

CONTENTS FLOW INDICATOR - TOTALIZER 8025

1	INTRODUCTION	E-2
1.1	Unpacking and Control	E-2
1.2	About this Manual	E-2
1.3	User's Responsibility for Safety	E-2
1.4	Electromagnetical compatibility	E-2
2	SPECIFICATION	E-3
2.1	Type Specification	E-3
2.2	Design and Measuring Principle	E-3
2.3	Dimensions	E-4
2.4	Technical Data	E-5
3	INSTALLATION	E-6
3.1	Installation Guidelines	E-6
3.2	Installation	E-7
3.3	Connection of the sensor to the wall-mount version of indicator-totalizer	E-8
3.4	Start	E-8
4	OPERATING	E-9
4.1	Indicator-Totalizer Operating and Control Elements	E-9
4.2	Operation Mode Display	E-10
4.3	Calibration Mode Display	E-10
4.3.1	Languages	E-11
4.3.2	Engineering Units	E-11
4.3.3	K-Factor	E-12
4.3.4	Filter Function	E-13
4.3.5	Totalizer	E-13
5	MAINTENANCE	E-14
5.1	Trouble-shooting	E-14
5.2	Locking of the enter key	E-14
5.3	Replacement of batteries	E-15
5.4	Configuration of indicator-totalizer type 80E-4 at delivery	E-15
5.5	Spare-part list	E-16
	APPENDIX	G-1
	Flow Chart (l/min, DN in mm and m/s)	G-1
	Flow Chart (US-gallon/min, DN in inch and Ft/s)	G-2

1 INTRODUCTION FLOW INDICATOR - TOTALIZER 8025

Dear Customer,

Congratulations on your purchase of our digital flow indicator totalizer.

BEFORE INSTALLING OR USING THIS PRODUCT, PLEASE TAKE OUR ADVICE AND READ THE ENTIRE MANUAL THOROUGHLY.

This will enable you to fully profit from all of the advantages offered by this product.

1.1 Unpacking and Control

Please verify that the product is complete and free from any damage. The standard delivery must include:

- 1 Flow indicator totalizer either in compact or in wall-mount version.
- 1 Instruction manual type 8025
- 1 Instruction manual fitting type S020/1500/1501

If there is any loss or damage, please contact your local Bürkert subsidiary.

1.2 About this Manual

This manual does not contain any warranty statement. Please refer to our general terms of sale and delivery. Only properly-trained staff should install and/or repair this product. If difficulties should occur at the time of installation, please contact your nearest Bürkert sales office for assistance.

1.3 User's Responsibility for Safety

Bürkert manufactures a broad range of flow transmitters. While each of these products is designed to operate in a wide variety of applications, it is the user's responsibility to select a transmitter model that is appropriate for the application, install it properly, and maintain all components. Special attention must be paid to the chemical resistance of the transmitter against the fluids which are directly contacting the product.



This symbol appears in the manual to call special attention to instructions that affect the safe installation, function and use of the product.

1.4 Electromagnetic compatibility

This device conforms to the EMC-Directive of the Council of European Communities 89/336/EEC.

2 DESCRIPTION FLOW INDICATOR - TOTALIZER 8025

2.1 Type specification

Designation	Supply	Gasket	Sensor	Connection	Order Nr.
FLOW INDICATOR-TOTALIZER COMPACT VERSION					
8025 flow display, 2 totalizers	batteries 9VDC	FPM	coil short	none	418403S
8025 flow display, 2 totalizers	batteries 9VDC	EPDM	coil short	none	418404T
8025 flow display, 2 totalizers	batteries 9VDC	FPM	coil long	none	418405U
8025 flow display, 2 totalizers	batteries 9VDC	EPDM	coil long	none	418406V
FLOW INDICATOR-TOTALIZER WALL-MOUNT VERSION					
8025 flow display, 2 totalizers, enclosure IP65	batteries 9VDC			PG9	418402Z

2.2 Design and Measuring Principle

Design

The flow indicator totalizer compactly combines a flow sensor and an electronic board with display in a splash-proof plastic IP65 enclosure.

The sensor part consists of a transducer and an open-cell paddle-wheel.

The electronic component converts the measured signal and displays the actual value and the totalized amounts.

The wall-mount version consists of a transducer with display in a splash-proof plastic IP65 enclosure.

The associated flow sensor is type 8020/8030 with coil.

Measuring Principle

When liquid flows through the pipe, the paddle-wheel is set in rotation producing a measuring frequency in the transducer (coil), which is proportional to the flow.

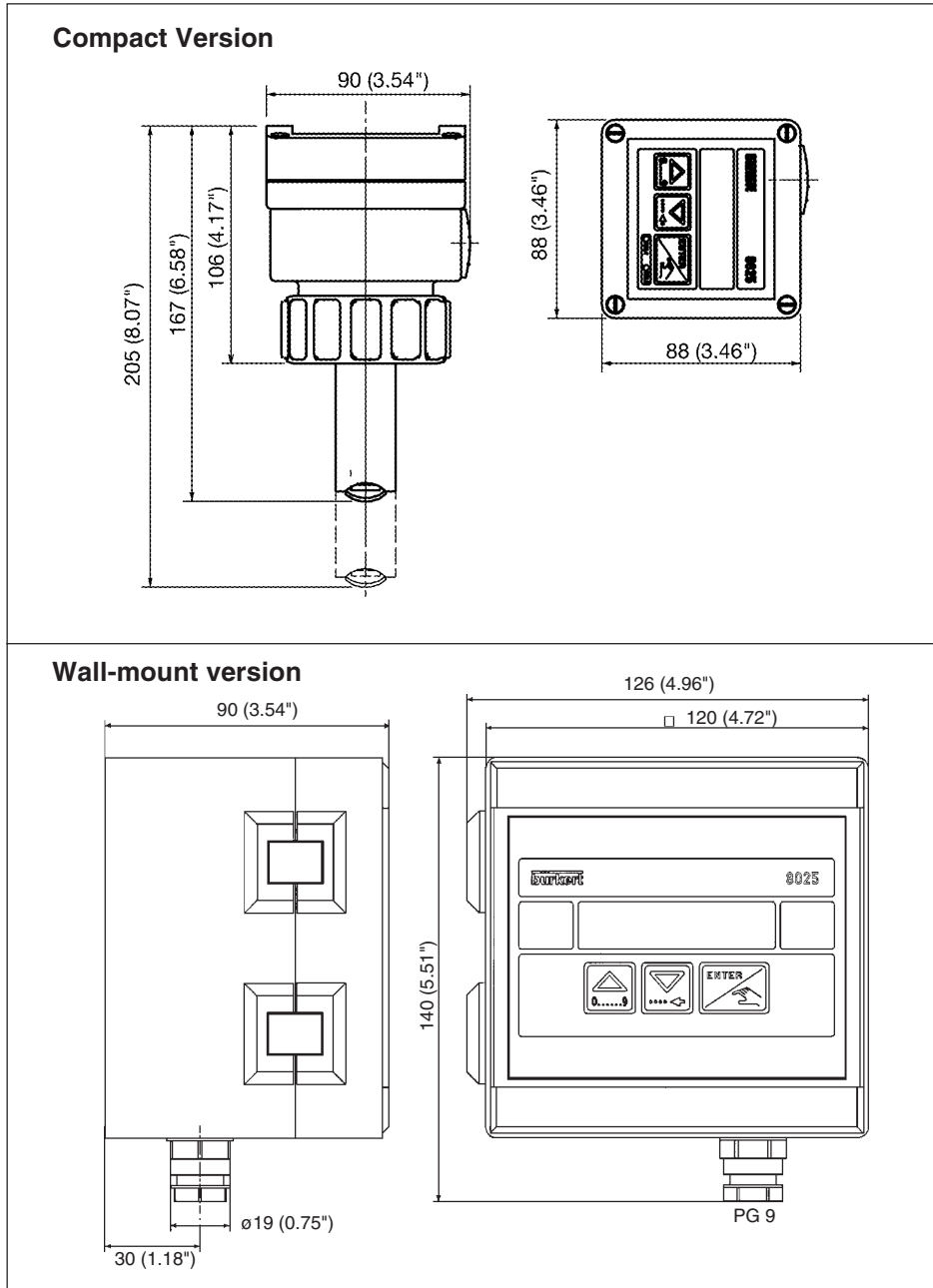
The frequency modulated induced voltage is proportional to the flow velocity of the fluid. A conversion coefficient, specific to each pipe (size and material) enables the conversion of this frequency into flowrate. This coefficient (Factor-K in pulse/liter) is available in the instruction manual of the insertion fitting (S020, 1500, 1501).

The electronic is supplied with two 9 VDC batteries.

The flow indicator totalizer can measure a flow rate as from 0.5 m/s (1.6 ft/s).

2 DESCRIPTION FLOW INDICATOR - TOTALIZER 8025

2.3 Dimensions



2 SPECIFICATION FLOW INDICATOR - TOTALIZER 8025

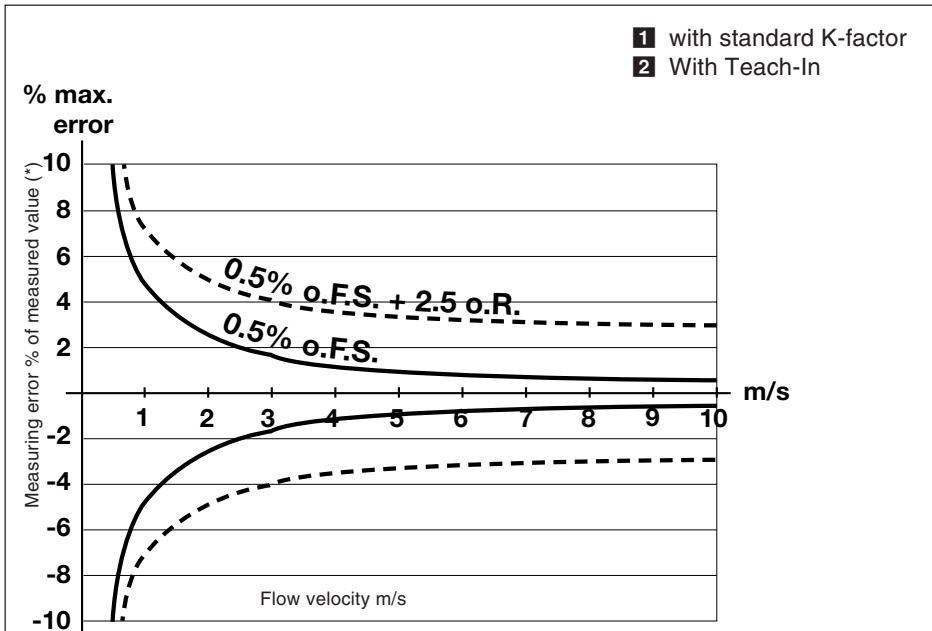
2.4 Technical Data

Measuring range	with Coil sensor: 0.5 to 10 m/s (1.6 to 32.8 fps) from 5 l/min (1.3 gpm) in DN15 (1/2") pipe
Measuring error	1. With In-line calibration (Teach-In): $\leq \pm 0.5\%$ o.F.S. (at 10 m/s) * 2. With standard mean K-Factor: $\leq \pm (0.5\%$ o.F.S. +2.5% o.R.) *
Linearity	$\leq \pm 0.5\%$ o.F.S. (at 10 m/s) *
Repeatability	0.4% o.R. *
Fluid T°C max.	PVC: 50°C (122°F); PP: 80°C (176°F); PVDF: 100°C (212°F); Stainless steel and brass: 100°C (212°F)
Ambient temperature	0 to 60°C (32 to 140°F)
Storage temperature	0 to 60°C (32 to 140°F)
Relative humidity	max. 80%
Pressure class	PN 6
Protection class	IP 65 compact, and wall-mount version
Sensor holder	PVDF
Paddle-wheel	PVDF
Axis and bearing	Ceramic
O-rings	FPM/EPDM
Housing	PC (compact version), ABS (wall-mount version)
Front plate foil	Polyester
Voltage supply	2 batteries of 9 VDC
Autonomy	minimum 3/4 years at 20°C
Display	15 x 60 mm LCD 8 digits, alphanumeric, 15 segments, 9 mm high

(*) o.F.S = of Full Scale; o.R = of Reading


Under reference conditions i.e. measuring fluid water, ambient and water temperature 20 °C, applying the minimum inlet and outlet pipe straights, matched pipe dimensions.

3 INSTALLATION FLOW INDICATOR - TOTALIZER 8025



Measuring error with/without Teach-In (cf § 2.4)

3.1 Installation Guidelines

 The flow transmitter 8025 can only be used to measure pure, liquid and water resembling fluids (solids content $\leq 1\%$, viscosity max. 300 cSt with on-line calibration).

Observe the minimum upstream $10 \times D$ and downstream $3 \times D$ distances. (For further informations, please refer to EN ISO 5167-1).

Installation Guidelines

The pipe must be completely filled with the fluid, i.e. air bubbles must not be present. The device must be protected against constant heat radiation and other environmental influences, such as direct exposure to sunlight or magnetic fields. Do not mount behind turbulence generating fittings (elbows, valves, T-pieces, etc.).

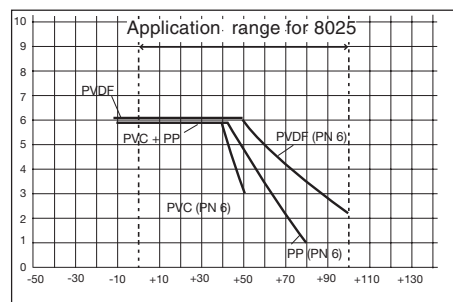


Fig. 1 Pressure-Temperature-Diagram

3 INSTALLATION FLOW INDICATOR - TOTALIZER 8025

3.2 Installation

Compact version

The flow indicator totalizer can be easily installed into pipes using our specially designed fitting system.

1. The fitting **4** must be installed into the pipe according to the installation specifications in section 3.1.
2. Insert plastic nut **3** into fitting and let plastic ring **2** snap into guide bush **5**.
3. Carefully insert totalizer **1** into fitting. If installed properly, the device cannot be rotated.
4. Tighten transmitter housing to fitting with plastic nut **3**.

Caution! Plastic nut must only be tightened by hand!

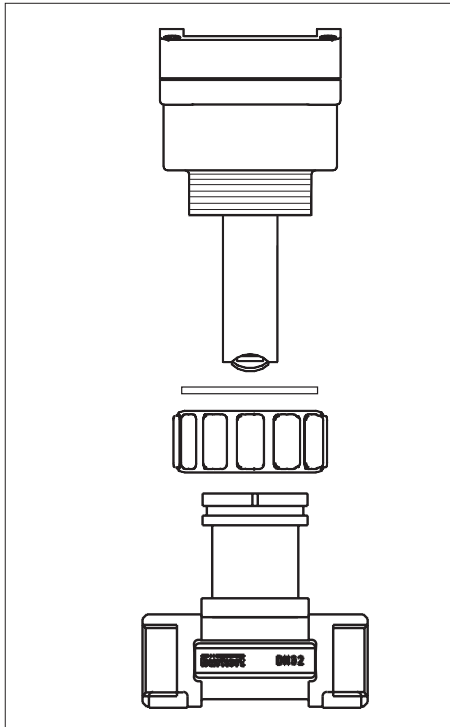


Fig. 3.2 Installation compact version

Wall-mount version (see Fig. 3.4)

The flow indicator-totalizer in wall-mount version is equipped with 4 fixing holes in the bottom of the enclosure. Remove the white blanking stripes and open the cover to access to fixing holes **1**. For sensor installation, please consult 8020/8030 instruction manual.

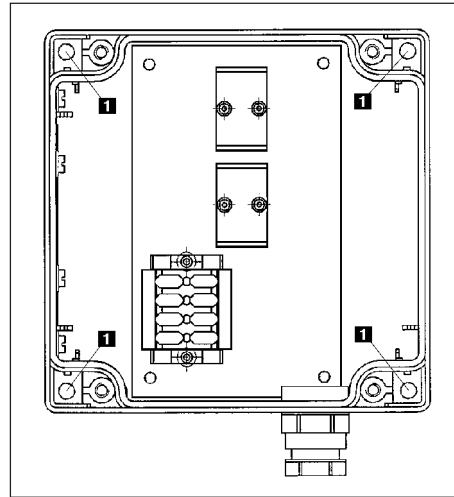


Fig. 3.3 Installation wall-mount version

3 INSTALLATION FLOW INDICATOR - TOTALIZER 8025

3.3 Connection of the sensor to the flow indicator in wall-mount version

The connection of the flow sensor 8020/8030 is done on the supply plate thanks to a 4-pole terminal strip (see Fig. 3.4).

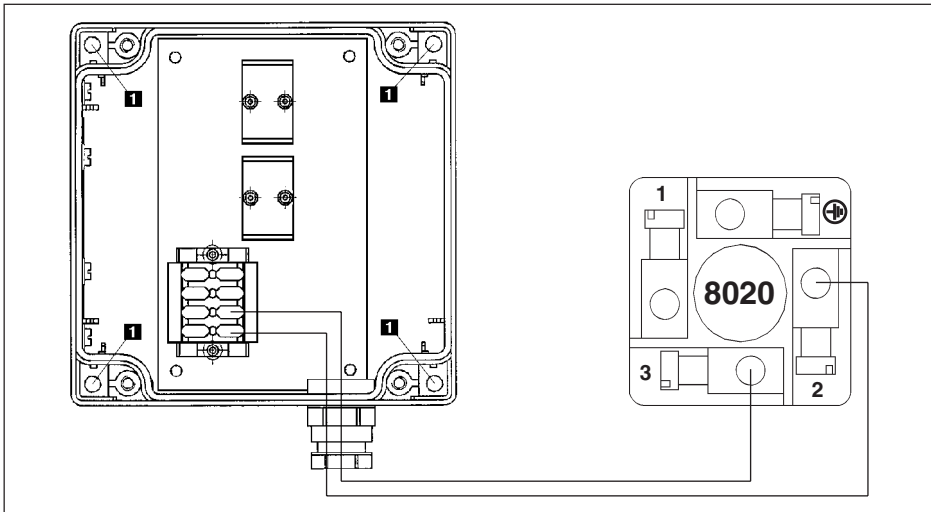


Fig. 3.4 Connection of the sensor

3.3 Start

Remove the cover of the housing and put switch **1** to **ON** (see fig. 3.5). The ENTER key can be locked by switching switch **2** in position "ENTER locked" (see § 5.2).

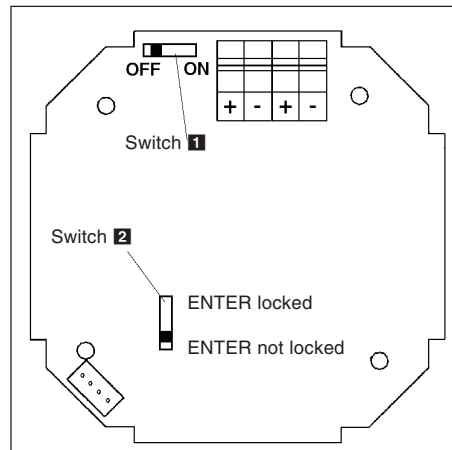


Fig. 3.5 ON/OFF switch

4 OPERATION FLOW INDICATOR - TOTALIZER 8025

The operation is classified according to two levels.

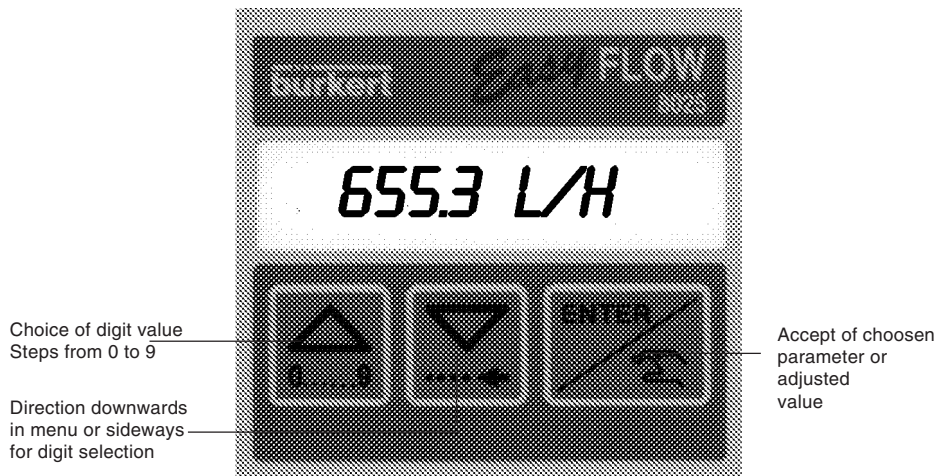
Display

This menu displays flow, main totalizer and daily totalizer. The daily totalizer can also be reset in this menu.

Parameter Definition

All the necessary settings, such as the language, engineering units, K-factor and filter are carried through in this menu. The ENTER key can be locked (see §5.2). Here, the main, as well as the daily totalizer are simultaneously reset.

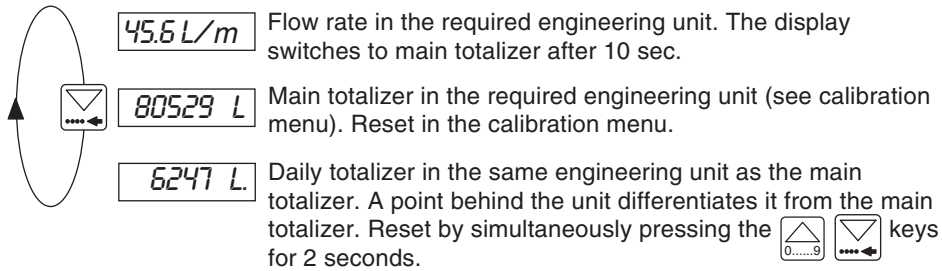
4.1 Indicator-Totalizer Operating and Control Elements



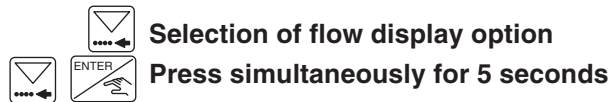
4 OPERATION FLOW INDICATOR - TOTALIZER 8025

4.2 Operation Mode Display

The following variables are displayed in the operation mode:

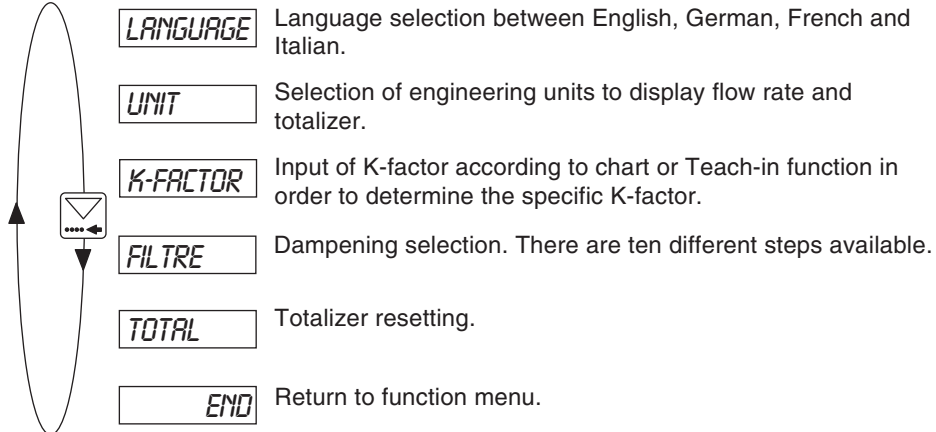


4.3 Calibration Mode:



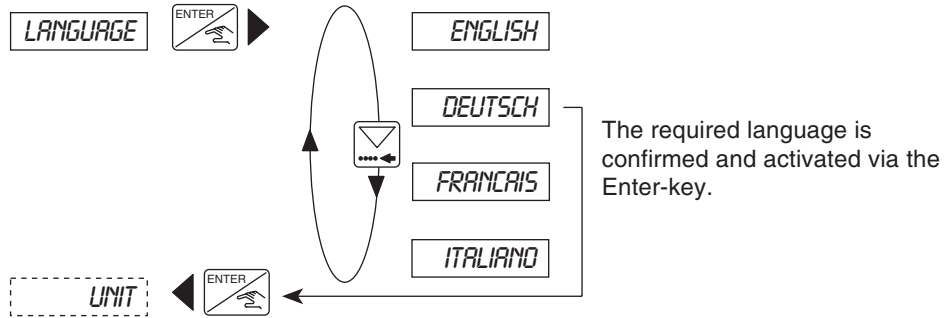
The ENTER key can be locked (see §5.2).

The following variables can be set in the parameter definition menu:

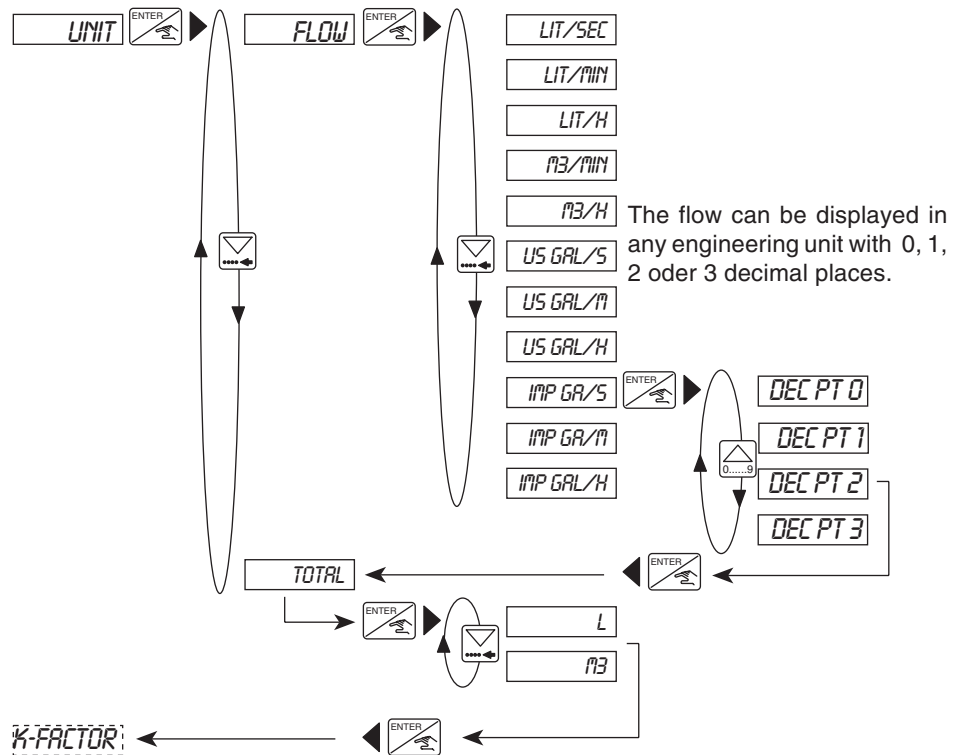


4 OPERATION FLOW INDICATOR - TOTALIZER 8025

4.3.1 Language



4.3.2 Engineering Units



Note: You only return to the main menu via the sub-menu "TOTAL" if you select L or m³ per time unit as flow unit. If the unit gallon (US or UK) is selected for flow, the unit of the totalizer is automatically gallon (US or UK).

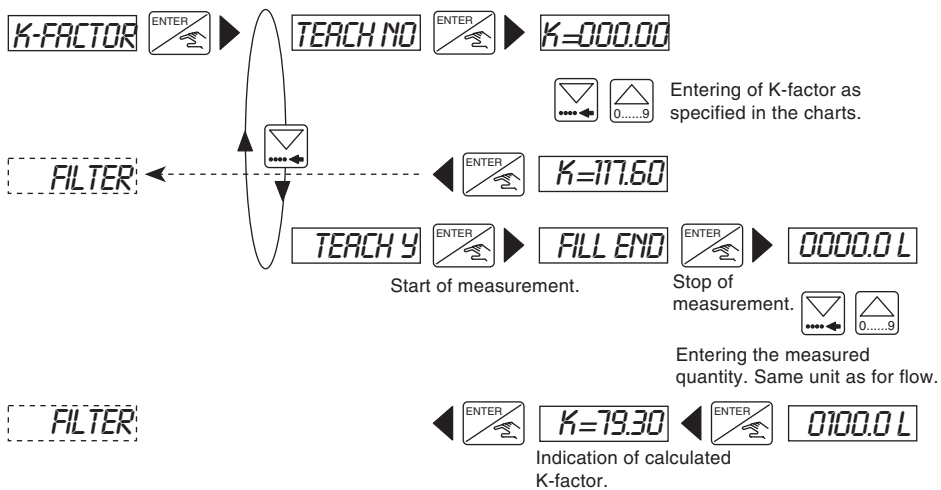
4 OPERATION FLOW INDICATOR - TOTALIZER 8025

4.3.3 K-Factor

The K-factor of the fitting is entered in this menu (see instruction manual fitting type S020/1500/1501). The "Teach in" function allows to practically determine the application specific K-factor. The user only needs to run a known quantity through his system.

Example: In order to determine a quantity the most accurately possible, the user shall fill a tank of 100 liters. When the message "TEACH Y" appears, he presses the Enter key to start the measuring procedure. The message "FILL END" (end of filling) will appear. He then switches on a pump or opens a valve. As soon as his tank is full, he switches off the pump or closes the valve. Pressing Enter stops the measurement. The user will then be asked to enter the quantity (100 liters). The calculated K-factor is displayed after confirmation.

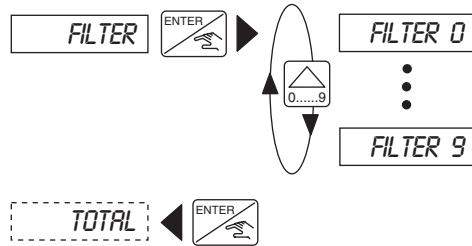
Note: The device uses the K-factor entered or determined at last.



4 OPERATION FLOW INDICATOR - TOTALIZER 8025

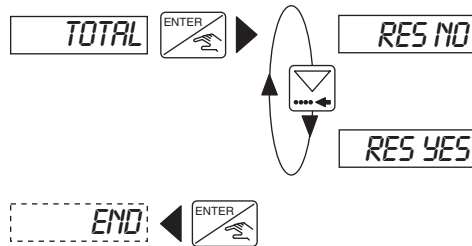
4.3.4 Filter

The dampening is specified in this sub-menu. It prevents from fluctuations of the display. There are ten levels available. The first level ("FILTER 0") has no dampening effect.



4.3.5 Totalizer

The main and daily totalizers are reset in this menu. The reset procedure only starts when Enter is pressed, at the "END" position in the parameter definition menu.



5 MAINTENANCE FLOW INDICATOR - TOTALIZER 8025

5.1 Trouble-shooting

In correct installation the transmitters are maintenance-free. If contamination or clogging should occur during operation, the transmitter (paddle-wheel, bearing) can be cleaned with water or another appropriate cleaning agent.

The message "ERRDR" on the display indicates that calibration data has been lost. By pressing ENTER, the user access to operation menu but the device works with the factory settings. The transmitter must be re-calibrated. If this message appears more often, please return the product to the factory.

When the batteries become low, the display blinks (flow display and totalizer) but the device still works. A replacement of batteries must be planned. The message "LOW BATT" appears only when batteries are too low to ensure function of the device.

5.2 Locking of the enter key

The enter key can be locked to prevent from access to calibration menu, especially the reset of totalizer. Remove the cover and put switch **2** in position 'ENTER locked" (see fig. 5.1).

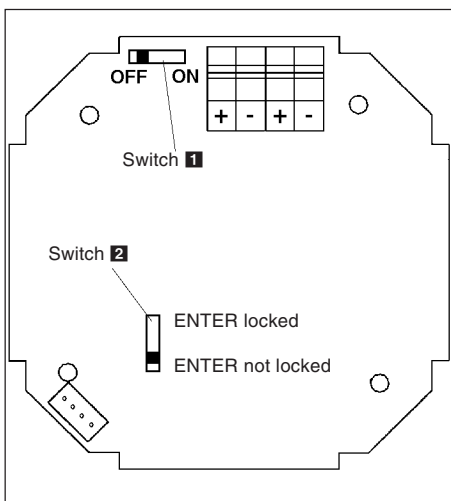


Fig. 5.1 Indicator totalizer board

5 MAINTENANCE FLOW INDICATOR - TOTALIZER 8025

5.3 Replacement of batteries

Compact version

Remove the cover and disconnect the sensor to facilitate the access to the batteries. The batteries are on the bottom of the aluminium plate. Remove the plate by unscrewing screws **1** (see Fig. 5.2). Insert new batteries and reassemble the totalizer.

Wall-mount version

Open the cover, the batteries are in the bottom of the enclosure.

Warning: To keep the totalized amounts and the calibration data, change the batteries one to one and before "LOW BATT" message appears on the display.

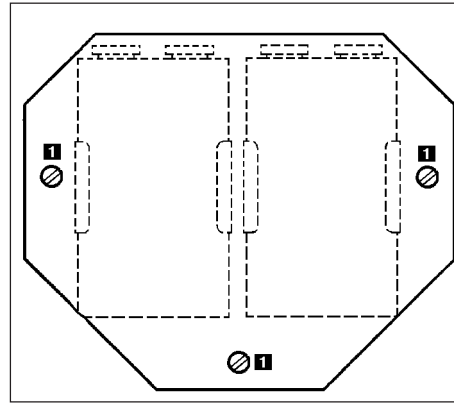


Fig. 5.2 Supply plate compact version

5.4 Configuration of indicator-totalizer type 8025 at delivery

Language:	english
Unit flow:	L/s
Unit totalizer:	L
Decimal point:	2
K-factor:	46,6
Filter:	Filter 2

User configuration of indicator-totalizer type 8025 N°

Language:	
Unit flow:	
Unit totalizer:	
Decimal point:	
K-factor:	
Filter:	

5 MAINTENANCE FLOW INDICATOR - TOTALIZER 8025

5.5 Spare Parts List

8025 Compact version

Position	Désignation	Ident N°
1	Complete sensor housing with ring and union nut	425527C
2	Cover with screws, sheeting and printed circuit board	425433E
3	Electronic board battery power supply	419296X
4	Ring	619205L
5	Union nut	619204K
6	Sensor for DN 15 to 100 (1/4" - 4") with coil	633366A
7	Sensor for DN as from 100 (as from 5") with coil	634757B
8	FPM seal kit EPDM seal kit	425554P 425555Q
9	Instruction manual totalizer 8025 Instruction manual fitting S020/1500/1501	418394Y 429633S

8025 Wall-mount version

Position	Désignation	Ident N°
10	Electronic board indicator-totalizer	418084M
11	Supply plate 9 VDC	419608Q
12	Enclosure IP65 complete	419609R

5 MAINTENANCE FLOW INDICATOR - TOTALIZER 8025

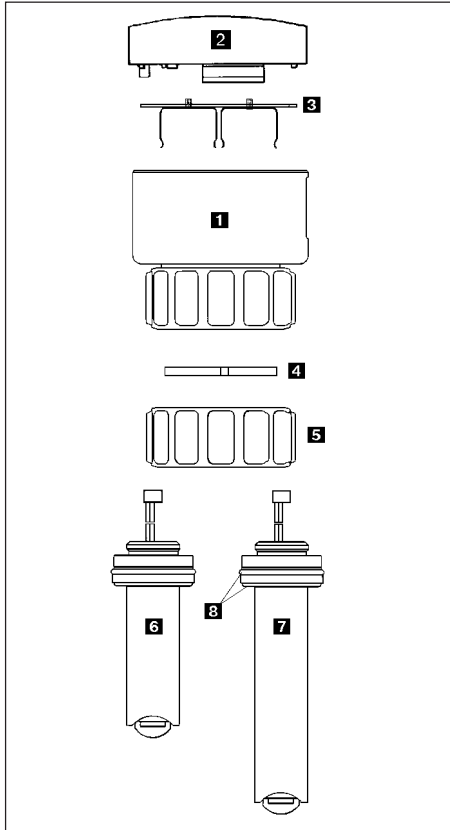


Fig. 5.3 Spare Parts Explosion Drawing compact version

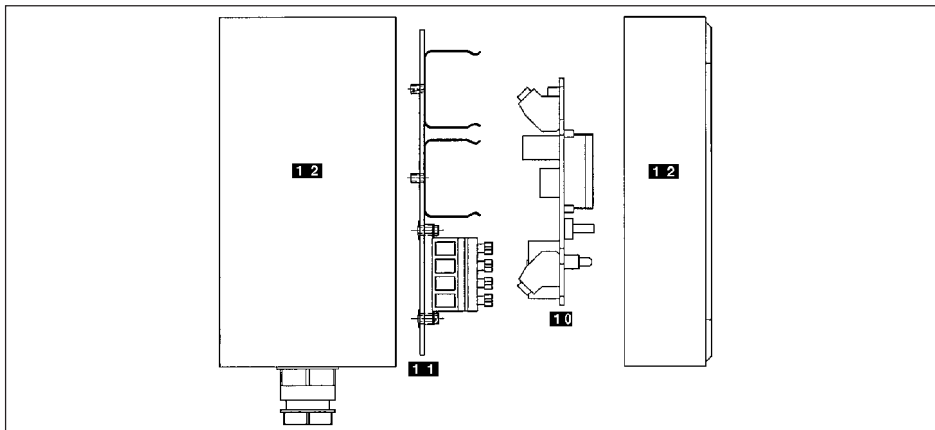
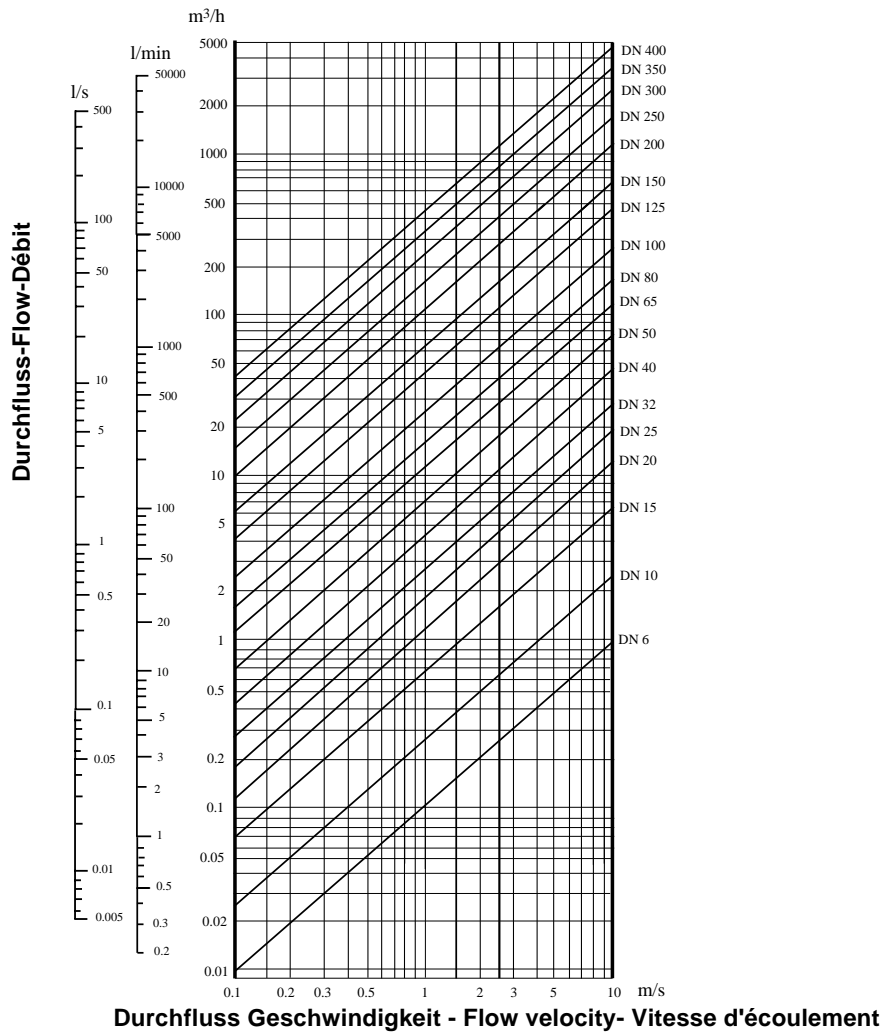


Fig. 5.4 Spare Parts Explosion Drawing wall-mount version

1) Durchfluss-Diagramm (L/min, DN in Zoll und m/s)

1) Flow Chart (L/min, DN in inch and m/s)

1) Abaque débit/vitesse/diamètre (L/min, DN en inch et m/s)

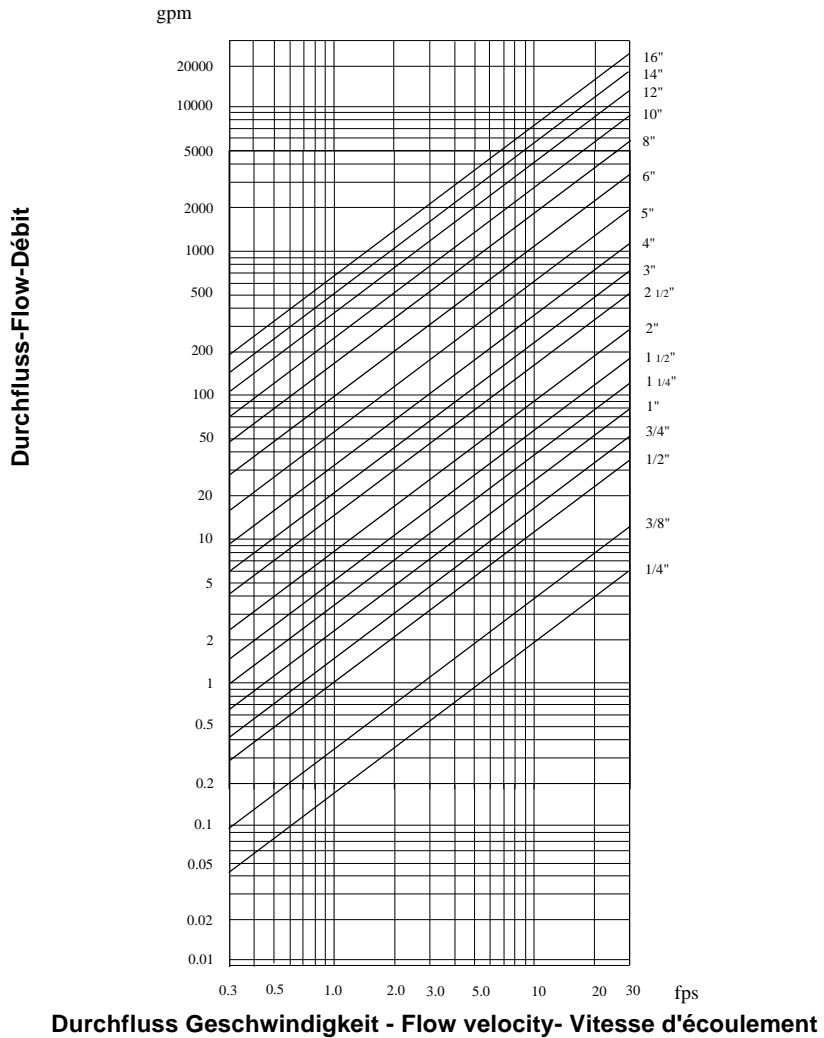


Auswahlbeispiel:
Selection example:
Exemple:

Vorgabe - Specifications - Données:
 Durchfluss-Flow-Débit: 10 m³/h
 Ideale Durchflussgeschwindigkeit: 2...3 m/s
 Ideal flow velocity: 2...3 m/s
 Vitesse optimale du fluide: 2...3 m/s

Erforderliche Nennweite - Required orifice - Dimension requise : DN 40.

- 2) Durchfluss-Diagramm (US-gallon/min, DN in Zoll und fps)
- 2) Flow Chart (US-gallon/min, DN in inch and fps)
- 2) Abaque débit/vitesse/diamètre (US-gallon/min, DN en inch et ft/s)



Auswahlbeispiel:
Selection example:
Exemple:

Vorgabe -Specifications - Données:
 Durchfluss-Flow-Débit: 50 gpm
 Ideale Durchflussgeschwindigkeit: 8 fps
 Ideal flow velocity: 8 fps
 Vitesse optimale du fluide: 8 fps

Erforderliche Nennweite - Required orifice - Dimension requise : 1 1/2"

SERVICE

Australia

Bürkert Fluid Control Systems
Unit 1 No.2, Welder Road
Seven Hills NSW 2147
Tel +61 2 967 461 66
Fax +61 2 967 461 67

Austria

Bürkert Contromatic GmbH
Central and Eastern Europe
Diefenbachgasse 1-3
Postfach 89
A-1150 Wien
Tel +43 1 894 13 33
Fax +43 1 894 13 00

Belgium

Bürkert Contromatic N.V./S.R.
Middelmolenlaan 100
B-2100 Deurne
Tel +32 3 325 89 00,
Fax +32 3 325 61 61

Brasil

Conterval Ind. E. Com. Ltda.
Rua Pinheiros 358
Caixa Postal 11167
05422 San Paulo
Tel +55 11 852 93 77
Fax +55 11 852 95 61

Canada

Bürkert Contromatic Inc.
760 Pacific Road, Unit 3
Oakville, Ontario, L6L 6M5
Tel +1 905 847 55 66,
Fax +1 905 847 90 06

Chile

Termodinamica Ltd.
Av. Bulnes 195, Cas. 118
Santiago de Chile
Tel +56 2 635 39 50
Fax +56 2 635 39 47

China

Bürkert Contromatic
(Suzhou) Co. Ltd.
2/F, 71 Zhu Yuan Road
215011 Suzhou
Tel +86 512 808 19 16
Fax +86 512 824 51 06

Bürkert Contromatic

China/HK Ltd.
Rm. 1313
No. 103, Cao Bao Road
200233 Shanghai P.R.C
Tel +86 21 6484 7007
Fax +86 21 6484 7008

Bürkert Contromatic
China/HK Ltd.
Beijing Office
Rm. 808, Jing Tai Building
No. 24, Jianguomen
Waldajie

100022 Beijing P.R.C
Tel +86 10 6508 33 31
Fax +86 10 6592 86 29

Bürkert Contromatic
China/HK Ltd.
Cheng Du Representative Office
Rm. 502, Fujii Building
No. 26 Shududadao
Dongfeng Street
Chengdu P.R.C
Tel +86 28 443 1895
Fax +86 28 445 1341

Denmark

Bürkert-Contromatic A/S
Horkær 24
DK-2730 Herlev
Tel +45 44 50 75 00
Fax +45 44 50 75 75

Finland

Bürkert Oy
Atomitie 5
SF-00370 Helsinki
Tel +358 9 549 70 600
Fax +358 9 503 12 75

France

Bürkert Contromatic
B.P. 21
Triembach au Val
F-67220 Villé
Tel +33 (0) 388 58 91 11
Fax +33 (0) 388 57 09 61

Germany / Deutschland

Bürkert Steuer- und Regeltechnik
Christian-Bürkert-Straße 13-17
D-74653 Ingelfingen
Tel +49 7940 10-0
Fax +49 7940 10 361

Niederlassung NRW

Holzener Straße 70
D-58708 Menden
Tel +49 2373 96 81-0
Fax +49 2373 96 81-52

Niederlassung Frankfurt

Am Flugplatz 27
D-63329 Egelsbach
Tel +49 6103 94 14-0
Fax +49 6103 94 14-66

Niederlassung München
Paul-Gerhardt-Allee 24
D-81245 München
Tel +49 89 82 92 28-0
Fax +49 89 82 92 28-50

Niederlassung Berlin
Bruno-Taut-Straße 4
D-12524 Berlin
Tel +49 30 67 97 17-0
Fax +49 30 67 97 17-66

Niederlassung Dresden
Christian Bürkert Straße 2
D-01900 Großröhrsdorf
Tel +49 35952 3 63 00
Fax +49 35952 3 65 51

Niederlassung Hannover
Rendburger Straße 12
D-30569 Hannover
Tel +49 511 9 02 76-0
Fax +49 511 9 02 76-66

Niederlassung Stuttgart
Karl-Benz-Straße 9
D-70794 Filderstadt (Bernh.)
Tel +49 711 4 51 10-0
Fax +49 711 4 51 10-66

Greece

Tevex E.E.
3 Xirogianni Straße
Zografos Athen
Tel +30 1-7 71 50 97
Fax +30 1-7 75 12 26

Great Britain

Bürkert Contromatic Ltd.
Brimmscombe Port Business Park
Brimmscombe, Stroud, Glos.
GL5 2QF
Tel. +44 (0) 1453 73 13 53
Fax +44 (0) 1453 73 13 43

Hong Kong

Bürkert Contromatic
(China/HK) Ltd.
Unit 708, Prosperity Centre
77-81 Container Port Road
Kwai Chung N.T.
Hong Kong
Tel +852 2480 1202
Fax +852 2418 1945

Indonesia

P.T. Fulkosindo
JLKH Hasyim Ashari No. 38-A
Jakarta 10140
Tel +62 21 386 24 85
Fax +62 21 386 24 85

SERVICE

Italy

Bürkert Contromatic Italiana S.p.A.
Centro Direzionale 'Colombiolo'
Via Roma 74
I-20060 Cassina De Pecchi (MI)
Tel +39 02 952 071
Fax +39 02 952 07 251

Japan

Bürkert Contromatic Ltd.
3-39-8 Shoan
Suginami-ku
Tokyo 167-0054
Tel +81 3 324 734 11
Fax +81 3 324 734 72

Korea

Bürkert Contromatic Korea Co. Ltd.
4-10 Yangjae-Dong
Secho-Ku
Seoul 137-130
Tel. +82 2 346 255 92
Fax +82 2 346 255 94

Malaysia

Bürkert Malaysia Sdn. Bhd.
N° 22 Lorong Helang 2
11700, Sunggai Dua
Penang
Tel. +60 4 657 64 49
Fax +60 4 657 21 06

Netherlands

Bürkert Contromatic BV
Computerweg 9
NL-3606 AV Maarssen
Tel. +31 346 58 10 10
Fax +31 346 56 37 17

New Zealand

Bürkert Contromatic Ltd.
Unit 5, 23 Hannigan drive
Mt Wellington
Auckland
Tel +64 9 570 25 39
Fax +64 9 570 25 73

Norway

Bürkert Contromatic A/S
Hvamstubben 17
P.O. Box 243
N-2013 Skjetten
Tel +47 63 84 44 10
Fax +47 63 84 44 55

Philippines

Delrene EB Controls Center
2461 Uradaneta St. Guadelupe
Nuevo Makati Metro
Manila 3116
Tel +63 2 819 05 36
Fax +63 2 819 05 47

Poland

Bürkert Contromatic Sp.z.o.o.
1 Szpitalna Street
PL-00-684
Warszawa
Tel +48 22 627 47 20
Fax +48 22 627 47 20

Portugal

LA 2ª P Lda
Rua Almirante Sousa Dias
Loja D. Nova Oeiras
P-2780 Oeiras
Tel. +351 1 442 26 08
Fax +351 1 442 28 08

Singapore

Bürkert Contromatic Singapore
Pte.Ltd.
No.11 Playfair Road
Singapore 367986
Tel +65 383 26 12
Fax +65 383 26 11

Spain

Bürkert Contromatic Española S.A.
San Gabriel 40-44
E-08950 Esplugues de Llobregat
Tel +34 93 371 08 58
Fax +34 93 371 77 44

South Africa

Bürkert Contromatic Pty.Ltd.
P.O.Box 26260, East Rand 1452
Republic of South Africa
Tel +27 11 397 2900
Fax +27 11 397 4428

Sweden

Bürkert Contromatic AB
Skeppsbron 13 B, 5 tr.
S-21120 Malmö
Tel +46 40 664 51 00
Fax +46 40 664 51 01

Bürkert Contromatic AB

Havsörnstorget 21
Box 1002
S-12329 Farsta
Tel +46 40 664 51 00
Fax +46 8 724 60 22

Switzerland

Bürkert-Contromatic AG Schweiz
Bösch 65
CH-6331 Hünenberg / ZG
Tel +41 41 785 66 66
Fax +41 41 785 66 33

Taiwan

Bürkert Contromatic Taiwan Ltd.
3F No. 475 Kuang-Fu South Road
R.O.C - Taipei City
Tel +886 2 275 831 99
Fax +886 2 275 824 99

Thailand

Alpha Contromatic Co. Ltd.
259/13 Sukhmit 22
Bangkok 10110
Tel +420 641 22 61 80
Fax +420 641 22 61 81

Turkey

Bürkert Contromatic Ltd.
Kontrol Sistemleri Ticaret A.S
1203/8 Sok. No. 2-E
Yenisehir
Izmir
Tel +90 232 459 53 95
Fax +90 232 459 76 94

Tzechia

Bürkert Contromatic Spool.s.r.o
Prosenice c. 180
CZ - 751 21 Prosenice
Tel +42 0641 226 180
Fax +42 0641 226 181

USA

Bürkert Contromatic Corp.
2602 McGaw Avenue
Irvine, CA 92614, USA
Tel. +1 949 223 31 00
Fax +1 949 223 31 98

