

ENGLISH (Translated from Italian)

46029 Suzzara - (MN) - İtaly HEREBY STATES

under its own res sibility, that the equipment described below: scription: METER

10del: **K24** Serial number: refer to Lot Number shown on CE label affixed to productYear of manufac ture: refer to the year of production shown on the CE label affixed to the productis in confor mity with the legal pro

 Electromagnetic Compatibility Directive 2014/30/EU The documentation is at the disposal of the competent authority following motivated request at Piusi S.p.A. or following request sent to the email address: doc_tec@piusi.comThe person authorised to compile the technical file and draw up the declaration is Otto Varini as legal epresentative.

> Atoloriui Otto Varini legal representative.

> > 4

GENERAL WARNINGS

the manual

Suzzara, 20/04/2016

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ATTENTION

he following symbols will be used throughout the manual to high ATTENTION This symbol indicates safe working practices for operators and/or 0 potentially exposed persons. WARNING This symbol indicates that there is risk of damage to the equip- $\overline{\bigcirc}$ ment and/or its components. NOTE

This symbol indicates useful information.

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Manual preser

vation

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To ensure operator safety and to protect the dispensing system fron

ion manual before attempting to operate the dispensing system.

image, workers must be fully acquainted with this instruc-

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Keep work area free of debris, including rags and spilled or

Do not plug or unplug power cords or turn lights on or off when

Stop operation immediately if static sparking occurs or if you feel a

shock. Do not use equipment until you identify and correct the problem.

of operate the unit when fatigued or under the influence

o not leave the work area while equipment is energized or

Do not alter or modify equipment. Alterations or modifications

Route hoses and cables away from traffic areas, sharp edges

ep children and animals away from work area.

Comply with all applicable safety regulations. lead MSDS's to know the specific hazards of the fluids you are

hazardous fluid in approved containers, and dispose of it

ged contact with the treated product may cause skin ir-

operating the dispensing system and in particular during ling, do not smoke and do not use open flame.

ritation: always wear protective gloves during dispensing.

open containers of solvent and gasoline.

Ground all equipment in the work area.

Keep a working fire extinguisher in the work area.

urn off all equipment when equipment is not in use.

may void agency approvals and create safety hazards.

Do not kink or over bend hoses or use hoses to pull equipment.

ammable fumes are present.

oving parts, and hot surfaces.

according to applicable guidelines.

of drugs or alcohol.

under pressure.

usina.

3 SAFETY INSTRUCTIONS

3.1 SAFETY WARNINGS		
Mains - preliminary checks before installation		ATTENTION You must avoid any contact between the electrical power supply and the fluid that needs to be FILTERED.
Maintenance control		Before any checks or maintenance work are carried out, discon- nect the power source.
_		When metering flammable liquids, observe precautions against fire or explosion
For your safety, review the major		When handling hazardous liquids, always follow the liquid man- ifacturer's safety precautions
ATTENTIONs and cautions below before		Always dispose of used cleaning solvents in a safe manner ac- cording to the solvent manifacturer's instructions.
operating your meter		During meter removal, liquid may spill. Follow the liquid mani- facturer's safety precautions to clean up minor spills
meter		Do not blow compressed air through the meter
		Do not allow liquids to dry inside the meter
FIRE AND	×1.	Use equipment only in will ventilated area.
EXPLOSION		Eliminate all ignition sources such as cigarettes and portable

Eliminate lamps. fluids are present the work area, such as gasoline and rindshield wiper fluid, be aware that flammable tumes can ignite or explode. To help prevent fire and



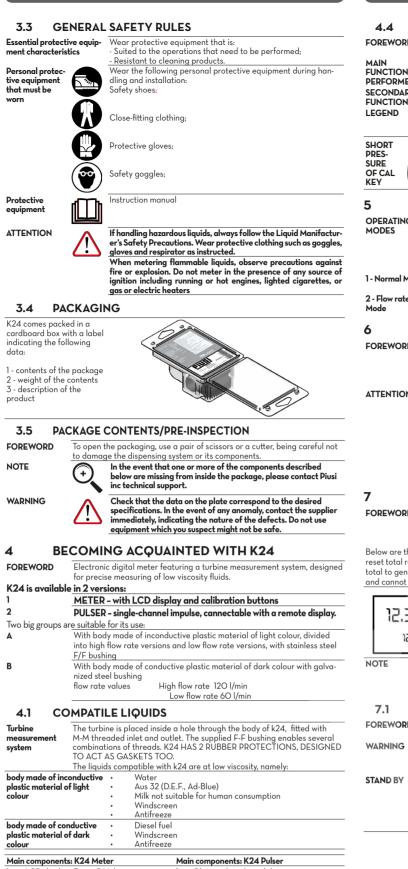
Toxic Fluid or \land Fumes Hazard

3.2 FIRST AID RULES NOTE (\cdot)

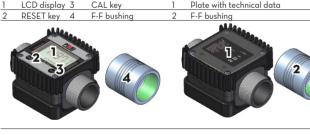
SMOKING PROHIBITED	(
ATTENTION	

When meterina (mable liquids, observe precautions again fire or explos When handling hazardous liquids, always follow the liquid manifacturer's safety precautio Do not submerge the meter

Please refer to the safety data sheet for the product



ENGLISH (Translated from Italian)



4.2 DISPLAY LCD

FOR

FOREWORD

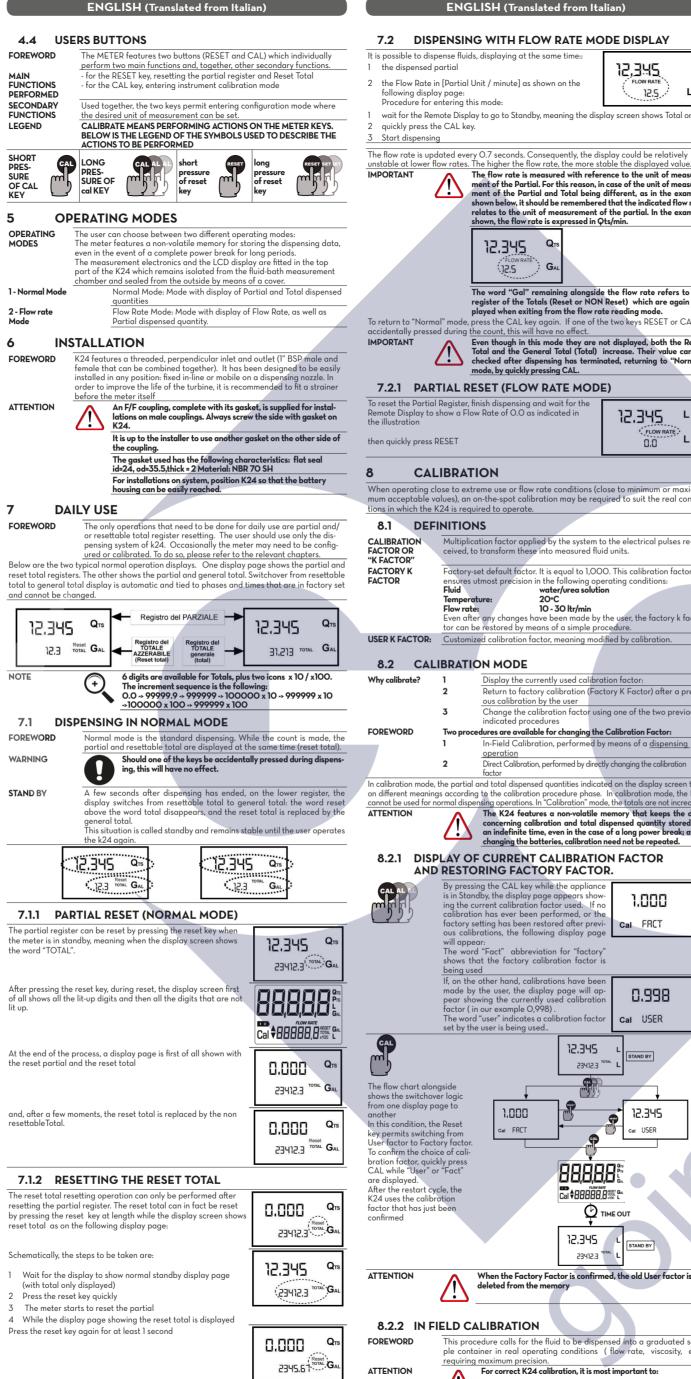
	2 DISPLATICO			
2			s two numerical registers and various only when the applicable function so	
Partial register (5 figures with moving comma FROM 0.1 to 99999) indicating		5	Indication of total multiplication factor (x10 / x100)	
	the volume dispensed since the reset button was last pressed	6	Indication of type of total, (TOTAL / Reset TOTAL);	
	Indication of battery charge	7	Indication of unit of measurement of Totals: L=Litres Gal=Gallons	
	Indication of calibration mode	8	Indication of Flow Rate mode	
	Totals register (6 figures with moving comma FROM 0.1 to 999999), that can indicate two types of Total: 4.1. General Total that cannot be reset (TOTAL) 4.2. Resettable total (Reset TOTAL)	9	Indication of unit of measurement of Partial: Qts=Quarts Pts=Pints L=Litres Gal=Gallons	
	1 -88]}		



4.3 DISPLAY POSITIONING (METER VERSION ONLY)

The square shape of the k24 body allows the card to be rotated in its housg, thus ensuring great versatility in positioning This allows easy display readings in any position. The card housing is is allows easy also a reader through a rubber protection acting as a usket as well. This can be easily removed unscrewing the 4 screws that fix both the cover and the card (1





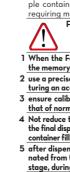
The display screen again shows all the segments of the display followed by all the switched-off seaments and inally shows the display page where the reset Reset Total is shown.

8.2.2 IN FIELD CALIBRATION

0.000

(0.0

Reset .



SH (Translated from Italian)		
WITH FLOW RATE MODE DISPLAY		

displaying at the same time:: nit / minute] as shown on the		
s mode: / to go to Standby, meaning the disp	lay screen shows Total only	
		_

unstable at lower flow rates. The higher the flow rate, the more stable the displayed value. The flow rate is measured with reference to the unit of measurement 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 example shown, the flow rate is expressed in Qts/min.



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 reading mode. e, press the CAL key again. If one of the two keys RESET or CAL is ntally 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.

7.2.1 PARTIAL RESET (FLOW RATE MODE)

n dispensing and wait for the ate of O.O as indicated in	

Fluid

2

Temperature:

When operating close to extreme use or flow rate conditions (close to minimum or max mum acceptable values), an on-the-spot calibration may be required to suit the real condi-CALIBRATION Multiplication factor applied by the system to the electrical pulses re-

ceived, to transform these into measured fluid units. actory-set default factor. It is equal to 1,000. This calibration factor ures utmost precision in the following operating conditions: d water/urea solution

20°C Flow rate: 10 - 30 ltr/min Even after any changes have been made by the user, the factory k fac-

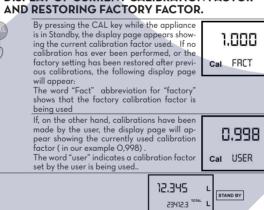
tor can be restored by means of a simple procedure. USER K FACTOR: Customized calibration factor, meaning modified by calibration.

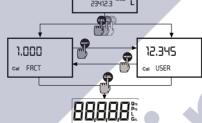
Display the currently used calibration factor: Return to factory calibration (Factory K Factor) after a previous calibration by the user Change the calibration factor using one of the two previous

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

<u>operation</u> Direct Calibration, performed by directly changing the calibration In calibration mode, the partial and total dispensed quantities indicated on the display screen tak ATTENTION
The K24 features a non-volatile memory that keeps the data concerning calibration mode, the K24 features a non-volatile memory that keeps the data concerning calibration and total dispensed quantity stored for an indefinite time, even in the case of a long power break; after changing the batteries, calibration need not be repeated.

changing the batteries, calibration need not be repeated. 8.2.1 DISPLAY OF CURRENT CALIBRATION FACTOR





12.345

23412.3

When the Factory Factor is confirmed, the old User factor is

TAND BY

This procedure calls for the fluid to be dispensed into a graduated sa ple container in real operating conditions (flow rate, viscosity, etc., For correct K24 calibration, it is most important to:

1 When the Factory Factor is confirmed, the old User factor is deleted from

2 use a precise Sample Container with a capacity of not less than 5 litres, fea turing an accurate graduated indicator 5 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); 5 after dispensing, wait a few minutes to make sure any air bubbles are elimi nated from the sample container; only read the Real value at the end of this stage, during which the level in the container could drop. 6 Carefully follow the procedure indicated below.

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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 Cal FRCT (USER)

Further B

irrently in use. Important: This factor is that which the instrument

uses for field calibration measurement operations

The Meter shows "CAL" and the partial at zero. The Meter is rea

ensing can be interrupted and started again at will. Cor

eached the graduated area. There is no need to reach a prese

Make sure dispensing is correctly finished before performing th operation. To calibrate the Meter, the value indicated by the parti

otaliser (example 9.800) must be forced to the real value marked n the graduated sample container. In the bottom left part of the

display an arrow appears (upwards and downwards), that shows

the direction (increase or decrease) of the value change displayed

SHORT RESET key keying The arrow changes direction. The operation can be repeated to alternate the direction of the arrow.

continually if the CAL key is kept pressed. The speed increa

Epteas and Specific Action
The Meter calculates the new USER K FACTOR ; this calculati

ATTENTION: If this operation is performed after action (5), withou

as the FACTORY K FACTOR, thus it is ignored.

IMPORTANT: From now on, the indicated factor will become the

The Meter stores the new work calibration factor and is read

to begin dispensing, using the USER K FACTOR that has just been calculated.

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-

age correction of the USER K FACTOR must be calculated by the operator in the following way

If the Meter indicates less than the real dispensed value (negative error) the new calibration fac-tor must be higher than the old one as shown in the example. The opposite applies if the Meter

ter enters calibration mode, shows "CAL" and displays the

The Meter shows "CAL" and the zero partial total. Meter is ready to perform in-field calibration by dispensing - :

now go on to Direct change of the calibration factor: the wor

ct" appears together with the Currently Used calibration

tor. 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

Changes the direction of the arrow. The operation can be

ne indicated value changes in the direction indicated by the

ntinually if the CAL key is kept pressed. The speed increase

ses by keeping the key pressed. If the desired value is exceeded,

he Meter is informed that the calibration procedure is finished

efore performing this operation, make sure the INDICATED

At the end of the calculation, the new USER K FACTOR is show

IMPORTANT: From now on, the indicated factor will become the

calibration factor used by the Meter and will continue to rema

The Meter stores the new work calibration factor and is ready to

gin dispensing, using the USER K FACTOR that has just be

peated to alternate the direction of the arrow.

ne unit for every short CAL key keying

erations from point (5)

r a few seconds, after which the restart cycle is

ich even after a battery change

partial. The word

New USER K FACTOR: 1.000 * [(100 - (- 0.9))/100] = 1.000 * [(100 + 0.9)/100] = 1.009

New Cal. Factor = Old Cal. Factor * (100 - E% / 100)

ation factor used by the Meter and will continue to remain

At the end of the calculation, the new USER K FACTOR is show for a few seconds, after which the restart cycle is repeated to fina achieve standby condition

hanging the indicated value, the USER K FACTOR would be the

require a few seconds, depending on the correct

is the same as the REAL value.

9.860

Cal* FRCT

Indicated value

uch even after a battery change

8.2.3 DIRECT MODIFICATION OF K FACTOR

shows more than the real dispensed value (positive error).

LONG CAL KEY KEYING

LONG RESET KEY KEYING

LONG RESET KEY KEYING

perations 5 or 6 are performed.

SHORT/LONG CAL KEY KEYING

LONG RESET KEY KEYING

value is that required.

NO OPERATION

NO OPERATION

changed.

SHORT RESET KEY KEYING

vious paragraph.

calibration factor being used instead of the "Fact" and "User" indicate which of the two

METER in Standby.

NO OPERATION

NO OPERATION

es by keeping the key pressed. If the desired value is exceeded, beat the operations from point (6).

fore performing this operation, make sure the INDICATED value

Real value

g operations 6 or 7 are performed.

ensing until the level of the fluid in the sample container ha

9.86

Real value

lirection indicated by the arrow

8.2.2.1

CAL AL A

RESET SET

RESET

RESET

CAL

10

EXAMPLE:

ACTION

CALAL

RESET SET

RESET SI

22

RESET

CAL

CAL AL A

RESET SET

Error percentage found: E% - 0.9 %

NONE

CURRENT calibration factor: 1.000

CALAL

2

eter in Standby

LONG RESET key keying

erform in-field calibration

DISPENSING INTO SAMPLE CONTAINER

Without pressing any key, start dispensing into the sample container

9.800 L

Cal. 0.0000 L

SHORT RESET key keying

The Meter is informed that the ca

SHORT/LONG CAL key keying

indicated value changes in the

ne unit for every short CAL key keying

Indicated value

ACTION

ENGLISH (Translated from Italian) IN-FIELD CALIBRATION PROCEDURE

DISPLAY

12.345

0.000

al FIELD

9.800

Cal FIELD

9.800

9.800

Cal▼ FIELD

9.860

Cal A FIELD

Cal END

1.015

al END

0.000

DISPLAY

12.345

13456

1.000

FRCT (USER)

1.000

A FIELD

1.000

Cal A DIRECT

1.000

Cal . DIRECT

1.003

Cal DIRECT

- - - - -

I END

1.003

al EOD

0.000

13456 TOTAL

Foreword

Disposal of electric

pean Union

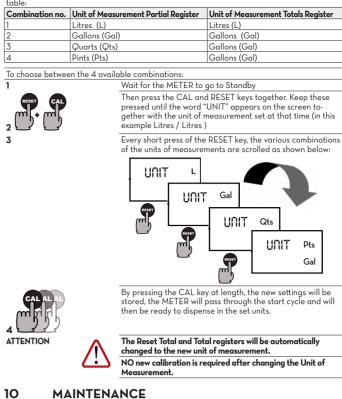
Cal 13455 TOTAL L

Cal A FIELD

1345



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 measure ment of the Partial register and that of the Totals is predefined according to the following



MAINTENANCE BATTERY

REPLACEMENT

o change the batter

ies, with reference to

the exploded diagram

positions, proceed as

WARNING

Use 2x1.5 V alkaline batteries size AAA K24 should be installed in a position allowing the batteries to be replaced without removing it from the system.

When the battery charge falls below the first level on the LCD, the 12.345 Qrs fixed battery symbol appears. In this condition, K24 contin us to operate correctly, but the fixed icon warns the user that it is 2342.3 G_A ADVISABLE to change the batteries.

> If K24 operation continues without changing the batteries, the second battery alarm level will be reached which will prevent operation. n this condition the battery icon starts to flash and is the only one to emain visible on the LCD.

> > Press RESET to update all the totals Loosen the 4 fixing screws of the lower cover ove the old batteries Place the new batteries in the same position as the old ones close the cover again, by positioning the rubber protection K24 will switch on automatically and normal operation can

> > > Carefully re-ve the screws

s of the front

nel. and then

efully lift the

Carefully

main body

king sure the e is tucked

refit the display

and replace the

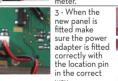
be resumed The K24 will display the same Reset Total, the same Total and the same Partial indicated before the batteries were changed.

After changing the batteries, the meter does not need calibrating again. Only one operation is necessary to clean the k24 CLEANING After removing k24 from the plant where it was built in, any residual elements can be removed by washing or mechanically-handling. If this operation does not restore a smooth rotation of the turbine, it will have to be replaced.

Do not discard the old batteries in the environment. Refer to ATTENTION local disposal regulations. Do not use compressed air onto the turbine in order to avoid its damage because of an excessive rotation







MALFUNCTIONS

Problem	Possible cause	Remedial Action	
LCD: no indication	Bad battery contact	Check battery contacts	
N.I	Wrong K FACTOR	With reference to paragraph H, check the K FACTOR	
Not enough measurement precision	The meter works below minimum acceptable flow rate.	Increase the flow rate until an acceptable flow rate range ho been achieved	
Reduced or zero flow rate	TURBINE blocked	Clean the TURBINE	
-	Incorrect installation of	Repeat the reassembly pro-	
The meter does not	gears after cleaning	cedure	
count, but the flow rate is correct	Possible electronic card prob- lems	Contact your dealer	

12 DEMOLITION AND DISPOSAL

If the system needs to be disposed, the parts which make it up must be delivered to companies that specialize in the recycling and disposal of industrial waste and, in particular: Disposing of packing The packaging consists of biodegradable cardboard which can be deliv-

ered to companies for normal recycling of cellulose. Metal Parts Disposal Metal parts, whether paint-finished or in stainless steel, can be consigned to scrap metal collectors. These must be disposed of by companies that specialize in the disposal

and electronic components, in accordance with the indications of directive 2012/19/EU (see text of directive below). Information regarding this symbol on the product and/or poduction of the symbol on the symbol on the product and/or poduction of the symbol on the sym

regarding the environ-the environ-the environment for clients resid-ing within the Euroing within the Eurostructures indicated by the government or the local governing authorities.

Disposing of RAEE equipment as household wastes is strictly forbidden. Such wastes must be disposed of separately. Any hazardous substances in the electrical and electronic appliances. and/or the misuse of such appliances can have potentially serious con-sequences for the environment and human health. n case of the unlawful disposal of said wastes, fines will be applicable as defined by the laws in force.

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

