code in the transducer.	Read out the proper transducer number clicking the „Unlock password" key.

4.	„Cannot connected to the transducer - The transducer does not reply"	The communication with the transducer was lost.	1. Check whether the transducer is connected to the network and the programmer conductor has not been taken out. **Caution:** The pulling out and the renewed insertion of the programmer conductor requires the switching off and the renewed transition into the programming mode. 2. Check whether the proper communication port has been chosen.
5.	„ You do not select communication port"	Communication ports are closed.	One must choose the communication port. The chosen communication port is marked by the sign ✔ .
6.	„Incorrect old password"	During the password change, a wrong access password was given.	The old password is the same access password as the password in the transducer.
7.	„ Password unconformed with the password in the transducer"	The given password and the password in the transducer are different.	One can give the proper password or in case when the proper password has been forgotten, contact the producer in order to obtain the unlocking code.
8.	„Parameter does not exist"	The transducer cannot save the given parameter.	One must switch off and on the programmer to the transducer again.
9.	„Overfilled input buffer"	There is too many data in the RS-232 interface buffer.	Try to switch off and on the transducer again.
10.	„The value cannot be saved"	One cannot save such a numerical value.	The given value is probably too high or too low.

8. ORDERING CODE

PD14 0 - programmer PD14 with a usb link for Lumel products, documentation and descriptions in Polish and English version, test certificate

LUMEL