potential damage, workers must be fully acquainted with this instruction nual before attempting to operate the dispensing system. he following symbols will be used throughout the manual to highligh tion and precautions of particular importance: ATTÉNTION

> or potentially exposed persons. This symbol indicates that there is risk of damage to the equipment and/or its components.

his symbol indicates safe working practices for operators and,

NOTE This symbol indicates useful information.

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SAFETY INSTRUCTIONS

3.1 SAFETY WARNINGS ATTENTION You must avoid any contact between the electrical power sup

ply and the fluid that needs to be FILTERED. To help prevent fire and explosion

EXPLOSION Use equipment only in will ventilated area. Keep work area free of debris, including rags and spilled or open confluids are present in tainers of solvent and gasoline. the work area, such as gasoline and

Do not plug or unplug power cords or turn lights on or off when flam-mable fumes are present. vindshield wiper Stop operation immediately if static sparking occurs or if you feel a shock. fluid, be aware Do not use equipment until you identify and correct the problem. fumes can ignite or (eep a working fire extinguisher in the work area.

Do not operate the unit when fatigued or under the influence of drugs or alcohol. o not leave the work area while equipment is energized or under pres-Do not alter or modify equipment. Alterations or modifications may void

agency approvals and create safety hazards. te hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces. Keep children and animals away from work area. Comply with all applicable safety regulations. Read MSDS's to know the specific hazards of the fluids you are using. ore hazardous fluid in approved containers, and dispose of it accord

ng to applicable guidelines.

onged contact with the treated product may cause skin irritatior always wear protective gloves during dispensing.

3.2 FIRST AID RULES SMOKING PRO-HIBITED When operating the system and in particular during refuelling, do not smoke and do not use open flame.

3.3 GENERAL SAFETY RULES

Personal prote

EQUIPMENT

Misuse can cause

MISUSE

Wear protective equipment that is: suited to the operations that need to be performed; resistant to cleaning products.









3.4 PACKAGING

3 - description of the product



FOREWORD (600 COMES PACKED IN A CARDBOARD BOX WITH A LABEL

INDICATING THE FOLLOWING DATA: I - contents of the package 2 - weight of the contents



ENGLISH (Translated from Italian)

3.5 PACKAGE CONTENTS/PRE-INSPECTION open the packaging, use a pair of scissors or a cutter, being careful not to dam-FOREWORD

age the dispensing system or its components. In the event that one or more of the components described below are missing from inside the package, please contact Piusi inc Check that the data on the plate correspond to the desired spec

fications. In the event of any anomaly, contact the supplier imme-diately, indicating the nature of the defects. Do not use equipment which you suspect might not be safe.

KNOWLEDGE K600

FOREWORD

Main components: K600

Measuring chambe

2 - RESET buttor

4 - CAL button

K600 - meter and pulser versions - represents a family of meters developed to satisfy a wide range of requirements for the control, measurement, dispensing and transfer of lubricating oils and fuels. Its measurement principle is based on elliptical gears that provide hig accuracy over a wide range of flow rates together with reduced loss of head. The fluid passing through the instrument turns the gears whose rotation transfers constant "fluid units". The exact measurement of the fluid dispensed is carried out by counting the rotations of the gears and thus, the "fluid units" transferred. The magnetic coupling, consisting of nagnets installed in the gears and a magnetic switch located outside the measuring chamber, guarantees the seal of the measuring chamber and ensures the transmission of the impulses generated by the rotation

of the gears to the microprocessor. The meter housing is manufactured of extruded aluminium and is furnished with external guides for a practical and simple installation. The various models are differentiated by the length of the housing, which is related to their ability to function at higher flow rates. he meter body is made of die-cast aluminium and fitted with connections for the installation of threaded flanges, suitable for any type of tubing. At the inlet opening, a filtering disk of stainless steel mesh is installed, which can be accessed from the outside by removing the flange close

Normal Mode: Mode with display of Partial and Total dispensed quantitie low Rate Mode: Mode with display of Flow Rate, as well as Partial dis-

to the flow inlet side.

The METER features a non-volatile memory for storing the dispensing data, even in the event of a complete power break for long periods.

e measurement electronics and the LCD display are fitted in the top part of the meter, isolated from the fluid-bath measuring chamber and sealed from the outside by means of a cover. COMPATIBLE LIQUIDS SEL FUEL at a viscosity of from 2 to 5.35 cSt (at a temperature of 37.8°C), Minimum Flash Point (PM): 55°C, according

o UNI EN 590

- MOTOR OIL : SYNTHETIC / MINERAL

- PARAFFINIC DIESEL HVO & XTL (GTL/BTL/CTL/PTL) according to the EN 15940:2019

4.1 LCD DISPLAY (ONLY METER VERSION)

FOREWORD The "LCD" of the METER features two numerical registers and various indications displayed to the user only when the applicable function so requires.

Partial register (5 figures with moving comma | 6 | Indication of type of total, (TOTAL / Reset TOTAL); FROM 0.1 to 99999) indicating the volume

dispensed since the reset button was last Indication of unit of measurement of Totals Indication of battery charge L=Litres Gal=Gallons Indication of calibration mode Indication of Flow Rate Totals register (6 figures with moving comma PROM 0.1 to 999999), that can indicate two Indication of unit of measurement of Partial Qts=Quarts Pts=Pints Gal=Gallon: L=Litres 1.1. General Total that cannot be reset (TOTAL) 4.2. Resettable total (Reset TOTAL)

Indication of total multiplication factor (x10



The measuring chamber is located in the lower part of the instrumen It is fitted with connections for the installation of threaded flanges at inlet and outlet. The cover on the bottom part provides access to the easurement mechanism for any cleaning operations.

Inside the measuring chamber are the oval gears which, on turning terate electrical pulses which are processed by the microprocessol trolled electronic board. By applying a suitable calibration factor (meaning a "weight" associated with each pulse), the microprocessor - on-board on meter version and remote on pulser versions - translates the pulses generated by th fluid volume rotation expressed in the set units of measurement, displayed on the partial and total registers of the LCD.

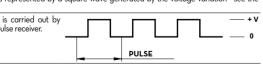
All K600/2/3 meters are factory set with a calibration factor called FACTORY K FACTOR which is set according to the used fluid (diesel fuel or oil of SAE10 W40 type), for optimal measurement performance. Calibration settings can be changed following the instructions in this manual, but you can return to the factory calibration at any time. The METER is powered by two standard type 1.5 V batteries (size N). The battery housing is closed by a threaded watertight cap that can be

4.2 VERSION PULSER

The PULSER version is a pulse emitter (reed bulb) which translates the magnetic field variations generated bulb. ated by gear rotation into electric pulses to be sent to an external receiver. The receiver is to be con-nected according to the enclosed diagram. The pulser does not need any independent electric power supply as it is directly powered by the receiver connection issued pulse type is represented by a square wave generated by the voltage variation - see the

easily removed for quick battery change.

following diagram: The device calibration is carried out by means of the external pulse receiver.



4.3 USERS BUTTONS **FOREWORD**

FUNCTIONS

PERFORMED

FUNCTIONS

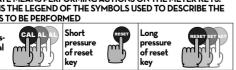
LEGEND

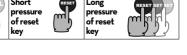
5

The METER features two buttons (RESET and CAL) which individually perform wo main functions and, together, other secondary functions. for the RESET key resetting the partial register and Reset Total for the CAL key, entering instrument calibration mode

Used together, the two keys permit entering configuration mode where the de-







INSTALLATION K600 METER or PULSER features a 1 inch or 3/4inch inlet and outlet, depend ing on the fluid for which they were calibrated, threaded and perpendicular. It is

side of the measuring chamber causing the gears to seize. Do not use any conical connections which may damage the mete body or the connection flange. Only the Pulser version must be connected by means of 2 cables according to the electrical features in the diagram:

Carry out installation by placing the suction filter

To return to "Normal" mode, press the CAL key again. If one of the two keys RESET or CAL is accidentally pressed during the count, this will have no effect. Even though in this mode they are not displayed, both the Reset Total and the General Total (Total) increase. Their value can be checked after dispensing has terminated, returning to "Normal" mode, by quickly pressing CAL. **ATTENTION**

ENGLISH (Translated from Italian)

To reset the Partial Register, finish dispensing and wait for the meter to show a Flow Rate of O.O as indicated

OUT BROWN REED BULB

The only operations that need to be done for daily use are partial and/or reset-

table total register resetting. The user should use only the dispensing system of K6OO. Occasionally the meter may need to be configured or calibrated. To do

Positioned in the top part of the display indicates the quantity dis

ositioned in the lower part of the display, indicates the quantity dis pensed since the last RESET Total resetting. The RESET Total cannot be reset until the Partial has been reset, while vice versa, the Partial can always be reset without resetting the RESET Total. The unit of

issurement of the two Totals can be the same as the Partial or else

Can <u>never</u> be reset by the user. It continues to rise for the entire

Share the same area and digits of the display. For this reason, the

two totals will never be visible at the same time, but will always be

At the end of a Partial reset for a certain time (a few seconds)

During the entire dispensing stage For a few seconds after the end of dispensing. Once this short time has expired. Meter switches to standby and lower register display

6 digits are available for Totals, plus two icons \times 10 / \times 100. The

Should one of the keys be accidentally pressed during dispens

12.345 Q:

12.3 O

12.345

88,888

Cal \$88888,8 55 6

0.000

0.000

23412.3 TOTAL G

23412.3 TOTAL GAL

23412.3 TOTAL G.

12.345

0.000

0.000

0.0

12,345

12.5./

12,345, Qt

12.5 / Ga

€23412.3 "

2345.67 TOTAL G

increment sequence is the following: 0.0 -> 99999.9 -> 999999 -> 100000 x 10 -> 999999 x 10

Normal mode is the standard dispensing. While the count is made, the partial

A few seconds after dispensing has ended, on the lower register, the display switches from resettable total to general total: the word reset above the word total disappears, and the reset total is replaced by the general total. This situation

called standby and remains stable until the user operates the K600 again.

resettable total are displayed at the same time (reset total).

ENGLISH (Translated from Italian)

so, please refer to the relevant chapters.

PULSER VERSION The pulser version of K6OO/3 meter when properly connected to the pulse

Below are the two typical normal operation displays. One display page shows the partial and reset total registers. The other shows the partial and general total. Switchover from resettable total to general

total display is automatic and tied to phases and times that are in factory set and cannot be changed.

perating life of the meter.

ls shown during Meter standby

witches to General Total

6.1 DISPENSING IN NORMAL MODE

12.345

6.1.1 PARTIAL RESET (NORMAL MODE)

The partial register can be reset by pressing the reset key when the meter

is in standby, meaning when the display screen shows the word "TOTAL"

After pressing the reset key, during reset, the display screen first of all

At the end of the process, a display page is first of all shown with the rese

and, after a few moments, the reset total is replaced by the non reset-

6.1.2 RESETTING THE RESET TOTAL

reset total as on the following display page:

Schematically, the steps to be taken are:

The meter starts to reset the partial

Press the reset key again for at least 1 second

Press the reset key quickly

FOREWORD

The reset total resetting operation can only be performed after resetting the partial register. The reset total can in fact be reset

Wait for the display to show normal standby display page (with total

The display screen again shows all the segments of the display followed by all the switched-off segments and finally shows the display page where the reset Reset Total is shown.

6.2 DISPENSING IN FLOW RATE MODE

following display page:

start dispensing

quickly press the CAL key.

It is possible to dispense, displaying at the same time

the dispensed partial
the Flow Rate in [Partial Unit / minute] as shown on the

The word "Gal" remaining alongside the flow rate refers to the register of the Totals (Reset or NON Reset) which are again displayed when exiting from the flow rate read-

- wait for the meter to go to Standby, meaning the display screen shows Total only

The flow rate is updated every 0.7 seconds. Consequently, the display could be relatively unstable at lower flow rates. The higher the flow rate, the more stable

ample shown, the flow rate is expressed in Qts/min.

The flow rate is measured with reference to the unit of measure ment of the Partial. For this reason, in case of the unit of measure-ment of the Partial and Total being different, as in the example shown below, it should be remembered that the indicated flow rate relates to the unit of measurement of the partial. In the ex-

4 While the display page showing the reset total is displayed

ing the reset key at length while the display screen show

shows all the lit-up digits and then all the digits that are not lit up.

Should one of the keys be a ing, this will have no effect.

100000 x 100 -> 999999 x 100

PARTIAL register

pensed since the RESET key was last pressed

lifferent according to the factory or user settings.

receiver, does not need any start/stop operation.

DAILY USE

FOREWORD

12.345

The RESET Total

The General TOTAL

Total and Total)

The Reset Total i

FOREWORD

12.3 Reset G

Max Voltage: 28 Vac/dc Type output clean contact (open collector)

12.345

12.3 TOTAL

then quickly press RESET

in the illustration

0.0 Unlike Normal mode, in this case during reset, you do not pas through the stages where the display segments are first lit up and then switched off, but rather the reset partial register is immediately

CALIBRATION

6.2.1 PARTIAL RESET

7.1 DEFINITIONS **Calibration factor** This is the multiplication factor applied by the system to the electrical pulses received, to transform these into measured fluid units Factory-set default factor. It is equal to 1,000. Factory K Factor

,	This calibration factoring conditions:	or ensures utmost precision in the following ope
Version for	Fluid	Diesel
diesel fuel	Temperature:	38°C
	Flow rate :	10-100 litres/min
Version for oil	Fluid	motor oil type SAE10W40
	Temperature:	20°C
	Flow rate:	6-60 litres/minn
USER K FACTOR	Customized calibrat	ion factor, meaning modified by calibration.
Even after any cha		by the user, the factory K factor can be restore

by means of a simple procedure.

7.2 CALIBRATION MODE

K600 METER is supplied with a factory calibration that ensures precise measure ing in most operating conditions. evertheless, when operating close to extreme conditions, such as for instance: with fluids close to acceptable range extremes (such as low-viscosity antifreeze

or high-viscosity oils for gearboxes) in extreme flow rate conditions (close to minimum or maximum acceptable values) on-the-spot calibration may be required to suit the real conditions in which the meter is required to operate. When operating close to extreme use or flow rate conditions (close to minimum

or maximum acceptable values), an on-the-spot calibration may be required to it the real conditions in which the K600 is required to operate. K6OO METER permits making quick and precise electronic calibration by changing the Calibration Factor (K FACTOR).

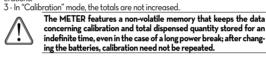
Two procedures are available for changing the Calibration Factor: In-Field Calibration, performed by means of a dispensing operation ct Calibration, performed by directly changing the calibration

The calibration phases can be entered (by keeping the CAL key pressed for a long time) to : Return to factory calibration (Factory K Factor) after a previous calibration by

> - Change the calibration factor using one of the two previously indicated proce-- In calibration mode, the partial and total dispensed quantities indicated or

the display screen take on different meanings according to the calibration pro-2 - In calibration mode, the METER cannot be used for normal dispensing op-





0.998

TIME OUT

12.345

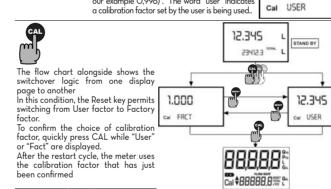
23415.3 TOTAL

7.2.1 DISPLAY OF CURRENT CALIBRATION FACTOR AND RESTORING FACTORY FACTOR.



By pressing the CAL key while the appliance is in Standby, the display page appears showing the current calibration factor used. If no calibration has ever been performed, or the factory setting Cal FRCT has been restored after previous calibrations, the following display page will appear:
The word "Fact" abbreviation for "factory" shows

that the factory calibration factor is being used If, on the other hand, calibrations have bee made by the user, the display page will appear showing the currently used calibration factor (in our example 0,998). The word "user" indicates a calibration factor set by the user is being used..



tor is confirmed, the old User factor is delete

ATTENTION

ATTENTION When the Factory Fac-



ple container in real operating conditions (flow rate, viscosity, etc.) For correct K600 calibration, it is most important to:

When the Factory Factor is confirmed, the old User factor is deleted from the mem-2 Use a precise Sample Container with a capacity of not less than 5 litres, featuring an accurate graduated indicator.

Ensure calibration dispensing is done at a constant flow rate equivalent to that

of normal use, until the container is full; 4 Not reduce the flow rate to reach the graduated area of the container during the final dispensing stage (the correct method during the final stages of sample container filling consists in making short top-ups at normal operation flow rate); After dispensing, wait a few minutes to make sure any air bubbles are eliminated from the sample container; only read the Real value at the end of this stage, dur-

ing which the level in the container could drop. 6 Carefully follow the procedure indicated below.

ENGLISH (Translated from Italian)

IN-FIELD CALIBRATION PROCEDURE

7.2.2.1

12,345

0.000

0.0

CTION		DISPLAY
	NONE Meter in Standby	12.345 Q15 12.5 TOTAL GAL
CAL ALA	LONG CAL key keying The Meter enters calibration mode, shows «CAL» and displays the calibration factor in use instead of partial. The words "Fact" and "USER" indicate which of the two factors (factory or user) is currently in use. Important: This factor is that which the instrument also uses for field calibration measurement operations	1,000 Qns Cal FRCT GAL
RESET SET LET	LONG RESET key keying The Meter shows "CAL" and the partial at zero. The Meter is ready to perform in-field calibration.	O.OOO Qn
	DISPENSING INTO SAMPLE CONTAINER Without pressing any key, start dispensing into the sample container	9.800 Qns
	Dispensing can be interrupted and started again at will. Continue dispensing until the level of the fluid in the sample container has reached the graduated area. There is no need to reach a preset quantity. 9.80	
RESET	SHORT RESET key keying. The Meter is informed that the calibration dispensing operation is finished. Make sure dispensing is correctly finished before performing this operation. To calibrate the Meter, the value indicated by the partial totaliser (example 9,800) must be forced to the real value marked on the graduated sample container. In the bottom left part of the	9.800 Qn
	display an arrow appears (upwards and downwards), that shows the direction (increase or decrease) of the value change displayed when the following operations 6 or 7 are performed.	
RESET	SHORT RESET key keying The arrow changes direction. The operation can be repeated to alternate the direction of the arrow.	9.800 Qm
	SHORT/LONG CAL key keying The indicated value changes in the direction indicated by the arrow - one unit for every short CAL key keying - continually if the CAL key is kept pressed. The speed increase rises by keeping the key pressed. If the desired value is exceeded, repeat the operations from point (6).	9.860 Qn Cal * FIELD
	LONG RESET key keying The Meter is informed that the calibration procedure is finished. Before performing this operation, make sure the INDICATED value is the same as the REAL value. The Meter calculates the new USER K FACTOR ; this calculation could require a few seconds, depending on the correction to be made	Cal END
	ATTENTION: If this operation is performed after action (s), without changing the indicated value, the USER K-FACTOR would be the same as the FACTORY K-FACTOR, thus it is ignored. Real value	
9	NO OPERATION At the end of the calculation, the new USER K FACTOR is shown for a few seconds, after which the restart cycle is repeated to finally achieve standby condition. IMPORTANT: From now on, the indicated factor will become the calibration factor used by the Meter and will continue to remain such even after a battery change	1,015 915 Cal END
10	NO OPERATION The Meter stores the new work calibration factor and is ready to begin dispensing, using the USER K FACTOR that has just been calculated.	0.000 Q18 1234.5 TOTAL GAL
7.2.3 DIR	ECT MODIFICATION OF K FACTOR	<u> </u>

7.2.3 DIRECT MODIFICATION OF K FACTOR

If normal Meter operation shows a mean percentage error, this can be corrected by applying to the currently used calibration factor a correction of the same percentage. In this case, the percent rection of the USER K FACTOR must be calculated by the operator in the following way

New cal. Factor = Old Cal Factor *

EXAMPLE Error percentage found: E%-0.9%

CURRENT calibration factor: 1.000 New USER K FACTOR: 1,000 * [(100 - (- 0.9))/100] = 1,000 * [(100 + 0.9)/100] = 1,009 If the Meter indicates less than the real dispensed value (negative error) the new calibration factor must be higher than the old one as shown in the example. The opposite applies if the Meter shows more than the real dispensed value (positive error).

ACTION		DISPLAY		
1	NONE METER in Standby.	12.345 Q		
	LONG CAL KEY KEYING Meter enters calibration mode, shows "CAL" and displays the calibration factor being used instead of the partial. The words "Fact" and "User" indicate which of the two factors (factory or user) is currently being used.	1.000 Cal FRCT (USER)		
3	LONG RESET KEY KEYING The Meter shows "CAL" and the zero partial total. Meter is ready to perform in-field calibration by dispensing - see previous paragraph.	12.345 9: Cal FIELD		
	LONG RESET KEY KEYING We now go on to Direct change of the calibration factor: the word "Direct" appears together with the Currently Used calibration factor. In the bottom left part of the display, an arrow appears (upwards or downwards) defining the direction (increase or decrease) of change of the displayed value when subsequent operations 5 or 6 are performed.	1.000 Q		
5	SHORT RESET KEY KEYING Changes the direction of the arrow. The operation can be repeated to alternate the direction of the arrow.	1.000 Cal • DIRECT		
	SHORT/LONG CAL KEY KEYING	A CONTRACTOR OF THE PARTY OF TH		

The indicated value changes in the direction indicated by the arrow one unit for every short CAL key keying continually if the CAL key is kept pressed. The speed increase rises y keeping the key pressed. If the desired value is exceeded, repeat LONG RESET KEY KEYING The Meter is informed that the calibration procedure is finished. Before performing this operation, make sure the INDICATED value t the end of the calculation, the new USER K FACTOR is shown f 1.003 PORTANT: From now on, the indicated factor will become the ven after a battery change NO OPERATION Meter stores the new work calibration factor and is ready to begin 0.000 9 pensing, using the USER K FACTOR that has just been change

METER CONFIGURATION

The METER feature a menu with which the user can select the main measurement unit, Quarts (Qts), Pints (Pts), Litres (Lit), Gallons (Gal). The combination of the unit of measurement of the Partial register and that of the Totals is predefined according to the following table:

egister and that of the foldis is predefined according to the following table:				
Combination no.	Unit of Measurement Partial Register	Unit of Measurement Totals Register		
	Litres (L)	Litres (L)		
2	Gallons (Gal)	Gallons (Gal)		
3	Quarts (Qts)	Gallons (Gal)		
4	Pints (Pts)	Gallons (Gal)		
To shoose between the 4 guailable combinations.				

Wait for the METER to go to Standby hen press the CAL and RESET keys together. Keep these pressed until the word "UNIT" appears on the screen together with the unit of measurement set at that time (in this example Litres / Litres)

Every short press of the RESET key, the various combinations of the

PIUSI Fluid Handling K600 Innovation



Instruction for use, maintenance

reassemble the instrument, perform the operations in the op-

Only one of the two gears, modularly coupled as shown in the picture aside, features magnets. Observe the position of the gear with magnets, as shown in the figure. Fit the second gear (without magnets) with axis greater than 90° compared to the The filter cleaning interval is to be defined depending on the impu rities contained in the fluid. To perform this operation, remove the device from the line on which it is installed, as the filter is placed

Always make sure that the liquid has drained from the meter

To clean the filter, proceed as follows (with reference to the exploded dia-To access the filtering disk of the K6OO/3, loosen the 2 fixing screws of the connection flange at the inlet. Remove both flanges if it is necessary for the system.

Remove the meter from the line, being careful to remove also the gaskets between the flanges and threaded connections of K6OO. Slide out the filter (pos. 9) Clean the filter with compressed air.

ENGLISH (Translated from Italian)

to dispense in the set units.

MAINTENANCE

9.1 CHANGE BATTERY

K600 features two low-battery alarm levels:

23412.3 GAL ADVISABLE to change the batteries.

emain visible on the LCD.

changed to the new unit of mea

CAL AL AL

ATTENTION

BATTERY

REPLACEMENT

ies, with reference to

the exploded diagram positions, proceed as follows

ATTENTION

CLEANING THE

MEASURING

ATTENZIONE

ATTENTION

CLEANING THE

ATTENTION

FILTER

10

13456 10ML

CHAMBER

9.2 CLEANING

K600/3

UNIT Gal

UNIT Qts

By pressing the CAL key at length, the new settings will be stored, the METER will pass through the start cycle and will then be ready

The Reset Total and Total registers will be automatically

The METER has been designed to require a minimum amount

to the particular nature of the dispensed fluids or due to the pres-

The METER is complete with 2 x 1.5 V. alkaline batteries SIZE N

of maintenance. The only maintenance jobs required are: Battery change - necessary when the batteries have run down · Cleaning the measurement chamber. This may be necessary due

ence of solid particles following bad filtering

12.345 and the butterly change are in this condition, K600 continues to operate correctly, but the fixed icon warns the user that it is

Press RESET to update all the totals

Unscrew the battery cap (pos.8)

emove the old batteries

The **METER** will display the same Reset Total, the same Total and the same Partial indicated

local disposal regulations.

Remove the oval gears.

posite sequence.

object such as a small screwdriver

efore the batteries were changed. After changing the batteries, the meter does not need

be replaced without removing it from the system

When the battery charge falls below the first level on the LCD, the

If K600 operation continues without changing the batteries, the second battery alarm level will be reached which will prevent operation. In this condition the battery icon starts to flash and is the only one to

Place the new batteries in the same position as the old ones, mak-

ing sure the positive pole is positioned as indicated on the cover

(pos. 9). Re-tighten the battery cap, making sure the seal (pos.1) are

The METER will switch on automatically and normal operation can

Do not discard the old batteries in the environment. Refer to

The K6OO measuring chamber can be cleaned without removing the instrument from the line on which it is fitted. Make sure the

Always make sure that the liquid has drained from the meta before cleaning.

Loosen the four retention screws of the lower cover (pos. 7).

Clean where necessary. For this operation, use a brush or pointed

Perform the assembly diagram to reassemble the gears.

To clean the chamber, proceed as follows (with reference to the exploded

emove the cover (pos. 7) and the seal (pos. 6).

Be careful not to damage the body or the gears.

NO new calibration is required after changing the Unit of

UNIT Pts

Carry out the reverse procedure to reassemble the filter. **MALFUNCTIONS**

Faulty bulb

PROBLEM	POSSIBLE CAUSE	REMEDIAL ACTION		
ELECTRONIC MALFUNCT	IONS			
LCD: no indications	Bad battery contact	Check battery contacts		
Not enough measurement precision	Wrong K FACTOR	With reference to paragraph H, check the K FACTOR		
	The meter works below minimum acceptable flow rate	Increase the flow rate until an acceptable flow rate range has been achieved		
The meter does not count, but the flow rate is correct	Incorrect installation meters after cleaning	Repeat the reassembly procedur		
	Possible electronic board problems	Contact your dealer		
MECHANICAL MALFUNCT	TIONS			
Reduced or zero flow rate	Gears blocked	Clean the measuring chamber		
The meter does not count, but the flow rate is correct	Incorrect installation of gears after cleaning	Repeat the reassembly procedure		
Inaccuracy	Incorrect calibration of pulser version	Calibrate the device with the pulse receiver		
	Working flow-rate outside the flow-rate range	Reduce or increase the flow-rate to return to the indicated flow-rate range.		
High loss of head	Dirty filter	Clean the filter		
-	Braked gears	Clean the measuring chamber		
It does not count	Wrong gear installation	Check the position of the ge with magnet.		

Change the bulb

If the system needs to be disposed, the parts which make it up must be delivered to be disposed. red to companies that specialize in the recycling and disposal of industrial waste and, in particular: wase until in proceeding to the packaging consists of biodegradable cardboard which can be delivered to companies for normal recycling of cellulose. Metal parts, whether paint-finished or in stainless steel, can be consigned to

(see text of directive below).

European Directive 2012/19/EU requires that all equipment marked with this symbol on the product and/or packaging not be disposed of together with non-differentiated urban waste. The symbol indicates that this product must not be disposed of together with normal household waste. It is the respon sibility of the owner to dispose of these products as well as other electric of

ny hazardous substances in the electrical and electronic appliances and/or the misuse of such appliances can have potentially serious consequences for case of the unlawful disposal of said wastes, fines will be applicable as de

TECHNICAL SPECIFICATIONS

Resolution	Pulse / I	35	35	33,5	33,5	
	Pulse / Gal	132,5	132,5	127	127	
Flow-rate range	L/min	6.60 10.100			100	
Operating pressure	bar	70 30			0	
Bursting pressure	bar	140	C	60		
Measurement system			Elliptical gears			
Storage temperature	•C	-20 -+70				
Degree of impermeability		IP65				
Storage humidity	H.R.	95%				
	•C	-10 · +60				
Loss of Head at maximum	bars	0.3		0.3		
flow rate		(SAE 10W/40 @ 20°C) (diesel fuel @ 20°C)				
Compatible Fluids		oil diesel fuel			l fuel	
Viscosity Range	cSt	10 · 2000 2 · 5,35				
Accuracy (within capacity range)	0.5				
Repeatability	O.2%					
Weight	Kg	1.6		1.	1.6	
Input and Output Connection T	hread	3/4" Gaz 1" Gaz 2 x 1.5 Volt 2 x 1.5 Volt		az		
Batteries	Batteries			2 x 1.5 Volt		
Battery Life (expected)		18-36 months 18-36 months			nonths	



DEMOLITION AND DISPOSAL

scrap metal collectors.

Disposal of electric and These must be disposed of by companies that specialize in the disposal of elec electronic components tronic components, in accordance with the indications of directive 2012/19/EU

Information regarding the environment for clients residing within the euroresiding within the eurowastes must be disposed of separately.

Wastes must be disposed of separately. the environment and human health.

ned by the laws in force.

Other components, such as pipes, rubber gaskets, plastic parts and wires must be disposed of by companies specialising in the disposal of industrial

K600/3 (oil) Meter

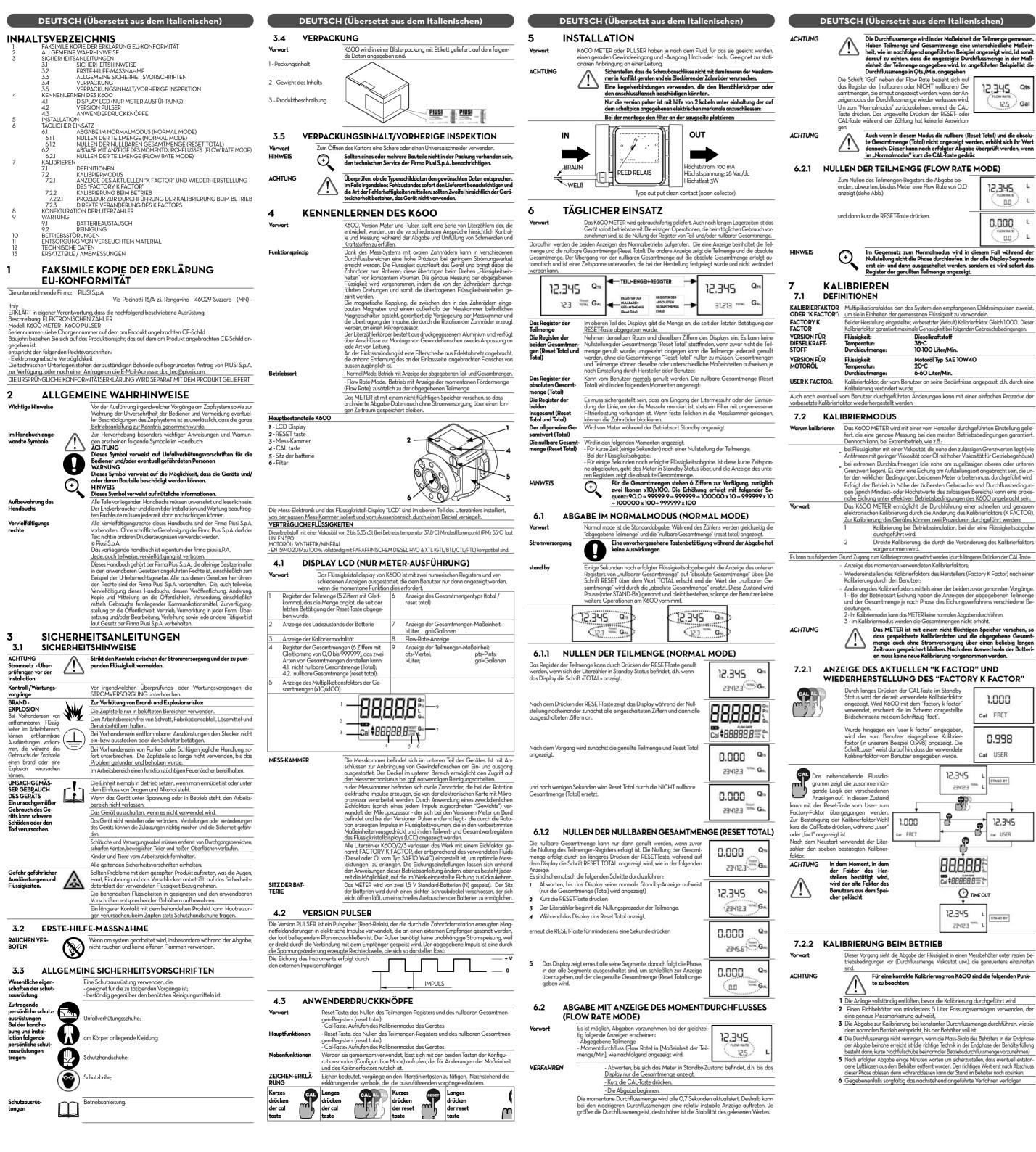


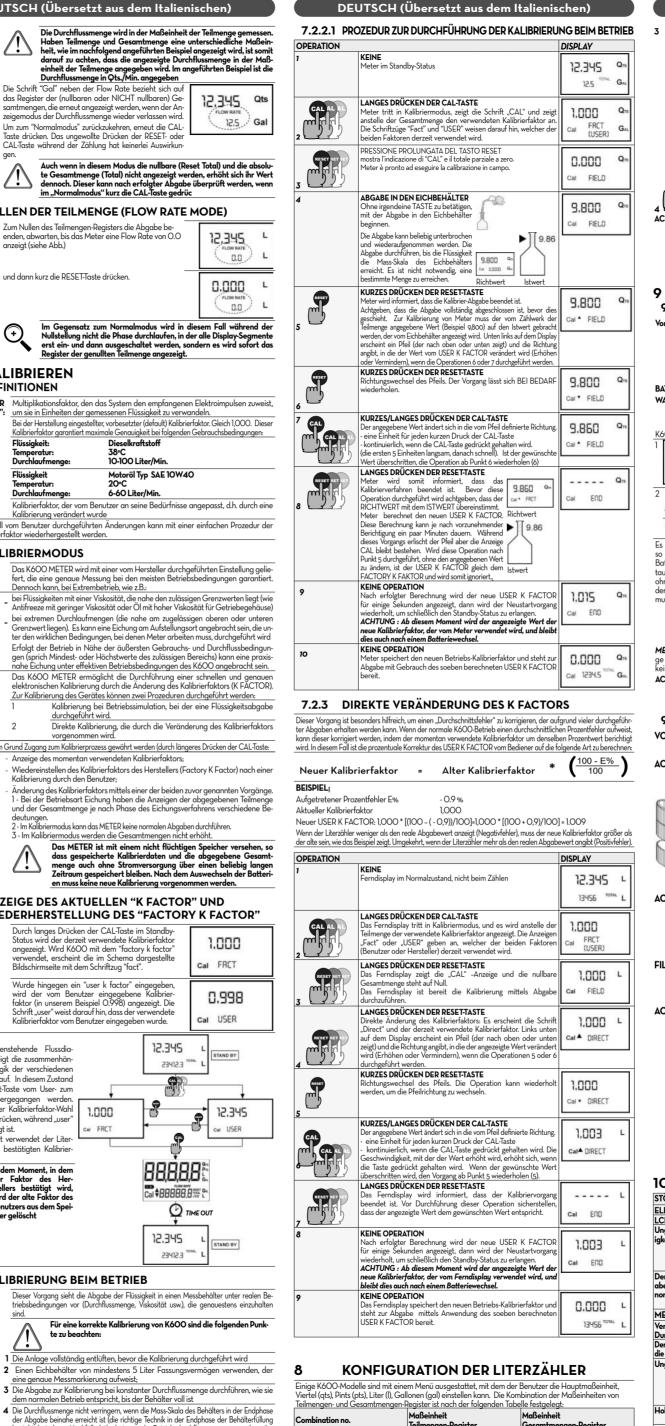
MADE Instruction for and calibration

BULLETIN MO147D ENDE, OO

moorishid

notational fluid Handling





DEUTSCH (Übersetzt aus dem Italienischen)

Die Schrift "Gal" neben der Flow Rate bezieht sich auf

das Register der (nullbaren oder NICHT nullbaren) Ge-samtmengen, die erneut angezeigt werden, wenn der An-

zeigemodus der Durchflussmenge wieder verlassen wird.

Um zum "Normalmodus" zurückzukehren, erneut die CAL-

NULLEN DER TEILMENGE (FLOW RATE MODE)

Zum Nullen des Teilmengen-Registers die Abgabe be-

und dann kurz die RESET-Taste drücken.

alibrierung verändert wurde

durchgeführt wird.

vorgenommen wird.

Kalibrierung durch den Benutzer;

anzeiat (siehe Abb.)

KALIBRIEREN

DEFINITIONEN

enden, abwarten, bis das Meter eine Flow Rate von O.O

Auch wenn in diesem Modus die nullbare (Reset Total) und die absol

10-100 Liter/Min.

6-60 Liter/Min

Motoröl Typ SAE 10W40

(sprich Mindest- oder Höchstwerte des zulässigen Bereichs) kann eine praxis

eutungen. Im Kalibriermodus kann das METER keine normalen Abgaben durchführen.

Zeitraum gespeichert bleiben. Nach dem Auswechseln d en muss keine neue Kalibrierung vorgenommen werden.

Cal FRCT

0.998

Cal USER

12.345

Cal USER

2

Gleichzeitig die Tasten cal und reset betätigen und so lange gedrückt halten, bis der Schriftzug "unit" und die in diesem Moment e Maßeinheit (bei diesem Beispiel Liter/Liter) erscheinen

12.345

23415'3 LOLM

88888

Cal \$88888.855 &

12.345

riebsbedingungen vor (Durchflussmenge, Viskosität usw.), die genauestens einzuhalte

1 Die Anlage vollständig entlüften, bevor die Kalibrierung durchgeführt wird

besteht darin, kurze Nachfüllschübe bei normaler Betriebsdurchflussmenge vorzunehmen)

5 Nach erfolgter Abgabe einige Minuten warten um sicherzustellen, dass eventuell entstar

6 Gegebenenfalls sorgfältig das nachstehend angeführte Verfahren verfolgen

dene Luftblasen aus dem Behälter entfernt wurden. Den richtigen Wert erst nach Abschluss dieser Phase ablesen, denn währenddessen kann der Stand im Behälter noch absinken.

eine genaue Messmarkierung aufweist;

Für eine korrekte Kalibrierung von K600 sind die folgenden Punk

TIME OUT

3 - Im Kalibriermodus werden die Gesamtmengen nicht erhöht.

ANZEIGE DES AKTUELLEN "K FACTOR" UND

Durch langes Drücken der CAL-Taste im Standby-

Status wird der derzeit verwendete Kalibrierfaktor

angezeigt. Wird K600 mit dem "factory k factor" verwendet, erscheint die im Schema dargestellte Bildschirmseite mit dem Schriftzug "fact".

Wurde hingegen ein "user k factor" eingegeben, wird der vom Benutzer eingegebene Kalibrier faktor (in unserem Beispiel O.998) angezeigt. Die Schrift "user" weist darauf hin, dass der verwendete

1.000

Kalibrierfaktor vom Benutzer eingegeben wurde.

gramm zeigt die zusammenhän-

gende Logik der verschiedenen Anzeigen auf. In diesem Zustand

stellers bestätigt wird, wird der alte Faktor des

WIEDERHERSTELLUNG DES "FACTORY K FACTOR"

Taste drücken. Das ungewollte Drücken der RESET- ode

CAL-Taste während der Zählung hat keinerlei Auswirkur

12,345 Qts

12,345

0.000

0.0

0.0 / 1

12.5 / Gal

UNIT UNIT Gal UNIT Qts UNIT Pts chten Maßeinheit unter den nachstehend angeführten, auf die Taste reset drücken Veränderung der Maßeinheit muss KEINE neue Kalibric WARTUNG 9.1 BATTERIEAUSTAUSCH Das METER wurde so konzipiert, das eine minimale Wartung notwerdig ist.

Die einzig notwendigen Wartungsarbeiten sind:

Auswechslung der Batterien, wenn diese entladen sind;

Reinigung der Messkammer; dies kann durch die Besonderheiten der abgegebenen Flüssigkeiten oder durch das Eindringen von festen n aufgrund mangelhafter Filtration notwendig werden. **BATTERIEAUSTAUSCH** Das METER wird mit zwei 1,5 Volt Alkaline-Batterien N geliefert. Es empfiehlt sich, K6OO so anzubringen, dass die Batterien leich ausgetauset werden können, ohne dass man ihn von der Anlage stufen für erschöpfte Batterie: Wenn die Batterieladung unter die 1 Stufe absinkt, erscheint auf dem LDC die stationäre Anzeige des Batteriezeichens. Unter dieser Bedingung funktioniert K6OO weiterhin korrekt, aber die stationäre Ikone weist den Benutzer darauf 23412.3 Gal hin, dass es sich EMPFIEHLT, die Batterien auszutauschen Wird K600 weiterhin ohne Austausch der Batterien verwendet, tritt die zweit Stufe des Batteriealarms ein und der Betrieb ist untersagt. In diesem Zustar und es ist nichts anderes auf dem Display sichtbar. Es empfiehlt sich, K600 RESET drücken, um die Gesamtmengen auf den neusten Stand zu bringen Den Batteriedeckel abschrauben (Pos. 8). Die entladenen Batterien entfernen. tauscht werden könner Die neuen Batterien anstelle der alten einsetzen; dabei darauf ac ohne dass man ihn von ten, dass der Pluspol so positioniert ist, wie auf dem Deckel angezeig der Anlage abmontiere Den Batteriedeckel wieder festschrauben; dabei darauf achten, dass Dichtung (Pos.7) und Feder (Pos.9) wieder korrekt positioniert werde Das METER schaltet sich automatisch ein, und der normale Betrieb kann wieder aufgenommen werden. METER wird dieselbe rückstellbare Gesamtmenge, dieselbe Gesamtmenge und dieselbe Teilmen ge anzeigen, die vor dem Batterieaustausch angezeigt wurden. Nach dem Batterieaustausch ist keine erneute Kalibrierung des Literzählers erforderlich. Pressluft an der turbine anwenden, um deren beschädigung durch eine zu schnelle drehung zu vermeiden. 9.2 REINIGUNG Die Reinigung der Messkammer des METERS kann vorgenommen werden, ohne dass das Gerät von der Linie oder der Zapfpistole montiert werden muss.

Stets sicherstellen, dass die Flüssigkeit aus der Messuhr entfernt **ACHTUNG** wurde, bevor die Reinigung vorgenommen wird Zur Kammerreinigung wie folgt vorgehen (mit Bezug auf die Positionen der **2** Den Deckel (Pos.7) und die Dichtung (Pos.6) entfernen. 3 Die ovalen Zahnräder entfernen.4 Reinigung vornehmen. Dazu eine Bürste oder einen spitzen Gegenstand verwenden, wie z.B. einen kleinen Schraubenzieher. Achtgebe dass der Körper und die Zahnräder nicht beschädigt werden.

5 Für die Wiedermontage die Schritte in umgekehrter Reihenfolge K600/3 durchtühren
Die Zahnräder wieder montieren, wobei die nebenstehende **ACHTUNG** Montageskizze zu beachten ist.

Nur eines der 2 modular gepaarten Zahnräder ist mit Magneten ausgestattet. Die Position des Magnetzahnrades muss der Abbildung entsprechen. Das zweite Zahnrad (ohne Magneten) einsetzenzeit betragen muss.

Die Reinigung des Filters hat mit einer Häufigkeit zu erfolgen, die je nach den in der geförderten Flüssigkeit enthaltenen Unreinigkeiten festgelegt wird. Zur Durchführung dieses Vorgangs muss man das Instrument von der Leitung, an der es angebracht ist, entfernen, weil sich der Filter zwischen dem Literzähler-FILTERREINIGUNG körper und dem Flansch zur Verbindung mit dem Schlauch befindet. Stets sicherstellen, dass die Flüssigkeit aus dem Literzähler entfernt wurde, bevor die Reinigung vorgenommen wird. **ACHTUNG** Zur Filterreinigung wie folgt vorgehen (mit Bezug auf die Positionen der Explosi-IT USUNGENE.

1 Zum Zugang zur Filterscheibe von K600/3 die 2 Befestigungsschrauben des am Eingang angebrachten Verbindungsflansches abschrauben. Wenn es die Anlage erforderlich macht, beide Flanschen abmontieren. 2 Den Literzähler von der Leitung entfernen und dabei darauf achten, dass auch die zwischen den Flanschen und den Schraubverbindungen von K600 abgebrachten Dichtungen entfernt werden. **3** Filter herqusziehen (Dec. O) Den Filter mit Druckluft reinigen.
 Für die Wiedermontage des Filters die Schritte in umgekehrter Reihenfolge durchführen. BETRIEBSSTÖRUNGEN STÖPLING MÖGLICHE URSACHE ELEKTRONISCHE BETRIEBSSTÖRUNGEN Batteriekontakte überprüfen K FACTOR überprüfen, siehe LCD: Keine Anzeige Paragraph H Der Literzähler läuft unterhalb der Durchlaufmenge erhöhen, bis | erreicht ist. |
| Die richtige Installation des Zählers | Wiederholen Sie die Wiedermor Der Literzähler misst nicht nach der Reinigung tageverfahren
Mögliche Probleme bei der elektro-Händler kontaktierer MECHANISCHE BETRIEBSSTÖRUNGEN Verminderte oder gar keine Durchlaufmenge Der Literzähler misst nicht aber Unkorrekte Installation der Zahnrä- Die Schritte zum Einbauen wieder nach der Reinigung derholen.

Kalibrierung der Version Pulser Das Instrument mit dem Impulsnicht korrekt
Betriebsförderleistung außerhalb empfänger eichenr lerhöhen, bis sie innerhalb der andes Förderleistungsbereichs gegebenen Förderleistung liegt Filter reinigen Gebremste Zahnräder Falsch montierte Zahnräder Liter (L) überprüfen Viertel (Qts) Pints (Pts) Gallonen (Gal) Zur Wahl einer der vier vorgeschlagenen Kombinationen:
Warten bis sich K600 im Standby-Status befinde

DEUTSCH (Übersetzt aus dem Italienischen) DEUTSCH (Übersetzt aus dem Italienischen) Zeichnung Display mit Anzeige der Maßeinheit Liter/Liter eingeben und insbesondere: Durch lange Betätigung der Taste cal die neue Kombination spei-chern. K600 wird den Einschaltzyklus durchlaufen und zur Abga-be in den eingestellten Maßeinheiten bereit sein. Die Register der nullbaren und absoluten Gesamtmenge werden automatisch in die neuen Maßeinheiten umgestellt. Durch die für die in der europäiden geltenden Gesetzen vorgeschriebenen Bußgelder verhängt. weitere Bestandteile wie Schläuche, Gummidichtungen, Kunststoffteile und Verkabelungen sind Unternehmen zuzuführen, die auf die Entsorgung von Industriemüll spezialisiert sind.

ENTSORGUNG VON VERSEUCHTEM MATERIAI

im Falle der Entsorauna des Geräts müssen seine Bauteile einer auf Entso gung und Recycling von Industriemüll spezialisierten Firma zugefü

> die Verpackung besteht aus biologisch abbaubarem Karton; sie kann Fachbe trieben zur normalen Wiedergewinnung von Zellulose zugeführt werden. die Metallteile der Verkleidung und Struktur wie auch die lackierten Teile und die Edelstahlteile können normalerweise Fachbetrieben für die Verschrottung on Metallen zugeführt werden. sie müssen obligatorisch von Unternehmen entsorgt werden, die auf die Ent

rgung von Elektronikbauteilen gemäß den Anweisungen der EG-Richtlinie 2012/19/UE (siehe folgender Richtlinientext) spezialisiert sind.

die EG-Richtlinie 2012/19/UE schreibt vor dass Geräte die am Produkt und oder an der Verpackung mit diesem Zeichen gekennzeichnet sind, nicht ge-meinsam mit ungetrenntem Stadtmüll entsorgt werden dürfen. Das Zeichen weist darauf hin, dass dieses Produkt nicht gemeinsam mit normalem Hausmüll entsorgt werden darf. Es unterliegt der Verantwortung des Eigentümers, diese Produkte sowie die anderen elektrischen und elektronischen Geräte durch die von der Regierung oder den örtlichen öffentlichen Einrichtungen angegebener

besonderen Strukturen zu entsorgen.
Die Entsorgung von RAEE-Geräten über den Haushaltsmüll ist streng unter sagt. Altgeräte dieser Art müssen separat entsorgt werden. Mögliche gefährliche Substanzen in elektrischen und elektronischen Geräte und/oder die missbräuchliche Verwendung solcher Geräte kann potenziel ernsthafte Konsequenzen für Umwelt und Gesundheit nach sich ziehen. lm Fall einer unrechtmäßigen Entsorgung besagter Altgeräte werden die vo

K600/3 (Öl) K600/3 (Diesel)

TECHNISCHE DATEN

		Liter-zähler	Pulser	Liter-zähler	Pulser	
Auflösung	Impuls / I	35	35	33,5	33,5	
	Impuls / Gal	132,5	132,5	127	127	
Durchfluss-Bereich	D (l/min)	6.	60	10 -	100	
Betriebsdruck	bar	7	0	3	0	
Berstdruck	bar	14	0	60		
Meßsystem			Ovale Z	ahnräder		
Lagertemperatur	•C	-20 · +70				
Grad der Undurchlässigkeit		IP65				
Lagerfeuchtigkeit	R.F.	95%				
(Max). Betriebs-temperatur	•C	-10 · +60				
Strömungsverlust bei max. Förderleistung	bars	(SAE 10W/4		O.3 (Dieselkraftstoff bei 20		
Kompatible Flüssigkeiten		Ö	Öl	Dieseltr	eibstoff	
Viskositätsbereich	cSt	10 · 2	000	2 · 5,35		
Genauigkeit (im Durchflussberei	ich)		С).5		
Wiederholbarkeit	derholbarkeit		O.2%			
Gewicht	Kg	1.	6	1.6		
Gewindeöffnungen am Ein- und	ewindeöffnungen am Ein- und Ausgang		3/4" Gaz		1" Gaz	
Speisung (Batterien)		2 x 1.5 Volt		2 x 1.5 Volt		
Vorgesehene Batteriedauer		18-36 monate 18-36 monate		nonate		

ERSATZTEILE / AMBMESSUNGEN EXPLODED VIEW / DIMENSIONS K600 PULSER

