

# Technical Manual

Instructions for installation,  
operation and maintenance

## 246 TOTALISERS & PULSE TRANSMITTERS

For MidFlow® and HiFlow® series 'J' Vane meters



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# 1. PREFACE

## 1.1 GENERAL

This manual contains installation, operation and maintenance instructions for totalising counters and pulse transmitters installed to VAF MidFlow® and HiFlow® liquid flowmeters Series 'J'. For IOM instructions of the flowmeter section refer to Technical Manual 129 supplied with the instrument.

This manual contains important information for the installer, the operator and for your maintenance department.

To ensure safe and correct installation and operation, study this manual carefully before starting operations.

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Or your local authorized VAF dealer.

Their addresses can be found on [www.vaf.nl](http://www.vaf.nl)

## 1.2 SYMBOLS

The symbols below are used to call attention to specific types of information.



A warning to use caution! In some instances, personal injury or damage to the flowmeter or control system may result if these instructions are not followed properly.



An explanation or information of interest.

## 1.3 COPYRIGHT

This manual is copyrighted with all rights reserved.

While every precaution has been taken in the preparation of this manual, no responsibility for errors or omissions is assumed. Neither is any liability assumed for damages resulting from the use of the information contained herein. Specifications can be changed without notice.

MidFlow® and HiFlow® are registered trademarks of VAF Instruments B.V.

## 2. GENERAL DESCRIPTION

### 2.1 TOTALISERS

The totaliser is a simple device to monitor total liquid volumes passing through a VAF positive displacement type liquid flowmeter.

Your flowmeter is equipped with one of the following totalising counters:

- Mechanical non-resetable totaliser, with or without electric pulse transmitter
- Mechanical resetable totaliser, with or without electric pulse transmitter installed in the counter mounting
- Console
- Battery powered LCD type FlowCount rate-totaliser

### 2.2 PULSE TRANSMITTERS

#### 2.2.1 Available variants

Three different types of transmitters are available:

- a. Low speed and high speed inductive pulse transmitters.
- b. Incremental pulse encoder for high frequency pulse generation.
- c. Dry-reed switch operated pulse transmitter externally fitted to a Veeder Root type roller counter.

Flowmeters with a non-resetable totaliser can be equipped with one or two pulse transmitters.

A maximum of three pulse transmitters can be installed in the counter mounting console of a flowmeter equipped with a built-on counter, or in the pulse box of a non-indicating flowmeter, in the following configurations:

- 1 high-speed and/or 1 low-speed pulse transmitter
- 2 high-speed or 2 low-speed pulse transmitters
- 2 low-speed and 1 high-speed pulse transmitter
- 2 high-speed and 1 low-speed pulse transmitter

#### 2.2.2 Low speed pulse transmitter in housing of non-resetable totaliser

Available in Series MidFlow® meters DN 25 (1"), DN 40 (1-1/2") and DN 50 (2"), the inductive low speed pulse transmitter comprises one or two proximity switches and a slotted disc. The disc is installed on the counter drive shaft. Because of the location of this shaft, namely after the calibration gearwheels, there is a direct decimal relationship between the generated calibrated pulses and the liquid volume passing through the flowmeter. The pulse output signal can therefore directly be connected, via a pulse amplifier, to an electromechanical counter or similar device. If two pulse transmitters are installed, the pulse rate for both will be the same.

The pulse rate is printed on the scale plate of the totaliser.

### 2.2.3 Low speed pulse transmitters in counter mounting console

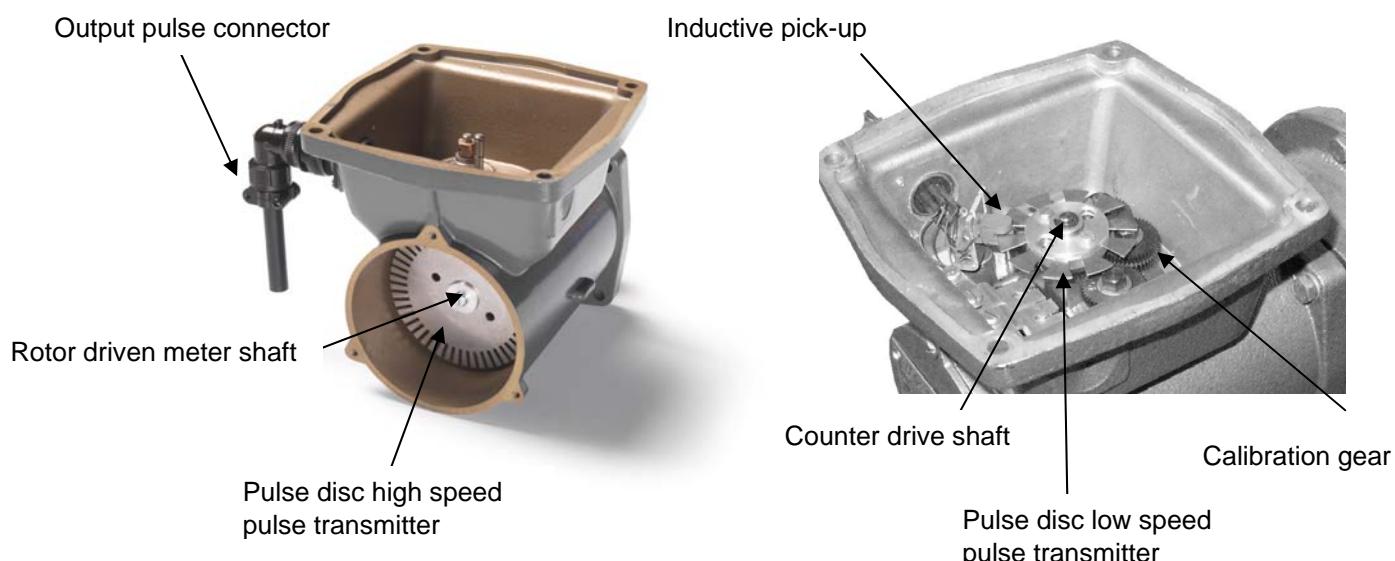
Available in all Series 'J' MidFlow® and HiFlow® meter sizes, the operation of the pulse transmitter is the same as described above. The generated pulse rate is printed on a text plate near the pulse output connector of the counter mounting console.

Available as follows in all meter sizes from DN 25 (1").

- 1 or 2 low speed inductive pulse transmitters, producing calibrated pulses.
- 1 or 2 high speed inductive pulse transmitters, producing non-calibrated pulses.

In the case of a pulse frequency of 100 and 250, two pulse generators are always installed, along with a pulse discriminator.

Along with the pulse transmitter the flowmeter can be equipped with a non-resetable totaliser, a resetable roller counter or a mechanical batch counter.



*Figure 1 Pulse transmitters in counter mounting console*

### 2.2.4 External low speed pulse transmitter

If the flowmeter has to provide pulse signals in other than metric units, this is usually only possible if the output pulses first pass through a pulse converter (scaler). If a scaler cannot be used, for example because a non-NAMUR type of pulse transmitter is preferred, flowmeters equipped with a Veeder Root type reset counter can be provided with an external pulse transmitter. This is a dry-reed switch fitted in an explosion-proof enclosure to a Veeder Root type resettable meter register and actuated by magnet to produce a number of pulses for each digit indicated on the last figure wheel of the register.

For more information refer to the technical manual supplied with the Veeder Root roller counter.

## 2.2.5 High speed pulse transmitters in counter mounting console or in pulse box of non-indicating flowmeter

### *2.2.5.1 Inductive pulse transmitter*

As with the low speed version, the high speed pulse transmitter comprises one or more proximity switches and a slotted disc (see fig. 1). Because the disc is connected to the rotor shaft of the flowmeter, bypassing the calibration gearwheels, the generated pulses are not calibrated and the generated pulse frequency is proportional to the rotational speed of the rotor/vanes assembly of the flowmeter.

Each pulse represents an equal volume of liquid displaced. But for each unit of volume (litre, gallon, cubic metre, etc.) the generated number of pulses will generally not be a whole number. There will generally not be a direct (decimal) relationship with an engineering unit. To convert the pulse frequency into a whole number of pulses per unit of liquid volume, an electronic pulse converter (scaler) is needed. Consult factory if a scaler must still be supplied.

Pulse discs are available with 20, 50, 100 or 250 slots. In the case of a pulse disc of 100 or 250 slots, in order to correct any false pulses, two pulse transmitters are always installed, along with a Mini Pulse Discriminator, or a Pulse Amplifier/ Discriminator.

The flowmeter can be provided with one or two internal high speed pulse transmitters. If two high speed pulse transmitters are installed, the pulse rate for both will be the same.

For flowmeters with a built-on counter the pulse rate is printed on a text plate near the output pulse connector of the counter mounting console. For non-indicating flowmeters the pulse rate is shown on the text plate of the pulse box on the flowmeter.

### *2.2.5.2 Incremental pulse encoder*

The high speed incremental pulse encoder comprises two pulse generators and a pulse discriminator. As with the inductive type high speed pulse transmitter a scaler is needed to convert the non-calibrated output pulses into a suitable signal for further processing. Flowmeters with incremental pulse encoder can not be equipped with a built-on counter.

The pulse rate is shown on the text plate of the pulse box on the flowmeter.

## 2.3 PULSE DISCRIMINATOR

The pulse discriminator is used in situations where, as a result of pipeline vibrations or unsteady flow conditions, a flowmeter will 'bounce' or rotate in the reverse direction. This may result in the generation of spurious pulses by the electrical pulse transmitter, thereby producing measurement errors. By using two pulse generators in the flowmeter, generating two identical pulse trains with a signal phase shift of 90 degrees, it is possible to eliminate these measuring errors by means of the pulse discriminator.

The pulse discriminator comprises a printed circuit board installed in the counter housing of an indicating flowmeter, or in the pulse transmitter box of a non-indicating flowmeter.

The discriminator is standard with incremental pulse encoders and is optional for use with inductive pulse transmitters.

### 2.3.1 Operating principle of the pulse discriminator

The discriminator detects the direction of rotation of the flowmeter. Pulses generated during negative rotation are stored in a memory. When the flowmeter changes direction again, each successive positive pulse will decrease the contents of the memory by one, until the memory is empty. Thereafter only the positive pulses will be fed to the output circuit.

A LED on the printed circuit board indicates the status of the pulse memory.

LED 'on':

More than the maximum of 15 pulses have been fed to the memory.

Cause: Incorrect direction of rotation of the flowmeter.

LED flashing:

Spurious pulses are being detected, but their number is less than 15.

Cause: Vibrations in the pipeline or pulsating flow conditions.

LED 'off':

The flowmeter is rotating in the correct direction. There are no disturbing vibrations or flow pulsations.

### 2.3.2 Adjustment of pulse transmitters

When a pulse discriminator is used, two pulse generators are installed. The phase shift of the pulse signals, which is adjusted in the factory at 90 degrees, should be between 30 and 150 degrees.

The adjustment can be checked with a double-beam oscilloscope. Re-adjustment can be done by shifting the support.

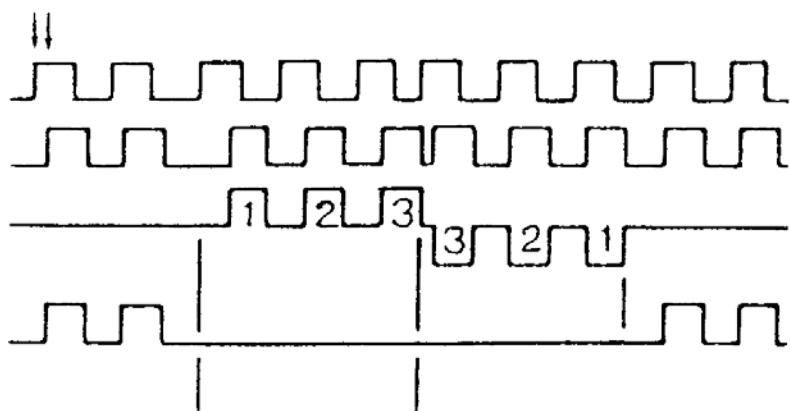


Figure 2 Phase shift of pulse discriminator

## 2.4 INTRINSIC SAFE OPERATION

To meet the standards for intrinsic safe operation according DIN 19234 (NAMUR), suitable zener-barriers must be installed between the flowmeter and the associated data processing instrumentation.

## 2.5 FLOWCOUNT RATE TOTALISER

The rate-totaliser is battery powered and has no need for external power. The K-factor, decimal point position, filter constant and timebase are fully programmable by the user. Rate and totals can be displayed in different engineering units such as millilitres, litres, gallons and cubic metres, per minute or per hour. The instrument can optionally be provided with a 4-20 mA output or with relays for high and low flow alarm.

For more information refer to the technical manual supplied with the instrument.

## 3. TECHNICAL SPECIFICATION

### 3.1 NON-RESETABLE TOTALISER

Reading	8 digits, reading in litres or 0.1 litres
Materials	
Housing	Aluminium; stainless steel window cover, glass window
Ball bearings	Steel and stainless steel
Figure wheels	Synthetic
Protection class	IP 43
Optional pulse transmitter	See paragraph 3.5 and table A of chapter 6.



### 3.2 RESETABLE TOTALISER

Reading	7 digits, reading in litres or 0.1 m <sup>3</sup>
Housing material	Cast aluminium
Protection class	IP 43
Reset feature	Reset key supplied with instrument
Optional pulse transmitter	See paragraph 3.5 and tables B and C of chapter 6.



### 3.3 PULSE BOX

Application	For non-indicating Series 'J'
Housing material	Aluminium
Protection class	IP66
Cable gland	Pg 13.5
Pulse transmitters	MidFlow®/HiFlow® meters in all sizes. Low-speed or high-speed inductive type: see paragraph 3.5 and table C of chapter 6. Incremental type: see paragraph 3.6 and table D of chapter 6.

### 3.4 FLOWCOUNT RATE TOTALISER

Display	Continuously powered LCD
Protection	IP67 or NEMA 4X
Operating temperature	-20°C to +70°C
Number of digits	
Resetable total	7 digits, 10 mm high, resetable from the front panel
Rate	4 digits, 8.5 mm high
K-factor	The pulses per unit of measurement (e.g. pulses/litre) are programmable in the range of 0.001 to 29,999.
Counter reading units	Litres, millilitres, cubic metres are standard. Other units are customer programmable.
Decimal point	
Resetable volume	Max. 2 digits behind decimal point
Cumulative total	Max. 2 digits behind decimal point
Flow rate	Max. 3 digits behind decimal point.
Time base	Rate can be displayed in units per minute or hour. Consult VAF Instruments if other units are required.
Frequency range	0 to 5 kHz.
Signal type	Switch settable for sinewave (20 mV P-P minimum) open collector, reed switch or pulse
Batteries	Two lithium battery packs
Battery life	Battery life is dependent on the percentage of time that the instrument is totalising flow: 10% of time : 5 years; 50% of time : 3 years; continuously: 2 years ; 4-20mA option installed: indefinitely.
4-20 mA option	
Scale	4 mA and 20 mA points are programmable
Accuracy	0.5% of range
Update time	0.5 seconds
Connection	2 wires
Voltage drop	14 V maximum
Alarm option	
Relays	2 relays for high and low flow alarms. Alarm points fully programmable.
Switching power	1 Amp at 30 VDC, 30 VAC maximum.
DC power input	12-28 V maximum



### 3.5 INDUCTIVE PULSE TRANSMITTER

Type	Slotted disc with 1, 2 or 3 passive proximity switches according DIN 19234 (NAMUR).
Supply voltage	8.2 V (+0.8 V, - 0.5 V)
Protection class	IP 55. Intrinsically safe acc. PTB No. 99 ATEX 2219X and CENELEC EEx-ia/ib IIc T6 if used with EEx-ia/ib IIc T6 if used with suitable zener-type safety barrier (Stahl9001/3-158-150/00 or equivalent).
Max. operating temperature	70°C
Cable connector	6-pin connector, cable diameter 8-11 mm, or cable gland Pg 13.5, cable diameter 12-14 mm
Pulse rate	See dataplate of totaliser or on pulse transmitter box

### 3.6 INCREMENTAL PULSE ENCODER

Type	Rotation transducer/transmitter, comprising 2 pulse generators and a pulse discriminator
Supply voltage	12-35 VDC
Max. frequency	5 kHz
Protection class	IP55
Max. operating temperature	120°C
Cable connector	6-pin connector, cable diameter 8-11 mm, or cable gland Pg 13.5, cable diameter 12-14 mm
Pulse rate	See dataplate of pulse transmitter box

### 3.7 EXTERNAL PULSE TRANSMITTER

Type	SPST dry-reed switch, side mounted to Veeder Root roller counter.
Pulse rate	1 or 10 pulses per revolution of the right-hand figure wheel.
Contact rating	Max. 50 VA non-inductive, not to exceed 250 V or 3A.
Protection class	EEx-d IIA T6, for use in hazardous locations Class 1, Groups C+D.
Temperature limits	-40 to 70°C.

For more information refer to the technical manual supplied with the Veeder Root roller counter.

### 3.8 PULSE DISCRIMINATOR

Type	Printed circuit board
Supply voltage	12-35 VDC
Power consumption	2 VA at 35 VDC (no load)
Input	NAMUR inductive pulses or incremental encoder pulses
Pulse memory	up to 15 error pulses
Output signal	Open collector, current sink; $I_{max}$ 100 mA, $U_{max}$ 35 VDC
Connections	6-pin connector or cable gland Pg 13.5
Max. working temperature	55°C
Protection class	IP 65, DIN 40050

## 4. ELECTRICAL CONNECTIONS

### 4.1 ELECTRICAL CONNECTIONS

The internal connections at the 6-pole MIL-C-5015 connector are as shown in figures 3, 4 and 5. For electrical connections between flowmeter and associated electronic processing instrumentation reference is made to figure 6 through 12 and to the separate technical manuals of these electronic instruments.

#### 4.1.1 Connection cable

Each pair of leads between the pulse transmitter and the connected signal processing instrumentation must be screened separately, as otherwise counterfeit pulses might be induced by external electromagnetic fields.

Use shielded cable with a diameter of 6 to 8 mm and a wire diameter of max. 0.8 mm. The screen must NOT come into contact with the flowmeter. In the connected instrument the screen must be connected to the system earth or, in absence of the latter, to the zero connection of the pulse input terminals.

#### 4.1.2 Connections at 6-pole connector

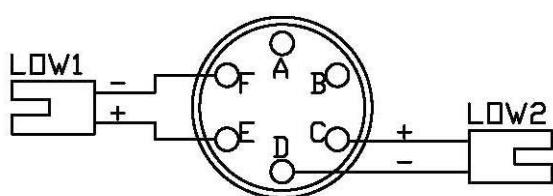


Figure 3  
Internal connections of  
low speed pulse transmitter(s)

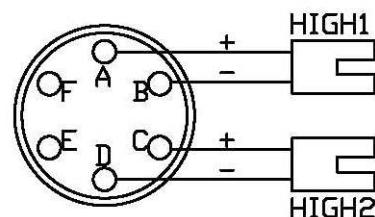
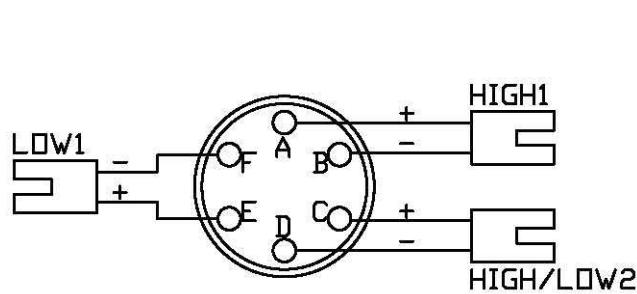
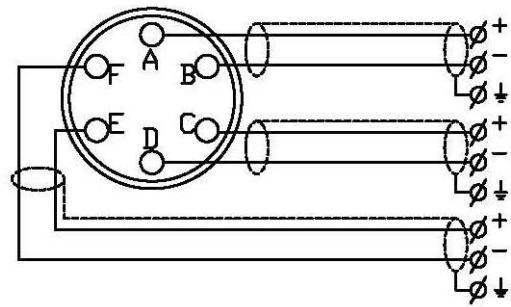


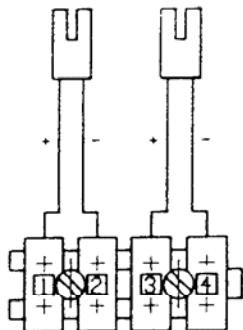
Figure 4 Internal  
connections of  
high-speed pulse transmitter(s)



*Figure 5  
Internal connections of a combination  
of low and high speed pulse transmitters*

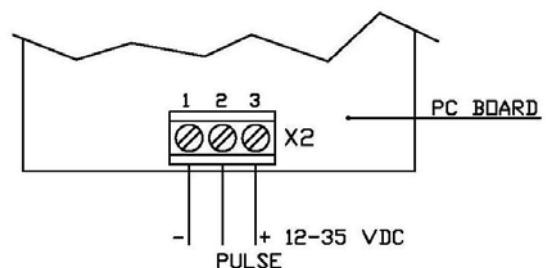


*Figure 6  
External connections*

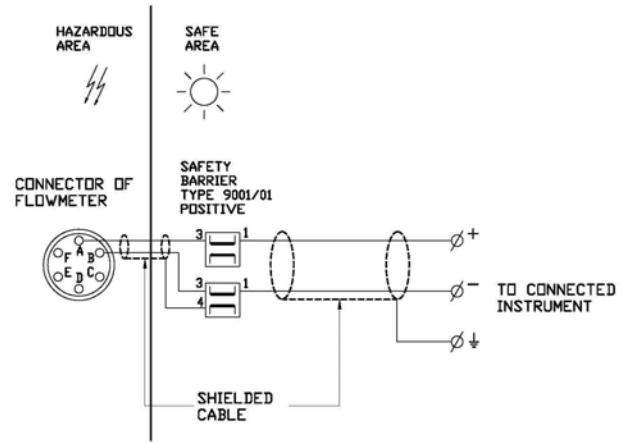
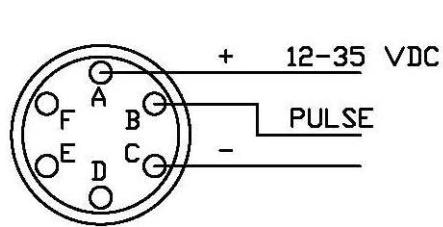


	No. SCREW TERMINALS		
LOW SPEED PULSE I	1/2	1/2	
LOW SPEED PULSE II	3/4		
HIGH SPEED PULSE I		3/4	1/2
HIGH SPEED PULSE II			3/4

*Figure 7  
External connections of flowmeter with  
calibration adapter and pulse box 1 or 2  
proximity switches installed as per  
customer per order*



*Figure 8  
External connections of flowmeter with  
pulse discriminator or incremental pulse  
encoder and Pg 13.5 cable gland*



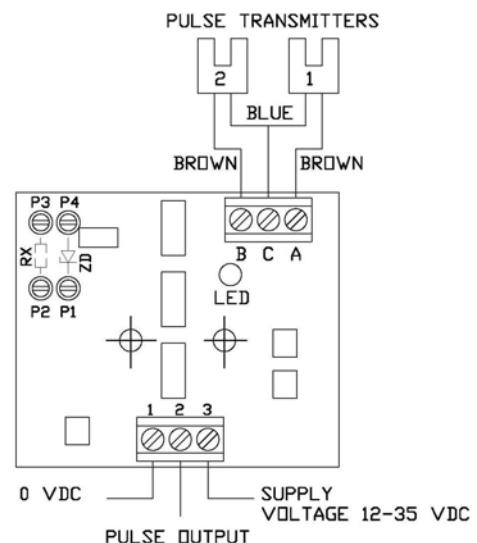
*Figure 9  
External connections 6-pole connector  
of flowmeter with inductive or incremental  
pulse transmitter with pulse discriminator.*

*Figure 10  
External connections to safety barrier.*

PULSE OUTPUT	RESISTOR (RX)	ZENERDIODE (ZD)
OPEN COLLECTOR	-----	-----
5 V PULSE	* 2k4	4V7-0. 4W
12V PULSE	* 1k4	12V-0. 4W

\* SUPPLY VOLTAGE = 24 VDC

CALCULATION: RX =  $\frac{\text{SUPPLY VOLTAGE} - \text{DESIRED PULSE VOLTAGE}}{0.008}$



*Figure 11  
Non-indicating flowmeter with inductive pulse transmitters and pulse discriminator*

The green earth wire must not be connected to any point at the flowmeter side, but must be connected to the earthing point of the connected electric or electronic instrument.

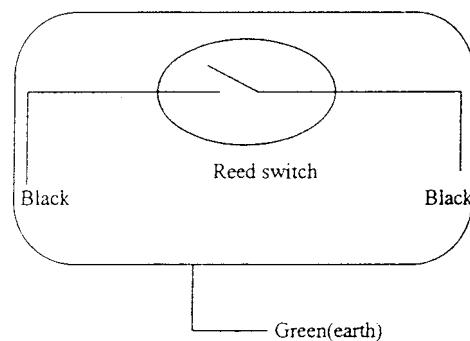


Figure 12 Connections of external pulse transmitter fitted to Veeder Root type roller counter.

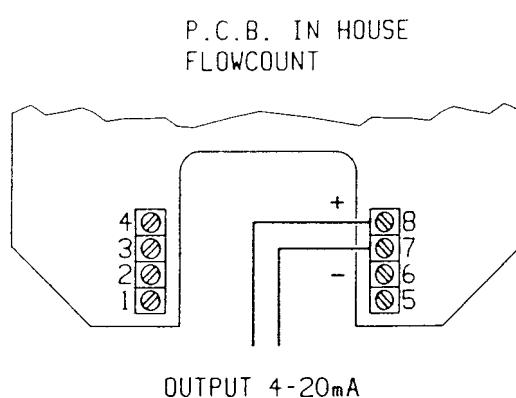


Figure 13 External connection diagram FlowCount Rate-Totaliser with 4-20 mA output.

## **5. TROUBLE SHOOTING**

### **5.1 NO FLOW INDICATION**

Possible cause	Solution
Wrong connection of wires.	Check connections. Refer to Section 4.
Pulse disc not running.	Check for loose connections or gearwheels.
Pulse initiator defective.	Contact VAF Instruments or nearest service representative for replacement.
Problems are in electronic pulse signal	Refer to technical manuals supplied with electronic processing instrumentation. Processing instruments.

### **5.2 FLOW INDICATION TOO HIGH**

Possible cause	Solution:
Loose pulse disc.	Tighten pulse disc.
Pulsations in system.	Install a pulsation dampener or a pulse discriminator.

### **5.3 FLOW INDICATION TOO LOW**

Pulse initiator not correctly installed. of pulse	Check position initiator on pulse disc.
Pulse initiator defective.	Contact VAF Instruments or nearest service representative for replacement.
Pulse disc damaged	Contact VAF Instruments or nearest service representative for replacement.

## 5.4 PROBLEMS IN SYSTEMS USING A PULSE DISCRIMINATOR

### 5.4.1 Pulse discriminator does not transmit pulses

Possible cause	Solution
Wrong connection of wires.	Check connections. Refer to Section 4.  When the red LED on the printed circuit board lights up when liquid is passing in the correct direction through the flowmeter: reverse connections A and B (Fig. 11).
	Ensure that correct configuration for your typical application is set up on the printed circuit board. See table in Figure 11.
Supply power.	Check supply power.

### 5.4.2 Red led on pcb lits continuously

Possible cause	Solution
Flowmeter not correctly installed.	Check that flowmeter rotates in correct direction. See arrow on meter body.
Wrong connection of wires.	Refer solution in paragraph 5.4.1.

### 5.4.3 Wrong number of pulses transmitted

Possible cause	Solution
Flowmeter has wrong pulse disc.	Contact VAF Instruments or nearest service representative for replacement.



Contact VAF Instruments or nearest service representative if the above procedures do not solve the problem.

## 6. PULSE RATES

For reference purposes only this section shows the available pulse rates for Series 'J' MidFlow® and HiFlow® meters.

Table A, inductive pulse transmitters in non-resetable totaliser

Flowmeter Model N°	Counter readout unit	Number of slots in pulse disc					
		1	2	5	10	20	25
Number of calibrated pulses per litre							
JX025 (1")	0.1 ℥	10	20	50	100	200	250
JX025 (1")	1 ℥	4	8	20	40	80	100
JX040 (1.5")	0.1 ℥	10	20	50	100	200	250
JX040 (1.5")	1 ℥	4	8	20	40	80	100
JX050 (2")	1 ℥	4	8	20	40	80	100

Table B inductive low speed pulse transmitters in counter mounting console

Nº of slots	Nominal size of flowmeter							
in pulse disc	DN 25 (1")	DN 40 (1-1/2")	DN 50 (2")	DN 80 (3")	DN 100 (4")	DN 150 (6")	DN 200 (8")	>DN 200 (8")
Number of calibrated pulses per litre or gallon *)								
1	1	1	0.1 (1)	0.1	0.01 (0.1)	0.01 (0.1)	0.01	0.001 (0.01)
10	10	10	1 (10)	1	0.1 (1)	0.1 (1)	0.1	0.01 (0.1)
50	50	50	5 (50)	5	0.5 (5)	0.5 (5)	0.5	0.05 (0.5)

\*) Where gallon values are different from litres the gallon values are noted in brackets ( ).

Table C inductive high speed pulse transmitters in counter mounting console or pulse box

Nº of slots	Nominal size of flowmeter							
in pulse disc	DN 25 (1")	DN 40 (1-1/2")	DN 50 (2")	DN 80 (3")	DN 100 (4")	DN 150 (6")	DN 200 (8")	>DN 200 (8")
Number of non-calibrated pulses per litre								
20	120	120	50	6.8	3.8	1.7	0.68	0.34
50	300	300	125	17	9.5	4.25	1.7	0.85
100	600	600	250	34	19	8.5	3.4	1.7
250	1500	1500	625	85	47.5	21.25	8.5	4.25

Table D incremental pulse encoder

Nº of slots in pulse disc	Nominal size of flowmeter							
	DN 25 (1") DN 40 (1-1/2") DN 50 (2") DN 80 (3") DN 100 (4") DN 150 (6") DN 200 (8") >DN 200 (8")							
	Number of non-calibrated pulses per litre							
100	600	600	250	34	19	8.5	3.4	1.7
250	1500	1500	625	85	47.5	21.25	8.5	4.25
500	3000	3000	1250	170	95	42.5	17	8.5

Table E external pulse transmitter

1 or 10 pulses per revolution of the right-hand figure wheel of the Veeder Root type roller counter.

Pulse speed 0 to 300 or 0 to 3,000 pulses/minute.

## 7. REFERENCE DRAWINGS

The drawings and parts lists following are inserted in order of drawing number.

This page provides a cross reference of counter and pulse transmitter combinations with the relevant drawing numbers.

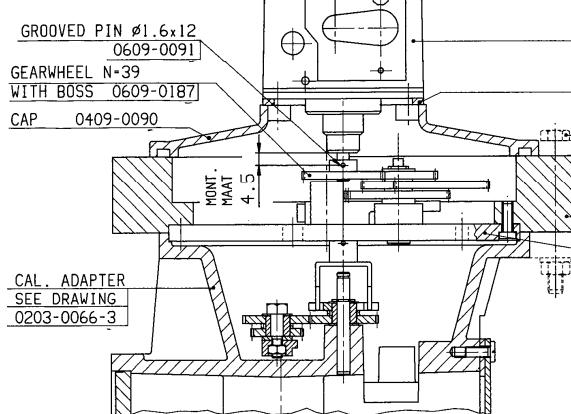
Counter or pulse transmitter (PT)	Assembly drawing	Parts list
Non-resetable totaliser		
Totaliser without PT	0830-1226-3	0830-2217-4
Totaliser with PT	0830-1223-3	0830-2204-4
Totaliser with PT and pulse discriminator	0830-1223-3	0830-2206-4
Resetable totaliser	0230-0714-3	0230-0714-3
FlowCount rate-totaliser	0830-1232-3	0830-1232-4

Inductive pulse transmitter(s) in calibration adapter/counter mounting console

Low-speed PT, 1 & 10 pulses/rev.	0803-1213-2	0803-1213-2
Low-speed PT, 50 pulses/rev.	0803-1214-2	0803-1214-2
High-speed PT, 20 & 50 pulses/rev.	0803-1211-2	0803-1211-2
High-speed PT, 100 & 250 pulses/rev	0803-1212-2	0803-1212-2

Pulse transmitter(s) in pulse box

Inductive pulse transmitter	0879-1209-3	0879-2211-4
Incremental encoder, Series J-meters, all sizes	0879-1221-3	0879-2218-4
Incremental encoder, JZ025N...JZ050N	0879-1223-3	0879-2220-4
Incremental encoder (new) JZ025100/250/500 pulses/rev	0879-1225-3	0879-2222-4
Pulse discriminator	0803-1210-3	0803-1210-3

TOTALISER 0654-0004  
GAT Ø1.5 +0.1 BOREN IN TELWERKAS

PACKING 0431-0101

HEX. BOLT M6x60 0732-0660 (4x)  
HEX. NUT M6 0734-0600 (4x)  
WASHER M6 0716-0600 (4x)

SPACER 0454-0027

GEARPLATE 0399-0169

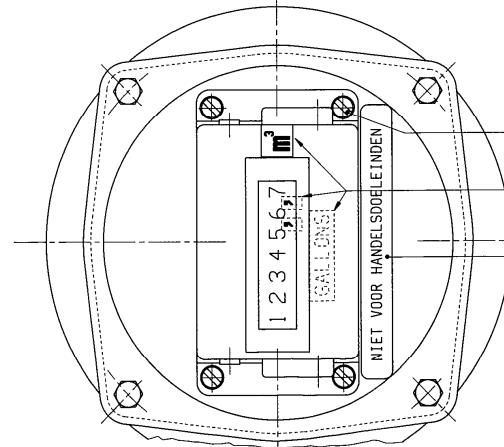
		GALLONS
JZ025/SZ025	0.01 m <sup>3</sup>	10
JZ040	0.01 m <sup>3</sup>	10
SZ040	0.1 m <sup>3</sup>	10
JZ050/SZ050	0.1 m <sup>3</sup>	10
JZ080	0.1 m <sup>3</sup>	100
SZ080	1 m <sup>3</sup>	100
JZ100/SZ100	1 m <sup>3</sup>	100
JZ150	1 m <sup>3</sup>	100
JZ200/SZ150	1 m <sup>3</sup>	1000
JZ250	10 m <sup>3</sup>	1000
JZ300	10 m <sup>3</sup>	1000

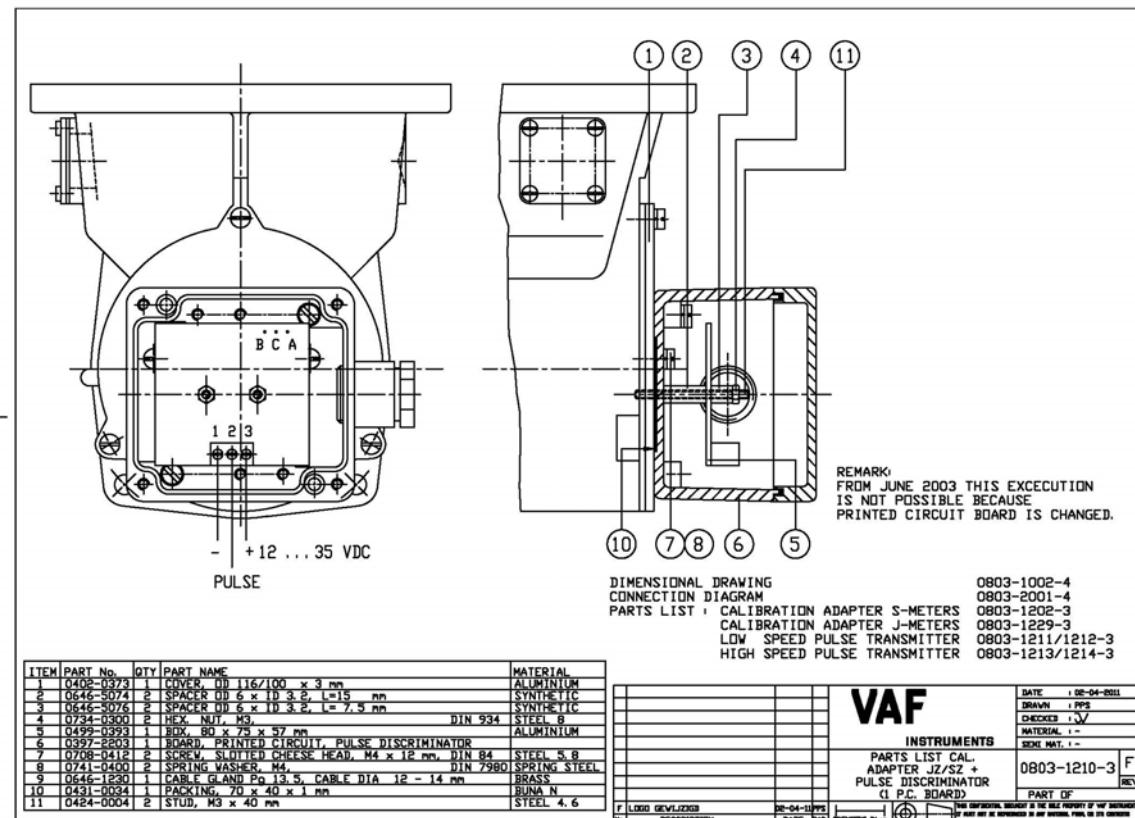
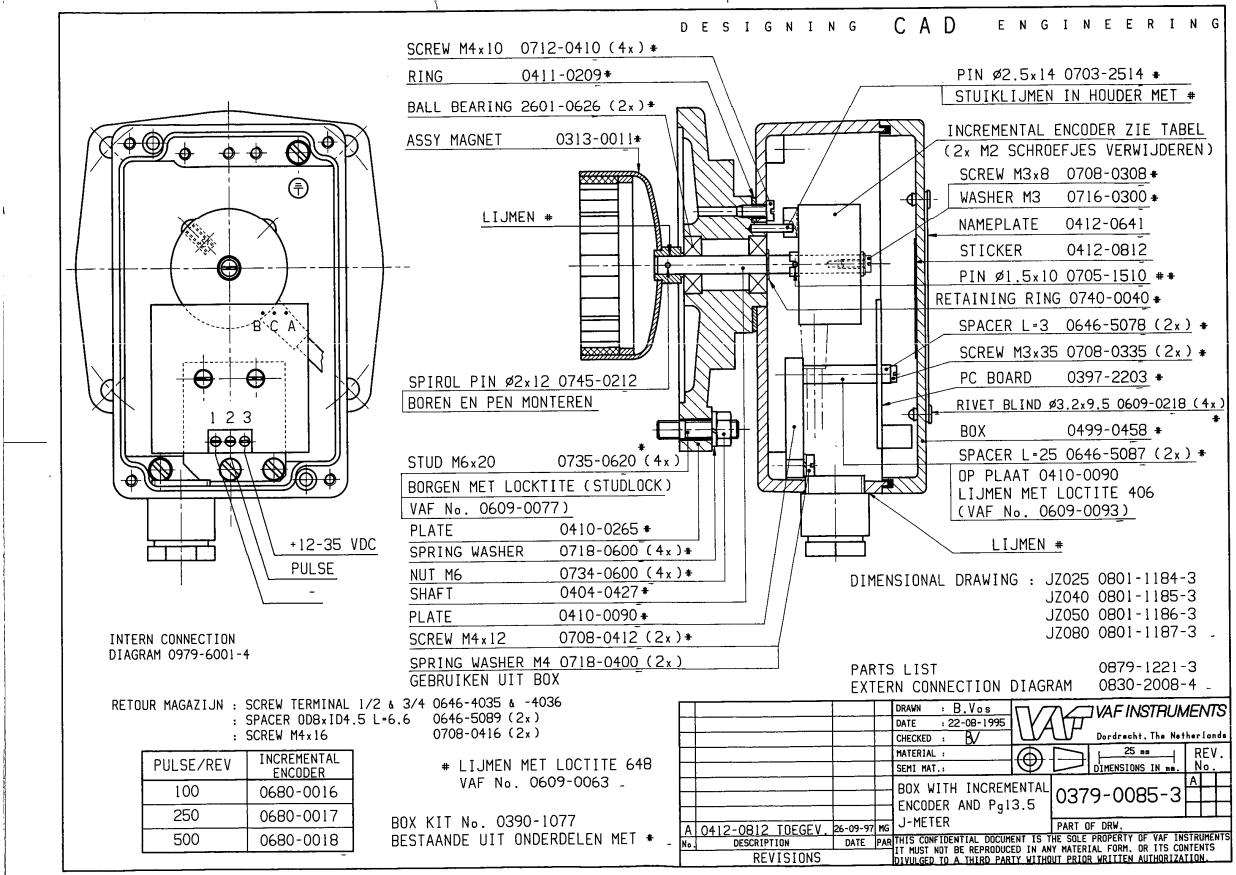
SCREW M4x12 0709-0412 (4x)  
WASHER M4 0716-0400 (4x)STICKERS 0412-0790  
NAAR KEUZE ZIE TABEL

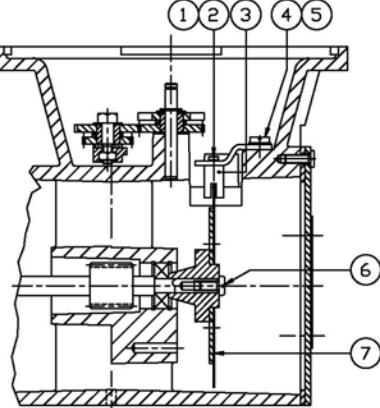
STICKER 0412-0279

KIT 0390-1160 IS ZONDER  
STICKERS 0412-0790

DRAWN : M. v. LEEUWEN	DATE : 13-05-1993	VAF INSTRUMENTS
CHECKED : <input checked="" type="checkbox"/>		Dordrecht, The Netherlands
B 0412-0790 EN 09-02-99 BV	MATERIAL : SEMI-MAT.	25 mm   REV. No.
B 0390-1160 TOEGEVOEGD		
B TABEL GEWIJZIGD		
A 0732-0660 WAS -0655 03-12-% BV	TOTALISER KEY RESET VR	0230-0714-3 A/B
A 0412-0760 WAS -0138	RATIO 1:10	PART OF DRW
A MONTAGEMAAT 4.5 TOEGEV.	No. DESCRIPTION DATE PART	THIS CONFIDENTIAL DOCUMENT IS THE SOLE PROPERTY OF VAF INSTRUMENTS. IT MUST NOT BE REPRODUCED IN ANY MATERIAL FORM, OR ITS CONTENTS DIVULGED TO A THIRD PARTY WITHOUT PRIOR WRITTEN AUTHORIZATION.
	REVISIONS	







ITEM No.	PART No.	QTY	PART NAME	MATERIAL
1	0390-1052	1(2)	KIT PROXIMITY SWITCH, CONSISTING OF :	
2		1	SCREW, HEX. HEAD, M2 x 5 mm, DIN 933	STEEL 5.8
3		1	WASHER, OD 5 x ID 2.2 x 0.3 mm, DIN 125	STEEL
4	0709-0408	1	PROXIMITY SWITCH	
5	0716-0400	2(4)	SCREW, SLOTTED PAN HEAD, M4 x 8 mm, DIN 85	STEEL 5.8
6	0709-0408	1	WASHER, OD 9 x ID 4.3 x 0.8 mm, DIN 125	STEEL
7	0333-0101	1	PULSE DISC, ASSY WITH 20 SLOTS	DISC AISI 316
	0333-0102	1	WITH 50 SLOTS	
8	0446-0028	1	SUPPORT, 10/32 x 14/26 x 2/9 mm	ALUMINIUM
9	0446-0029	1(2)	SUPPORT, 10/32 x 14/26 x 2/9 mm	ALUMINIUM
10	0431-0081	2	PACKING, 30 x 30 x 0.5 mm	BUNA N
11	0708-0310	4	SCREW, SLOTTED CHEESE HEAD, M3x10mm, DIN 84	STEEL 5.8
12	0648-0011	1	CONNECTOR, 6-PIN	
13	0648-0010	1	ELBOW 6-PIN, FOR CABLE DIA. 8-11 mm	

QUANTITY BETWEEN < > ONLY WITH 2 SWITCHES

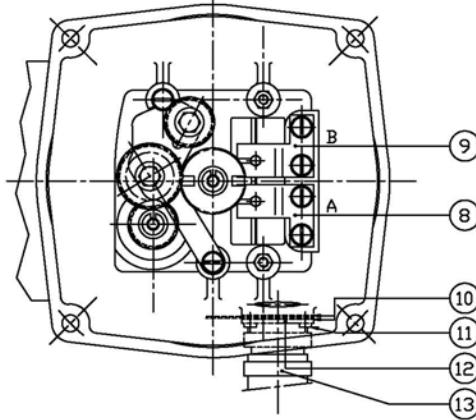
KIT NUMBER	CONSISTING OF:
0390-0682	ITEM 1, 2, 3, 4, 5 AND 8 (1 SWITCH)
0390-0683	ITEM 1, 2, 3, 4, 5, 6 AND 9 (2 SWITCHES)

FLOW DIRECTION METER	PULSES/REV.	SWITCH 1	SWITCH 2
LEFT TO RIGHT	20	B	A
	50	A	B
RIGHT TO LEFT	20	A	B
	50	B	A

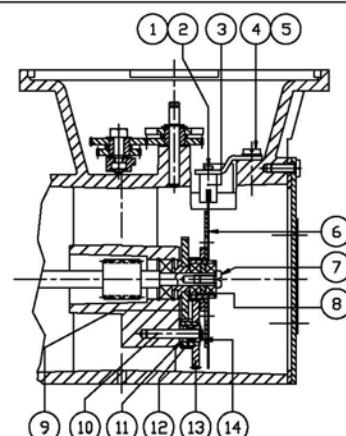
#### CONNECTION DIAGRAM

0803-2003-4

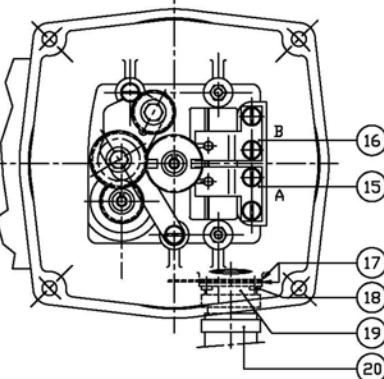
PARTS LIST CALIBRATION ADAPTER : S-METER 0803-1202-3  
J-METER 0803-1229-3



DATE : 12-03-2012	DRAWN : FV
CHECKED : -	MATERIAL : -
SOIL MAT. : -	E REV
INSTRUMENTS	
PARTS LIST CAL. ADAPTER HIGH SPEED PULSE DISCRIMINATOR 20 AND 50 PULSES REV.	
E LOGO GEVLIZING	0803-1211-3
NO. DESCRIPTION	DATE PAR
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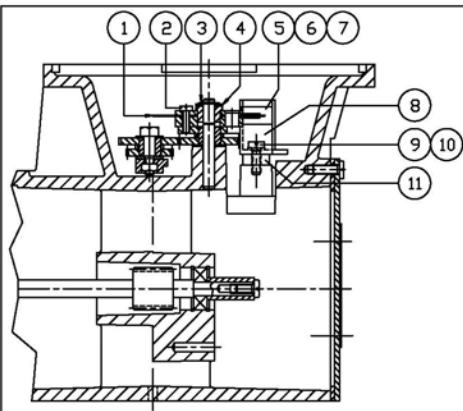
ITEM No.	PART No.	QTY	PART NAME	MATERIAL
1	0390-1052	2	KIT PROXIMITY SWITCH, CONSISTING OF:	
2		1	SCREW, HEX. HEAD M2 x 5 mm, DIN 933	STEEL 5.8
3		1	WASHER, OD 5 x ID 2.2 x 0.3 mm, DIN 125	STEEL
4	0709-0408	4	PROXIMITY SWITCH	
5	0716-0400	4	SCREW, SLOTTED PAN HEAD, M4 x 8 mm, DIN 85	STEEL 5.8
6	0323-0010	1	PULSE DISC ASSY, INCLUDING ITEM 8	DISC AISI 316
	0323-0011	1	WITH 20 SLOTS	
7	0709-0408	1	SCREW, SLOTTED PAN HEAD, M4 x 8 mm, DIN 85	STEEL 5.8
8	2601-1560	2	BALL BEARING, OD 15 x ID 6 x 5 mm, 2 GUARD PLATES	STEEL
9	0323-0102	1	ASSY GEAR, N=78	SYNTHETIC/STEEL
10	0499-0044	1	SHAFT, 64 x 27 mm	AISI 316
11	0411-0120	1	RING, OD 7.5 x ID 4 x 1.5 mm	AISI 430F
12	0604-0002	1	NEEDLE SLEEVE, OD 8 x ID 4 x 8 mm	STEEL
13	0323-0103	1	ASSY GEAR, N=65/26, INCLUDING ITEM 12	
14	0740-0032	1	CIRCLIP, SIZE 3.2	DIN 6799 SPRING STEEL
15	0446-0028	1	SUPPORT, 10/32 x 14/26 x 2/9 mm	ALUMINIUM
16	0446-0029	1	SUPPORT, 10/32 x 14/26 x 2/9 mm	ALUMINIUM
17	0431-0081	2	PACKING, 30 x 30 x 0.5 mm	BUNA N
18	0708-0310	4	SCREW, SLOTTED CHEESE HEAD, M3 x 10 mm, DIN 84	STEEL 5.8
19	0648-0011	1	CONNECTOR, 6-PIN	
20	0648-0010	1	ELBOW 6-PIN, FOR CABLE DIA. 8-11 mm	



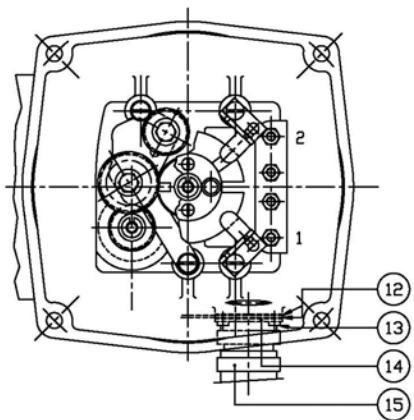
FLOW DIRECTION METER	PULSES/REV.	SLOTS	SWITCH 1	SWITCH 2
LEFT TO RIGHT	100	20	B	A
	250	50	A	B
RIGHT TO LEFT	100	20	A	B
	250	50	B	A

KIT NUMBER 0390-0683 CONSISTING OF ITEM 1, 2, 3, 4, 5, 15 AND 16 (2 SWITCHES)  
CONNECTION DIAGRAM  
PARTS LIST CALIBRATION ADAPTER : S-METER 0803-1202-3  
J-METER 0803-1229-3

DATE : 12-03-2012	DRAWN : FV
CHECKED : -	MATERIAL : -
SOIL MAT. : -	G REV
INSTRUMENTS	
PARTS LIST CAL. ADAPTER HIGH SPEED PULSE DISCRIMINATOR 100 AND 250 PULSES/REV.	
E LOGO GEVLIZING	0803-1212-3
NO. DESCRIPTION	DATE PAR
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ITEM No.	PART No.	QTY	PART NAME	MATERIAL
1	0329-0010	1	PULSE DISC ASSY WITH 10 TEETH	DISC AISI 316
2	0708-0310	2	SCREW, SLOTTED CHEESE HEAD, M3 x 10 mm, DIN 84	STEEL 5.8
3	0740-0040	1	CIRCLIP, SIZE 4,	DIN 6799 SPRING STEEL
4	0604-0005	1	WASHER, OD 12 x ID 5.2 x 0.7 mm	STEEL
5	0390-1052	1(C2)	KIT PROXIMITY SWITCH, CONSISTING OF :	
6		1	PROXIMITY SWITCH	
7		1	SCREW, HEX. HEAD, M2 x 5 mm	DIN 933 STEEL 5.8
8	0446-0030	1(C2)	SUPPORT, L24 x 10 x 2, L=20 mm	ALUMINIUM
9	0709-0412	1(C2)	SCREW, SLOTTED PAN HEAD, M4 x 12 mm,	DIN 85 STEEL 5.8
10	0718-0400	1(C2)	WASHER, OD 9 x ID 4.3 x 0.8 mm,	DIN 125 STEEL
11	0411-0121	1(C2)	RING, OD 12 x ID 4 x 5 mm	ALUMINIUM
12	0431-0081	2	PACKING, 30 x 30 x 0.5 mm	BUNA N
13	0708-0310	4	SCREW, SLOTTED CHEESE HEAD, M3 x 10 mm, DIN 84	STEEL 5.8
14	0648-0011	1	CONNECTOR, 6-PIN	
15	0648-0010	1	ELBOW, 6-PIN, FOR CABLE DIA. 8-11 mm	

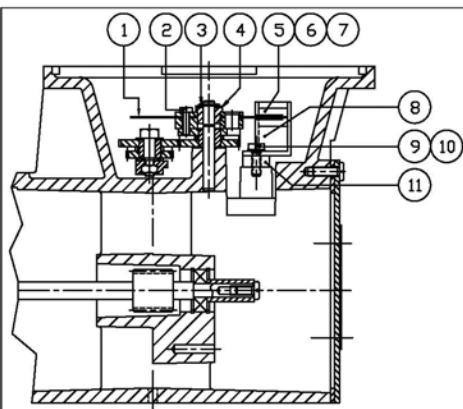


QUANTITY BETWEEN < > ONLY WITH 2 SWITCHES  
KIT NUMBER CONSISTING OF ITEM 5 TO 11  
FOR 1 SWITCH No. 1 : 1x 0390-0685  
FOR 2 SWITCHES No. 1 AND 2 : 2x 0390-0685  
CONNECTION DIAGRAM 0803-2003-4

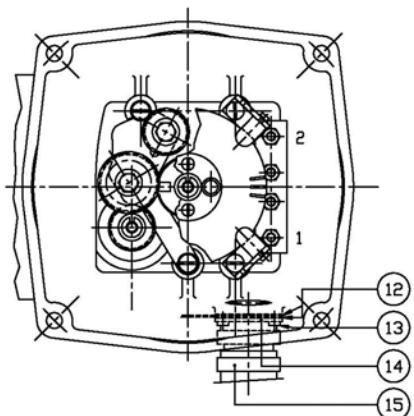
PARTS LIST CALIBRATION ADAPTER : S-METER 0803-1202-3  
J-METER 0803-1229-3

VAF		DATE : 02-04-2011
INSTRUMENTS		DRAWN : FVS
		CHECKED :
		MATERIAL : -
		SOKE MAT. : -
PARTS LIST CAL. ADAPTER LOW SPEED PULSE TRANSMITTER 1 AND 10 PULSES/REV.		0803-1213-3
E LOGO GEVLIZING	02-04-11 FVS	E REV
DESCRIPTION	DATE PAR	INSTRUMENTS

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ITEM No.	PART No.	QTY	PART NAME	MATERIAL
1	0329-0034	1	PULSE DISC ASSY, WITH 50 TEETH	DISC AISI 316
2	0708-0310	2	SCREW, SLOTTED CHEESE HEAD, M3 x 10 mm, DIN 84	STEEL 5.8
3	0740-0040	1	CIRCLIP, SIZE 4,	DIN 6799 SPRING STEEL
4	0604-0005	1	WASHER, OD 12 x ID 5.2 x 0.7 mm	STEEL
5	0390-1052	1(C2)	KIT PROXIMITY SWITCH CONSISTING OF :	
6		1	PROXIMITY SWITCH	
7		1	SCREW, HEX. HEAD, M2 x 5 mm	DIN 933 STEEL 5.8
8	0446-0030	1(C2)	SUPPORT, L24 x 10 x 2, L=20 mm	ALUMINIUM
9	0709-0412	1(C2)	SCREW, SLOTTED PAN HEAD, M4 x 12 mm,	DIN 85 STEEL 5.8
10	0716-0400	1(C2)	WASHER, OD 9 x ID 4.3 x 0.8 mm,	DIN 125 STEEL
11	0411-0121	1(C2)	RING, OD 12 x ID 4 x 5 mm	ALUMINIUM
12	0431-0081	2	PACKING, 30 x 30 x 0.5 mm	BUNA N
13	0708-0310	4	SCREW, SLOTTED CHEESE HEAD, M3 x 10 mm, DIN 84	STEEL 5.8
14	0648-0011	1	CONNECTOR, 6-PIN	
15	0648-0010	1	ELBOW, 6-PIN, FOR CABLE DIA. 8-11 mm	



QUANTITY BETWEEN < > ONLY WITH 2 SWITCHES

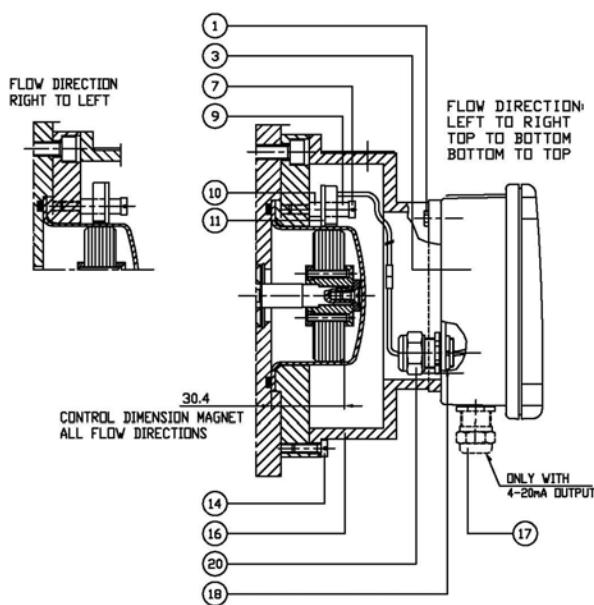
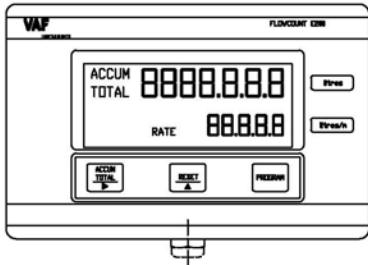
KIT NUMBER CONSISTING OF ITEM 5 TO AND INCLUDING 11  
FOR 1 SWITCH No. 1 : 1x 0390-0685  
FOR 2 SWITCHES No. 1 AND 2 : 2x 0390-0685

CONNECTION DIAGRAM 0803-2003-4

PARTS LIST CALIBRATION ADAPTER : S-METER 0803-1202-3  
J-METER 0803-1229-3

VAF		DATE : 12-03-2012
INSTRUMENTS		DRAWN : FV
		CHECKED :
		MATERIAL : -
		SOKE MAT. : -
PARTS LIST CAL. ADAPTER LOW SPEED PULSE DISCRIMINATOR 50 PULSES/REV.		0803-1214-3
E LOGO GEVLIZING	12-03-12 FV	E REV
DESCRIPTION	DATE PAR	INSTRUMENTS

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FLOWCOUNT 4-20 mA OUTPUT, CONNECTION DIAGRAM 0830-2011-4

FOR PARTS LIST SEE DRAWING

0830-1232-4 SHEET 2 OF 2

DIMENSIONAL DRAWING JZ025 WITH FLOWCOUNT 0801-1070-3  
 DIMENSIONAL DRAWING JZ040 WITH FLOWCOUNT 0801-1082-3  
 DIMENSIONAL DRAWING JZ050 WITH FLOWCOUNT 0801-1083-3  
 DIMENSIONAL DRAWING JZ080 WITH FLOWCOUNT 0801-1084-3  
 DIMENSIONAL DRAWING JZ100 WITH FLOWCOUNT 0801-1085-3  
 DIMENSIONAL DRAWING JZ150 WITH FLOWCOUNT 0801-1086-3  
 DIMENSIONAL DRAWING JZ200 WITH FLOWCOUNT 0801-1087-3

FOR PARTS LIST METER SEE DIMENSIONAL DRAWING

DATE	08-04-2011
DRAWN	PPS
CHECKED	BV
MATERIAL	-
SOH MAT.	-
VAF	
INSTRUMENTS	
ASSEMBLY DRAWING	
FLOWCOUNT E200	
JZ025..JZ300	
0830-1232-3	D
REV	
PART OF	
2 LOGO GEVLIJZIG	08-04-11 PPS
REL.	DATE PAR
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ITEM No.	PART NUMBER	QTY	PART NAME	MATERIAL
1	0733-0410	4	SCREW, HEX. HEAD, M4x10mm DIN933	STEEL 8.8
3	0499-0586 0499-0592 0499-0630 0499-0631	1	FLOWCOUNT E200, STANDARD	
			4-20mA OUTPUT	
			INTRINSIC SAFE	
			INTRINSIC SAFE AND 4-20mA OUTPUT	
7	0708-0425	2	SCREW, SLOTTED CH. HEAD, M4x25mm, DIN 84	STEEL 5.8
9	0646-5043	2	SPACER, OD 8 x ID 4.3 x L =10mm	NYLON
10	0646-5056	2	WASHER, OD 8 x ID 4.3 x H = 5mm	NYLON
11	0397-0281	1	ASSY, PC BOARD, INCL. ITEM NO. 9 & 10	
14	0708-0412	4	SCREW, SLOTTED CH. HEAD, M4x12mm, DIN 84	STEEL 5.8
16	0408-0149	1	HOLDER	ALUMINIUM
17	1910.63409	(1)	CABLE GLAND, Pg 7, SHORT	BRASS
18	0646-1221	1(2)	NUT, CABLE GLAND, Pg 7	BRASS
20	0646-1343	1	CABLE GLAND, Pg 7, SHORT, CLOSED	BRASS

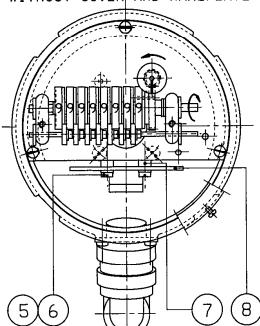
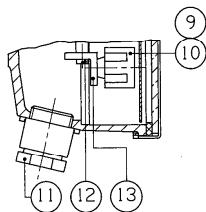
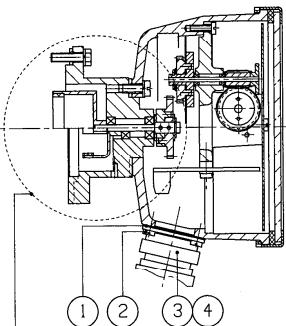
QTY BETWEEN < > ONLY WITH FLOWCOUNT 4-20mA OUTPUT

SPARE PART: FOR FLOWCOUNT BATTERY PACK 0650-2048 (2x)

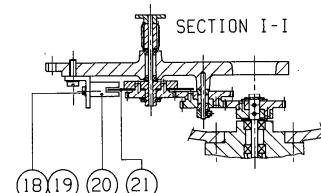
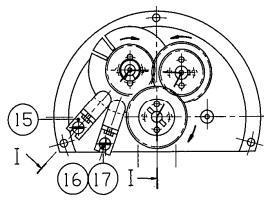
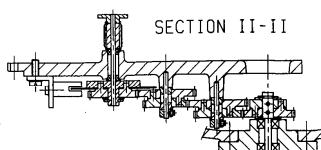
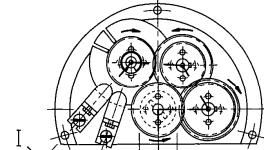
ASSEMBLY DRAWING 0830-1232-3 SHEET 1 OF 2

SHEET 2 OF 2

				<b>VAF</b> <b>INSTRUMENTS</b> PARTS LIST FLOWCOUNT E200 JZ025...250	DATE : 08-04-2011	
					DRAWN : PPS	
					CHECKED : WR	
					MATERIAL : -	
					SEMI MAT. : -	
					0830-1232-4 C	
					REV	
					PART OF	
C	LOGO GEWIJZIGD	08-04-11 PPS				THIS CONFIDENTIAL DOCUMENT IS THE SOLE PROPERTY OF VAF INSTRUMENTS IT MUST NOT BE REPRODUCED IN ANY MATERIAL FORM, OR ITS CONTENTS DIVULGED TO A THIRD PARTY WITHOUT PRIOR WRITTEN AUTHORIZATION.
No.	DESCRIPTION	DATE PAR	DIMENSIONS IN mm			

FRONT VIEW  
WITHOUT COVER AND NAMEPLATEJZ010K  
JZ015LJZ010D  
JZ015D  
JZ023D

FOR JZ025/40/50 SEE DRAWING 0830-1226-3

BACK VIEW GEARPLATE  
FLOW DIRECTION FROM LEFT TO RIGHTBACK VIEW GEARPLATE  
FLOW DIRECTION FROM RIGHT TO LEFT

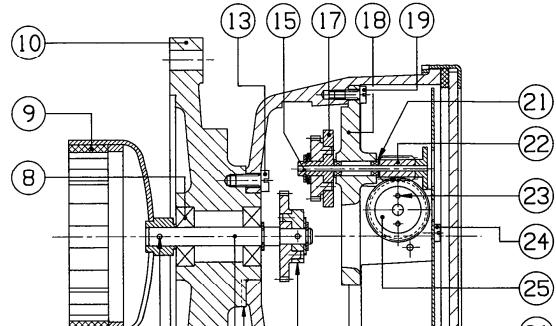
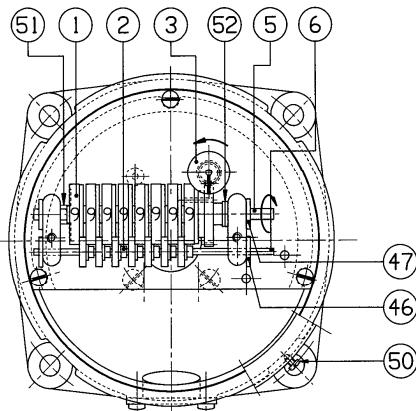
CONNECTION DIAGRAM PULSE TRANSMITTER 0830-2007-4  
CONNECTION DIAGRAM PULSE DISCRIMINATOR 0830-2008-4  
FOR OTHER PARTS J-COUNTER JZ010/15/23 SEE DRAWING 0830-1221-3  
PARTS LIST PULSE TRANSMITTER 0830-2204-4  
PARTS LIST PULSE DISCRIMINATOR 0830-2206-4

		DRAWN : H v.d. TAK	0830-1223-3
		DATE : 15-12-1988	
		CHECKED : BV	
MATERIAL :		25 mm	REV.
SERI. MAT.:			No.
B1 0830-2007 AND	04-11-97	NH	A/B
B2 0830-2008 ADDED			
A REDRAWN IN CAD	03-10-95	BV	
DESCRIPTION		J-COUNTER	PART OF
REVISIONS			

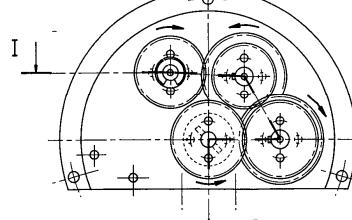
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FRONT VIEW WITHOUT COVER AND NAMEPLATE



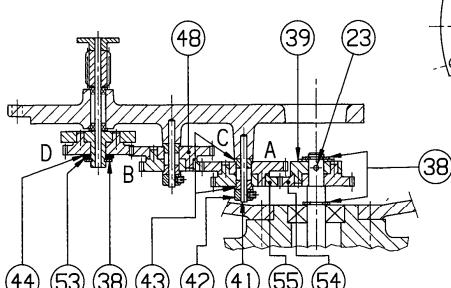
BACK VIEW PLATE



PARTS LIST PULSE TRANSMITTER SEE DRAWING 0830-1223-3

FOR PARTS LIST SEE 0830-2217-4 SHEET 1 AND 2

SECTION I-I



		DRAWN : H v.d. TAK	0830-1226-3
		DATE : 03-04-1989	
		CHECKED : BV	
MATERIAL :		25 mm	REV.
SERI. MAT.:			No.
C ITEM 37 ADDED	20-02-98	BV	A/B/C
B1 ITEM 10 AND 35	25-10-94	AG	
B2 CHANGED			
A REDRAWN IN CAD	24-08-94	JV	
A1 ITEM NR'S CHANGED			
REVISIONS			

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IT MUST NOT BE REPRODUCED IN ANY MATERIAL FORM, OR ITS CONTENTS  
DIVULGED TO A THIRD PARTY WITHOUT PRIOR WRITTEN AUTHORIZATION.

ITEM No.	PART NUMBER	QTY	PART NAME	MATERIAL
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ONLY USED IF TOTALISER IS EQUIPPED WITH A CONNECTOR :

1	0431-0081	1	PACKING 30 x 30 x 0.5mm	BUNA N
2	0708-0310	4	SCREW, SLOTTED CH. HEAD M3 x 10mm, DIN 84	STEEL 5.8
3	0648-0010	1	ELBOW, 6-PIN, FOR CABLE DIA. 8-11mm	
4	0648-0011	1	CONNECTOR, 6-PIN	

ONLY USED IF TOTALISER IS EQUIPPED WITH A CABLE GLAND :

9	0646-4035	1	TERMINAL, SCREW, No. 1 & 2	SYNTHETIC
10	0646-4036	1	TERMINAL, SCREW, No. 3 & 4	SYNTHETIC
11	0646-1230	1	GLAND, CABLE, PG 13.5, CABLE DIA. 12-14mm	BRASS
12	0708-0308	2	SCREW, SLOTTED CH. HEAD, M3 x 8mm, DIN 84	STEEL 5.8
13	0446-0039	1	SUPPORT, TERMINAL L15 x 15 x 3, L=32mm	ALUMINIUM

ALL VERSIONS :

15	0446-0033	*	SUPPORT, L15 x 12 x 2 L=8mm	ALUMINIUM
16	0708-0308	*	SCREW, SLOTTED CH. HEAD, M3 x 8mm, DIN 84	STEEL 5.8
17	0716-0300	*	WASHER, OD 7 x ID 3.2 x 0.5mm, DIN 125	STEEL
	0390-1052	*	KIT PROXIMITY SWITCH, CONSISTING OF :	
18		1	SCREW, HEX. HEAD, M2 x 5mm, DIN 933	STEEL 5.8
19		1	WASHER, OD 5 x ID 2.2 x 0.3mm, DIN 125	STEEL
20		1	PROXIMITY SWITCH	

\* QUANTITY 1 OR 2, DEPENDING ON NUMBER OF PROXIMITY SWITCHES INSTALLED IN TOTALISER

21		1	DISC, OD 40 x 0.5mm	AISI 316
			WITH 1 SLOT	
			WITH 2 SLOTS	
			WITH 5 SLOTS	
			WITH 10 SLOTS	
			WITH 20 SLOTS	
			WITH 25 SLOTS	

ASSEMBLY DRAWING: JZ010 0830-1223-3  
                   JZ015/023 0830-1223 OR -1225-3  
                   M31/32 0830-1224-3  
                   JZ025/040/050 0830-1223-3

D LOGO GEWIJZIGD	08-04-11 PPS	DATE PAR	DIMENSIONS IN mm		THIS CONFIDENTIAL DOCUMENT IS THE SOLE PROPERTY OF VAF INSTRUMENTS. IT MUST NOT BE REPRODUCED IN ANY MATERIAL FORM, OR ITS CONTENTS DISCLOSED TO A THIRD PARTY WITHOUT PRIOR WRITTEN AUTHORIZATION.
No. DESCRIPTION					D 0830-2204-4 REV D
					PART OF

ITEM No.	PART NUMBER	QTY	PART NAME	MATERIAL
1	0431-0081	1	PACKING 30 x 30 x 0.5mm	BUNA N
2	0708-0310	4	SCREW, SLOTTED CH. HEAD M3 x 10mm, DIN 84	STEEL 5.8
3	0648-0010	1	ELBOW, 6-PIN, FOR CABLE DIA. 8-11mm	
4	0648-0011	1	CONNECTOR, 6-PIN	
5	0708-0310	2	SCREW, SLOTTED CH. HEAD, M3 x 10 mm, DIN 84	STEEL 5.8
6	4720-0300	2	WASHER, OD 6 x ID 3.2 x 1mm, DIN 433	NYLON
7	0646-5078	2	SPACER, OD 6 x ID 3.2 , L=3 mm	SYNTHETIC
8	0397-2203	1	BOARD, PRINTED CIRCUIT, PULSE DISCRIMINATOR	
15	0446-0033	2	SUPPORT, L15 x 12 x 2 L=8mm	ALUMINIUM
16	0708-0308	2	SCREW, SLOTTED CH. HEAD, M3 x 8 mm, DIN 84	STEEL 5.8
17	0716-0300	2	WASHER, OD 7 x ID 3.2 x 0.5mm, DIN 125	STEEL
	0390-1052	2	KIT PROXIMITY SWITCH, CONSISTING OF :	
18		1	SCREW, HEX. HEAD, M2 x5mm, DIN 933	STEEL 5.8
19		1	WASHER, OD 5 x ID 2.2 x 0.3mm, DIN 125	STEEL
20		1	PROXIMITY SWITCH	
21		1	DISC, OD 40 x 0.5mm	AISI 316
	0421-0086		WITH 1 SLOTS	
	0421-0085		WITH 2 SLOTS	
	0421-0103		WITH 5 SLOTS	
	0421-0116		WITH 10 SLOTS	
	0421-0105		WITH 20 SLOTS	
	0421-0114		WITH 25 SLOTS	

**ASSEMBLY DRAWING:** JZ010 0830-1223-3  
JZ015/023 0830-1223 DR -1225-3  
M31/32 0830-1224-3  
JZ025/040/050 0830-1223-3

				<b>VAF</b>	DATE : 08-04-2011
					DRAWN : PPS
					CHECKED :
					MATERIAL : -
					SEMI MAT. : -
				<b>INSTRUMENTS</b>	
				<b>PARTS LIST</b>	0830-2206-4
				<b>PULSE DISCRIMINATOR</b>	
				<b>NON RESET COUNTER</b>	
				<b>FLOWMETER</b>	
					PART OF
D	LOGO GEWIJZIGD	08-04-11 PPS			
No.	DESCRIPTION	DATE PAR	DIMENSIONS IN MM		THIS CONFIDENTIAL DOCUMENT IS THE SOLE PROPERTY OF VAF INSTRUMENTS. IT MUST NOT BE REPRODUCED IN ANY MATERIAL FORM, OR ITS CONTENTS DISCLOSED TO A THIRD PARTY WITHOUT PRIOR WRITTEN AUTHORIZATION.

ITEM No.	PART NUMBER	QTY	PART NAME	MATERIAL
1	0609-0207	8	FIGURE WHEEL, OD 19.5 x 5.5mm	SYNTHETIC
2	0609-0208	7	PINION, OD 9.5 x 5 mm	SYNTHETIC
3	0421-0100	1	DISC, OD 14/6 x ID 2 x 4mm	SYNTHETIC
5	0404-0132	1	SHAFT, FIGURE WHEEL, D = 3.5, L = 80mm	AISI 304
6	0404-0131	1	SHAFT, PINION, D = 2, L = 80mm	AISI 316
8		2	BEARING, BALL, OD 19 x ID 6 x 6mm	STEEL
	2601-0626		TEMPERATURE -15 TO 120°C	
	0499-0552PH	*	TEMPERATURE -15 TO 200°C	
9	0313-0011	1	ASSY, MAGNET, OUTSIDE, OD 68 x 35.5mm	
10		1	PLATE	ALUMINIUM
	0410-0091		TEMPERATURE -15 TO 120°C	
	0410-0271	*	TEMPERATURE -15 TO 200°C	
13	0708-0410	4	SCREW, SLOTTED CH.HEAD, M4 x 10mm, DIN 84	STEEL 5.8
15	0404-0134	1	SHAFT, WORM, D = 2, L = 42mm	AISI 316
17	0433-0029	1	BOSS, OD 25/5 x ID 2 x 12mm	ALUMINIUM
18	0410-0071	1	PLATE, GEARWHEEL	ALUMINIUM
19	0708-0310	3	SCREW, SLOTTED CH.HEAD, M3 x10mm, DIN 84	STEEL 5.8
21	0609-0205	2	BEARING, BALL, OD 6/5 x ID 2 x 2.3mm	AISI 440
22		1	WORM,	AISI 430F
	0450-0029		N-4, LEFT, (YELLOW DOT), JZ025/040, READ-OUT 0.1 LITRE, L-R	
	0450-0028		N-4, RIGHT, (RED DOT), JZ025/040, READ-OUT 0.1 LITRE, R-L	
	0450-0031		N-1, LEFT, (BLUE DOT), JZ025..50, READ-OUT 1 LITRE, L-R	
	0450-0026		N-1, RIGHT, (GREEN DOT), JZ025..50, READ-OUT 1 LITRE, R-L	
23	0705-1510	2	PIN, PARALLEL, DIA 1.5mm x10mm, DIN 6325	STEEL HRD.
24	0708-0310	2	SCREW, SLOTTED CH.HEAD, M3 x10mm, DIN 84	STEEL 5.8
25		1	WORMWHEEL,	SYNTHETIC
	0423-0275		N-40, LEFT, (YELLOW DOT), JZ025/040, READ-OUT 0.1 LITRE, L-R	
	0423-0274		N-40, RIGHT, (RED DOT), JZ025/040, READ-OUT 0.1 LITRE, R-L	
	0423-0281		N-40, LEFT, (BLUE DOT), JZ025..50, READ-OUT 1 LITRE, L-R	
	0423-0271		N-40, RIGHT, (GREEN DOT), JZ025..50, READ-OUT 1 LITRE, R-L	
26		1	NAMEPLATE	ALUMINIUM
	0412-0686		READ-OUT 0.1 LITRE, OD 96 x 0.8mm	
	0412-0693		READ-OUT 1 LITRE, OD 96 x 0.8mm	
27	0609-0209	1	WINDOW, OD 106 x 3mm	GLASS
28	0499-0468	1	COVER, WINDOW, OD 111 x 13 x 1mm	STAINLESS STEEL
29	0609-0210	1	PACKING, WINDOW, OD 109 x ID 96 x 3mm	SYNTHETIC
30	0401-0492	1	HOUSING, OD 109 x 64mm	ALUMINIUM
31	0708-0310	4	SCREW, SLOTTED CH.HEAD, M3 x10mm, DIN 84	STEEL 5.8
32	0431-0081	1	PACKING, 30 x 30 x 0.5mm	BUNA N
33	0402-0017	1	COVER, 30 x 30 x 1.5mm	ALUMINIUM
34	0421-0088	1	DISC, GEARWHEEL, OD 17 x 7mm	SYNTHETIC
35	0404-0160	1	SHAFT, MAGNET, OD 6 x 55mm	AISI 430
36	0745-0212	1	SPIROL PIN #2 x 12mm	DIN 7343
				SPRING STEEL

(L-R = FLOW LEFT TO RIGHT)  
(R-L = FLOW RIGHT TO LEFT )

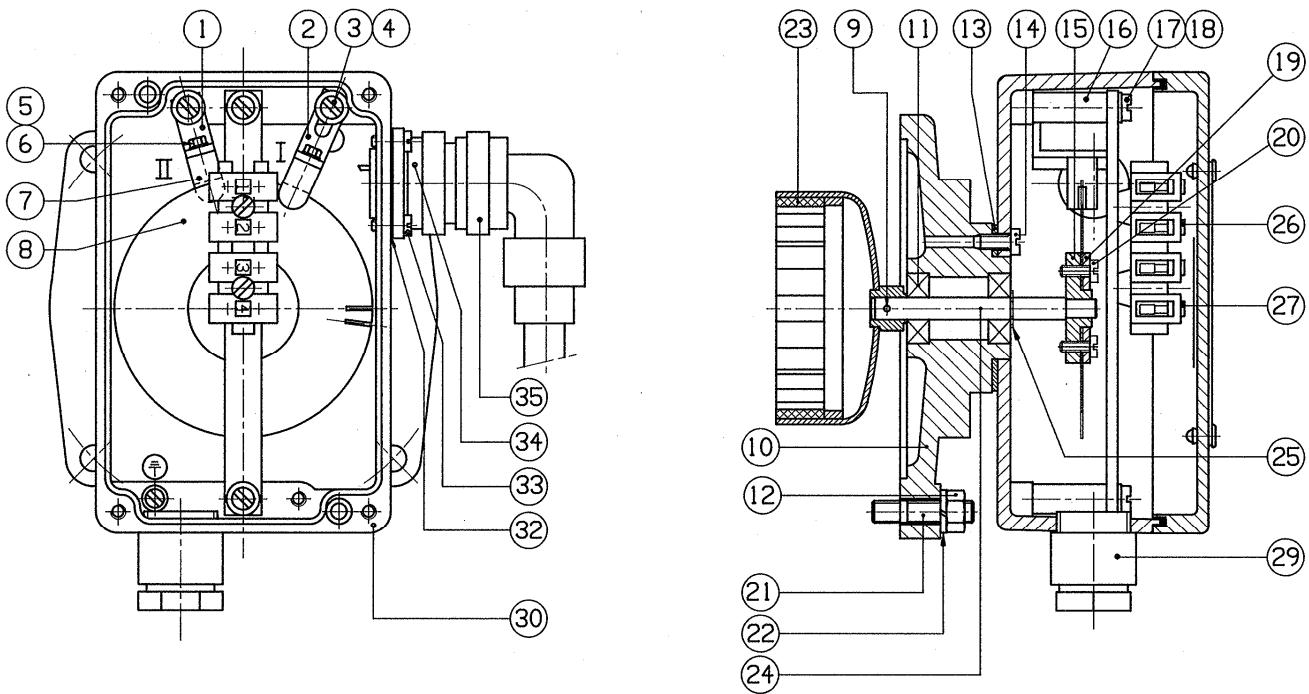
VAF drawing 0830-2217

ITEM No.	PART NUMBER	QTY	PART NAME	MATERIAL
37	0411-0209	1*	RING, OD 45 x ID 28 x 1.5mm	SYNTHETIC
38	0740-0040	3	RING, RETAINING, SIZE 4, DIN 6799	SPRING STEEL
39	0604-0005	1	WASHER, OD 12 x ID 5.2 x 0.7mm.	STEEL
41	0404-0133	1	SHAFT, GEARWHEEL, OD 2, L - 21.5mm	AISI 316
42	0799-0098	1	RING, ADJUSTING, OD 6x ID 2 x 3.5mm DIN 705	STEEL
43	0429-0019	4	BEARING, OD 6/5 x ID 2 x 3mm	SYNTHETIC
44	0799-0097	1	SHIM, OD 10 x ID 5 x 0.5mm DIN 988	STEEL
46	0609-0211	2	RING, LOCKING, FOR SHAFT OD 10xID 2x 1.3mm	STAINLESS STEEL
47	0609-0212	2	RING, LOCKING, FOR SHAFT OD 10xID 3.5x1.3mm	STAINLESS STEEL
48	0423-0327 TO 0423-0338	4	GEARWHEEL, CALIBRATION, N-27...38	SYNTHETIC
50	0799-0100	1	SCREW, PAN HEAD, B2.2 x 4.5mm DIN 7971	STEEL
51	0407-0027	1	SPRING, D-6 x d-0.3 x L-6mm	STAINLESS STEEL
52	0716-0350	2	WASHER OD 8 x ID 3.7 x 0.5mm, DIN 125	STEEL
53	0719-0500	1	WASHER, SPRING CURVED, OD 10xID 5.3x0.5 mm DIN 137A	SPRING STEEL
54	0423-0279 0423-0278 0423-0280	1	GEARWHEEL N-50, JZ025/040, READ-OUT 0.1 LITRE N-30, JZ025/040, READ-OUT 1 LITRE N-48, JZ050, READ-OUT 1 LITRE	ALUMINIUM
55	0423-0278 0423-0282 0423-0278	1	GEARWHEEL N-30, JZ025/040, READ-OUT 0.1 LITRE N-45, JZ025/040, READ-OUT 1 LITRE N-30, JZ050, READ-OUT 1 LITRE	ALUMINIUM
A	0301-0227 0301-0499	1	ASSY, HOUSING. TEMPERATURE -15 TO 120°C, CONSISTING OF ITEM NUMBERS: 8, 9, 10, 13, 30, 31, 32, 33, 35, 36 & 1x38.	
		*	TEMPERATURE -15 TO 200°C, CONSISTING OF ITEM NUMBERS: 8, 9, 10, 13, 30, 31, 32, 33, 35, 36, 37 & 1x38.	
B	0310-0005 0310-0002 0310-0010 0310-0003	1	ASSY, PLATE GEARWHEELS, CONSISTING OF ITEM NUMBERS: 1, 2, 3, 5, 6, 15, 17, 18, 21, 22, 1x23, 25, 46, 47, 51 & 52. 1:10 LEFT, (YELLOW DOT), JZ025/040, READ-OUT 0.1 LITRE, L-R 1:10 RIGHT, (RED DOT), JZ025/040, READ-OUT 0.1 LITRE, R-L 1:40 LEFT, (BLUE DOT), JZ025..050, READ-OUT 1 LITRE, L-R 1:40 RIGHT, (GREEN DOT), JZ025..050, READ-OUT 1 LITRE, R-L	

QUANTITIES WITH \* ARE REQUIRED AT HIGH TEMPERATURE (-15 TO 200°C)

WHEN ORDERING GEARWHEEL ITEM No. 48, NUMBER OF TEETH TO BE SPECIFIED.

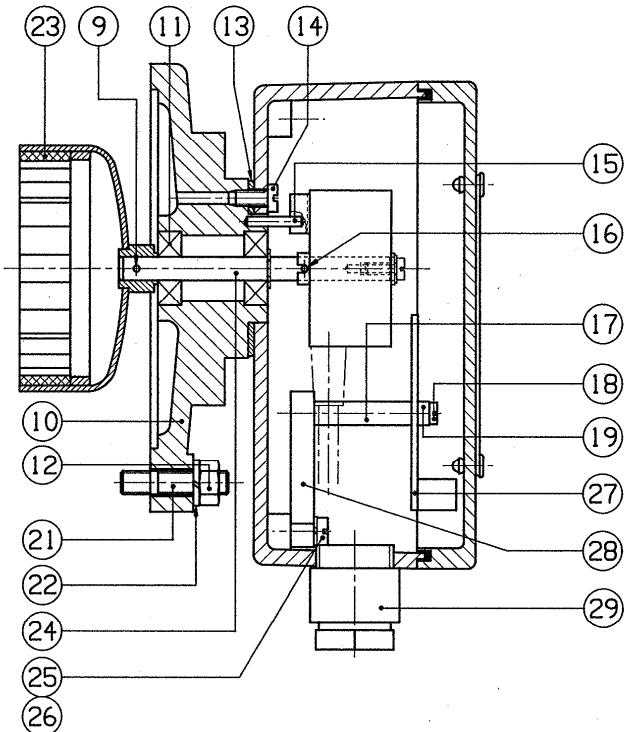
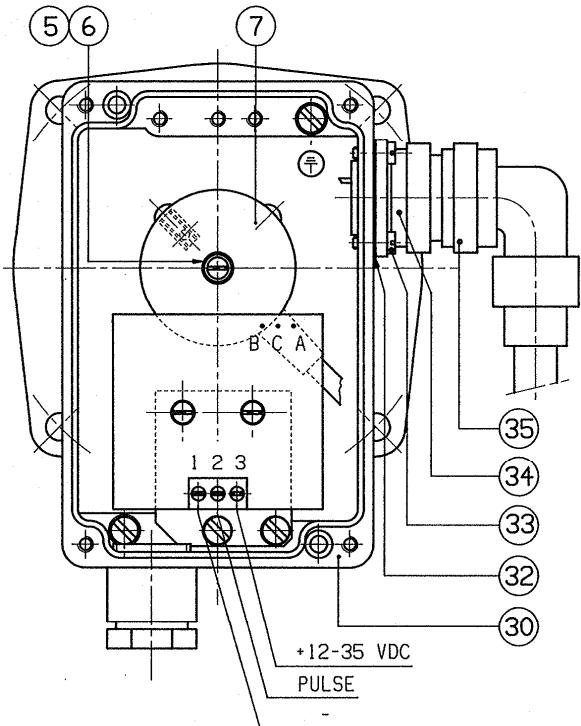
(L-R = FLOW LEFT TO RIGHT)  
(R-L = FLOW RIGHT TO LEFT )



BOX WITH CABLE GLAND OR WITH CONNECTOR

DESCRIPTIONS	DRAWING No.	
EXTERN CONNECTION DIAGRAM	0830-2007-4	
DIMENSIONAL DRAWING	JZ025	0801-1184-3
	JZ040	0801-1185-3
	JZ050	0801-1186-3
	JZ080	0801-1187-3
PARTS LIST	0879-2211-4	

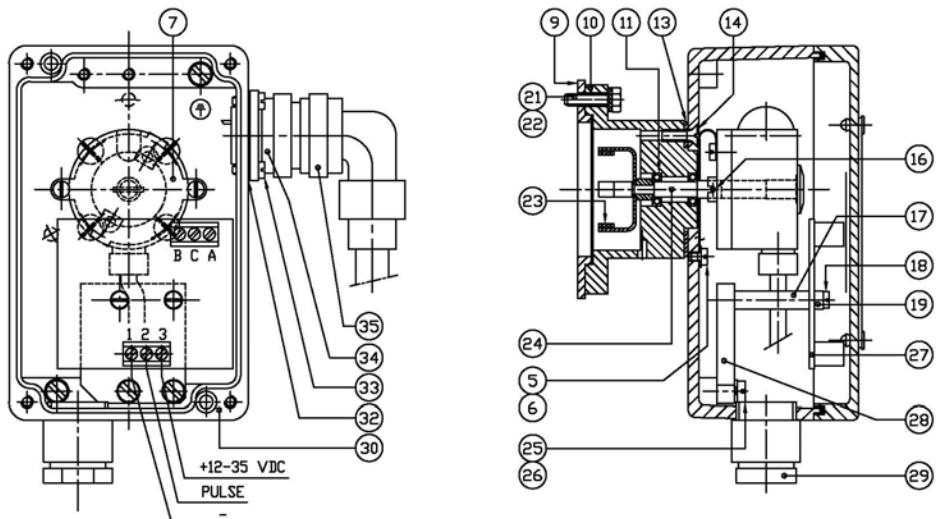
VAF drawing 0879-1209



BOX WITH CABLE GLAND OR CONNECTOR  
EXTERN CONNECTION DIAGRAM  
PARTS LIST BOX  
DIMENSIONAL DRWAING

0830-2008-4  
0879-2218-4  
JZ025 0801-1184-3  
JZ040 0801-1185-3  
JZ050 0801-1186-3  
JZ080 0801-1187-3

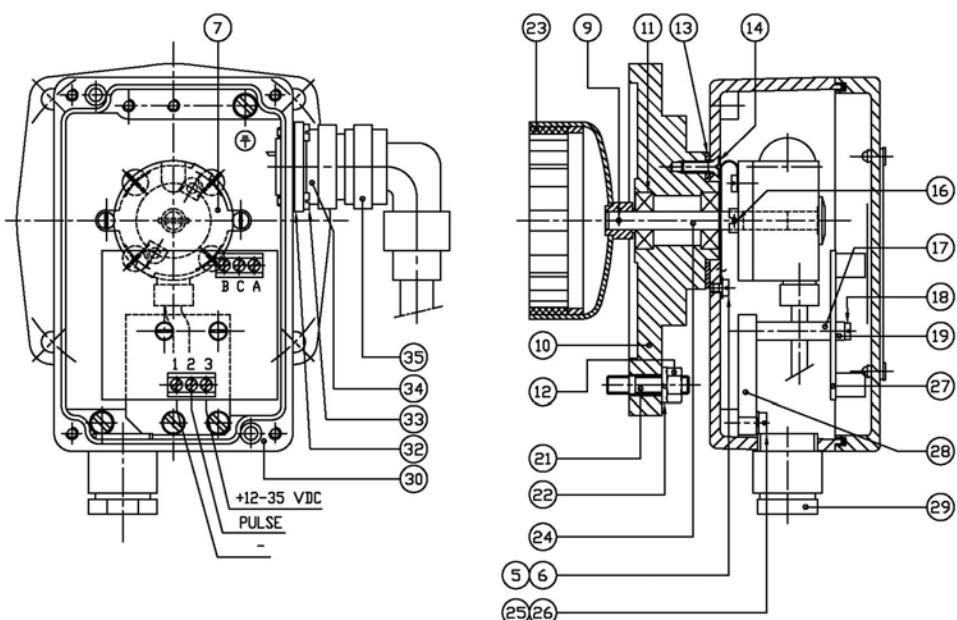
VAF drawing 0879-1221



BOX WITH CABLE GLAND OR 6-PIN CONNECTOR

DESCRIPTIONS	DRAWING No.
EXTERN CONNECTION DIAGRAM	0830-2008-4
JZ010KNDE THREAD CONN.	0801-3105-3
JZ010KNDE FLANGE WELDED	0801-1195-3
JZ015KNDE THREAD CONN.	0801-1117-3
BC J5015D/JZ015KNDE FLANGE CONN.	0801-1157-3
BC J5023D/JZ023KNDE FLANGE CONN.	0801-1161-3
B5025C/JZ025NC	0801-3133-3
B5040C/JZ040NC	0801-3134-3
B5050C/JZ050NC	0801-3135-3
PARTS LIST	0879-2220-4

VAF		DATE : 18-04-2011
INSTRUMENTS		DRAWN : PPS
		CHECKED : PV
		MATERIAL : -
		SEMI MAT. : -
ASSY DRAWING BOX		0879-1223-3 B
INCREMENTAL ENCODER		REV : 08/15/2011
ONE VOLT 100/250/500 PULSES/REV.		100/250/500 PULSES/REV.
3 LOGO GEVLIGED	18-04-11PPS	PART OF
DESCRIPTION	DATE	REV
PRINT COMPENSATION ACCORDING TO THE SCALE PROPERTY OF VAF INSTRUMENTS THIS DRAWING MAY NOT BE REPRODUCED IN ANY FORM, PART OR ITS CONTENTS SHALL NOT BE DISCLOSED TO A THIRD PARTY, WHETHER FROM DIRECT OR INDIRECT		



BOX WITH CABLE GLAND OR CONNECTOR

EXTERN CONNECTION DIAGRAM	0830-2008-4
PARTS LIST BOX	0879-2222-4
DIMENSIONAL DRAWING	
JZ025	0801-1184-3
JZ040	0801-1185-3
JZ050	0801-1186-3
JZ080	0801-1187-3

VAF		DATE : 18-04-2011
INSTRUMENTS		DRAWN : PPS
		CHECKED : PV
		MATERIAL : -
		SEMI MAT. : -
PARTS LIST INCREMENTAL		0879-1223-3 B
ENCODER BOX (NEW)		REV
METER JZ025 -		
100/250/500 PULSES/REV.		
3 LOGO GEVLIGED	18-04-11PPS	PART OF
DESCRIPTION	DATE	REV
PRINT COMPENSATION ACCORDING TO THE SCALE PROPERTY OF VAF INSTRUMENTS THIS DRAWING MAY NOT BE REPRODUCED IN ANY FORM, PART OR ITS CONTENTS SHALL NOT BE DISCLOSED TO A THIRD PARTY, WHETHER FROM DIRECT OR INDIRECT		

ITEM No.	PART NUMBER	QTY.	PART NAME	MATERIAL
1	0446-0041PH	(1)	SUPPORT. SWITCH No. II, L20x16x2, L-8mm	ALUMINIUM
2	0446-0038	1	SUPPORT. SWITCH No. I, L20x19x2, L-8mm	ALUMINIUM
3	0708-0408	1(2)	SCREW. SLOTTED CH. HEAD, M4 x 8mm.	DIN 84 STEEL 5.8
4	0716-0400	1(2)	WASHER. OD 9 x ID 4.3 x 0.8mm.	DIN 125 STEEL
5	0390-1052	1(2)	KIT PROXIMITY SWITCH. CONSISTING OF:	
6			SCREW. HEX. HEAD, M2 x5mm.	DIN 933 STEEL 5.8
7			WASHER. OD 5 x ID 2.2 x 0.3mm.	DIN 125 STEEL
			PROXIMITY SWITCH	
8	0421-0089	1	DISC WITH 50 SLOTS, OD 70 x 0.5mm	AISI 316
9	0745-0212	1	SPIROL PIN Ø2 x 12 mm	DIN 7343 SPRING STEEL
10	0410-0091	1	PLATE	ALUMINIUM
11	2601-0626	2	BEARING, BALL, OD 19 x ID 6 x 6mm	STEEL
12	0734-0600	4	NUT, HEX., M6,	DIN 934 STEEL 8
13	0411-0209	1	RING. BOX/HOLDER, OD 45 x ID 28 x 1.5mm	SYNTHETIC
14	0708-0410	4	SCREW. SLOTTED CH. HEAD, M4 x 10mm.	DIN 84 STEEL 5.8
15	0421-0115	1	DISC. OD 30/10. L-7mm	ALUMINIUM
16	0646-5085	2	SPACER, OD 8 x ID 4.3 x 20mm	SYNTHETIC
17	0708-0430	2	SCREW. SLOTTED CH. HEAD, M4 x 30mm.	DIN 84 STEEL 5.8
18	0718-0400	2	WASHER. SPRING, M4.	DIN 127 SPRING STEEL
19	0421-0012	1	DISC. UPPER, OD 30 x 2mm	ALUMINIUM
20	0708-0308	2	SCREW. SLOTTED CH. HEAD, M3 x 8mm.	DIN 84 STEEL 5.8
21	0735-0620	4	STUD, M6 x 20mm (L TOTAL 28)	DIN 939 STEEL 8
22	0718-0600	4	WASHER. SPRING, M6.	DIN 127 SPRING STEEL
23	0313-0011	1	ASSY. MAGNET. OUTSIDE, OD 68 x 35.5mm	
24	0404-0319	1	SHAFT. MAGNET. OD 6 x 61mm	AISI 430
25	0740-0040	1	CIRCLIP. SIZE 4.	DIN 6799 SPRING STEEL

ONLY USED IF BOX IS EQUIPPED WITH A CABLE GLAND:

26	0646-4035	1	TERMINAL. SCREW, No. 1 & 2	SYNTHETIC
27	0646-4036	1	TERMINAL. SCREW, No. 3 & 4	SYNTHETIC
29	0646-1230	1	GLAND. CABLE, PG 13.5. FOR CABLE DIA. 12-14mm	BRASS
30	0499-0484	1	BOX WITH PG 13.5. INCLUDING Item No. 26, 27 & 29	ALUMINIUM

ONLY USED IF BOX IS EQUIPPED WITH A CONNECTOR:

30	0499-0557	1	BOX FOR CONNECTOR	ALUMINIUM
32	0431-0081	1	PACKING, 30 x 30 x 0.5mm	BUNA N
33	0708-0310	4	SCREW. SLOTTED CH. HEAD, M3 x10mm.	DIN 84 STEEL 5.8
34	0648-0011	1	CONNECTOR. 6-PIN	
35	0648-0010	1	ELBOW. 6-PIN, FOR CABLE DIA. 8-11mm	

QUANTITY BETWEEN ( ) ONLY WITH 2 SWITCHES

VAF drawing 0879-2211

ITEM No.	PART NUMBER	QTY.	PART NAME	MATERIAL
5	0708-0308	1	SCREW, SLOTTED CH. HEAD. M3 x 8mm. DIN 84	STEEL 5.8
6	0716-0300	1	WASHER, OD 7 x ID 3.2 x 0.5mm. DIN 125	STEEL
7	0680-0016	1	INCREMENTAL ENCODER	
	100 PULSES/REV			
	250 PULSES/REV			
	500 PULSES/REV			
9	0745-0212	1	SPIROL PIN ø2x12mm DIN 7343	SPRING STEEL
10	0410-0091	1	PLATE	ALUMINIUM
11	2601-0626	2	BEARING, BALL. OD x 19 x ID 6 x 6mm	STEEL
12	0734-0600	4	NUT. HEX., M6. DIN 934	STEEL 8
13	0411-0209	1	RING, BOX/HOLDER, OD 45 x ID 28 x 1.5mm	SYNTHETIC
14	0708-0410	4	SCREW, SLOTTED CH. HEAD. M4 x 10mm. DIN 84	STEEL 5.8
15	0703-2514	1	PIN, PARALLEL, OD 2.5 x 14mm. DIN 7	STEEL 50K
16	0705-1510	1	PIN, PARALLEL, OD 1.5 x 10mm. DIN 7	STEEL 50K. HRD.
17	0646-5087	2	SPACER, OD 6 x ID 3.2 x 25mm	SYNTHETIC
18	0708-0335	2	SCREW, SLOTTED CH. HEAD. M3 x 35mm. DIN 84	STEEL 5.8
19	0646-5078	2	SPACER, OD 6 x ID 3.2 x 3mm	SYNTHETIC
21	0735-0620	4	STUD. M6x20mm (L TOTAL 28mm) DIN 939	STEEL 8
22	0718-0600	4	WASHER, SPRING, M6. DIN 127	SPRING STEEL
23	0313-0011	1	ASSY, MAGNET, OUTSIDE, OD 68 x 35.5mm	SPRING STEEL
24	0404-0427	1	SHAFT, MAGNET, OD 6 x 69.5 mm	AISI 316
25	0708-0412	2	SCREW, SLOTTED CH. HEAD. M4 x 12mm. DIN 84	STEEL 5.8
26	0718-0400	2	WASHER, SPRING, M4. DIN 127	SPRING STEEL
27	0397-2203	1	BOARD, PRINTED CIRCUIT, PULSE DISCRIMINATOR	SPRING STEEL
28	0410-0090	1	PLATE, 40 x 35 x 6mm	ALUMINIUM

ONLY USED IF BOX IS EQUIPPED WITH A CABLE GLAND:

29	0646-1230	1	GLAND, CABLE, PG 13.5, FOR CABLE DIA. 12-14mm	BRASS
30	0499-0458	1	BOX WITH PG 13.5. INCLUDING ITEM No. 29	ALUMINIUM

ONLY USED IF BOX IS EQUIPPED WITH A CONNECTOR:

30	0499-0501	1	BOX FOR CONNECTOR	ALUMINIUM
32	0431-0081	1	PACKING, CONNECTOR, 30 x 30 x 0.5mm	BUNA N
33	0708-0310	4	SCREW, SLOTTED CH. HEAD. M3 x 10mm. DIN 84	STEEL 5.8
34	0648-0011	1	CONNECTOR, 6 PIN	
35	0648-0010	1	ELBOW, 6 PIN, CABLE DIA. 8-11mm	

VAF drawing 0879-2218

ITEM No.	PART NUMBER	QTY	PART NAME	MATERIAL
5	0708-0304	2	SCREW, SLOTTED CH. HEAD, M3 x 4mm, DIN 84	STEEL 4.8
6	0716-0300	2	WASHER, OD 7 x ID 3.2 x 0.5mm, DIN 125	STEEL
7	0680-0025 0680-0026 0680-0027	1	INCREMENTAL ENCODER 100 PULSES/REV 250 PULSES/REV 500 PULSES/REV	
9	0411-0208 0411-0258	1	RING, METER/HOLDER, OD 73 x ID 45 x 2.5/4.5mm FOR METERS JZ FOR METERS JZ...N AND B...	SYNTHETIC
10	0408-0209 0408-0211	1	HOLDER, MAGNET, OD 70 x 37.5mm FOR METERS JZ FOR METERS JZ...N AND B...	ALUMINIUM
11	0499-0621PH	2	BEARING, BALL, OD x 11 x ID 5 x 3mm	AISI 440
13	0411-0209	1	RING, BOX/HOLDER, OD 45 x ID 28 x 1.5mm	SYNTHETIC
14	0736-0412	4	SCREW, SLOTTED CSK. HEAD, M4 x 12mm, DIN 963	STEEL 4.8
16	0705-1510	1	PIN, PARALLEL, OD 1.5 x 10mm, DIN 7	STEEL 50K, HRD.
17	0646-5087	2	SPACER, OD 6 x ID 3.2 x 25mm	SYNTHETIC
18	0708-0335	2	SCREW, SLOTTED CH. HEAD, M3 x 35mm, DIN 84	STEEL 4.8
19	0646-5078	2	SPACER, OD 6 x ID 3.2 x 3mm	SYNTHETIC
21	1733-0416	3	SCREW, HEX. HEAD, M4 x 16mm, DIN 933	AISI 316
22	0718-0400	3	WASHER, SPRING, M4, DIN 127	SPRINGSTEEL
23	0313-0021	1	ASSY, MAGNET, OD 28.5 x 18mm	
24	0404-0433	1	SHAFT, MAGNET, OD 6 x 40mm	AISI 316
25	0708-0412	2	SCREW, SLOTTED CH. HEAD, M4 x 12mm, DIN 84	STEEL 4.8
26	0718-0400	2	WASHER, SPRING, M4, DIN 127	SPRINGSTEEL
27	0397-2203	1	BOARD, PRINTED CIRCUIT, PULSE DISCRIMINATOR	
28	0410-0090	1	PLATE, 40 x 35 x 6mm	ALUMINIUM

ONLY USED IF BOX IS EQUIPPED WITH A CABLE GLAND:

29	0646-1230	1	GLAND, CABLE, Pg 13.5, FOR CABLE DIA. 12-14mm	BRASS
30	0499-0651	1	BOX WITH Pg 13.5, INCLUDING ITEM No. 29	ALUMINIUM

ONLY USED IF BOX IS EQUIPPED WITH A CONNECTOR:

30	0499-0652	1	BOX FOR CONNECTOR	ALUMINIUM
32	0431-0081	1	PACKING, CONNECTOR, 30 x 30 x 0.5mm	BUNA N
33	0708-0310	4	SCREW, SLOTTED CH. HEAD, M3 x 10mm, DIN 84	STEEL 4.8
34	0648-0011	1	CONNECTOR, 6 PIN	
35	0648-0010	1	ELBOW, 6 PIN, CABLE DIA. 8-11mm	

### ASSEMBLY DRAWING 0879-1223-3

 <b>INSTRUMENTS</b>				DATE : 18-04-2011
				DRAWN : PPS
				CHECKED : B/
				MATERIAL : -
				SEMI MAT. : -
PARTS LIST INCREMENTAL ENCODER BOX (NEW) JZ010...023 NDE JZ025..050N/B5015..050 100/250/500 PULSES/REV.				0879-2220-4 B
				REV
				PART OF
B LOGO GEWIJZIGD		18-04-11 PPS	DIMENSIONS IN MM	THIS CONFIDENTIAL DOCUMENT IS THE SOLE PROPERTY OF VAF INSTRUMENTS IT MUST NOT BE REPRODUCED IN ANY MATERIAL FORM, OR ITS CONTENTS DISCLOSED TO A THIRD PARTY WITHOUT PRIOR WRITTEN AUTHORIZATION.
No.	DESCRIPTION	DATE PAR		

ITEM No.	PART NUMBER	QTY.	PART NAME	MATERIAL
5	0708-0304	2	SCREW, SLOTTED CH. HEAD, M3 x 4mm.	DIN 84 STEEL 4.8
6	0716-0300	2	WASHER, OD 7 x ID 3.2 x 0.5mm.	DIN 125 STEEL
7	0680-0025 0680-0026 0680-0027	1	INCREMENTAL ENCODER	
			100 PULSES/REV	
			250 PULSES/REV	
			500 PULSES/REV	
9	0745-0212	1	SPIROL PIN Ø2x12mm	DIN 7343 SPRING STEEL
10	0410-0275	1	PLATE, OD 130 x 30mm.	ALUMINIUM
11	2601-0626	2	BEARING, BALL, OD x 19 x ID 6 x 6mm	STEEL
12	0734-0600	4	NUT, HEX., M6.	DIN 934 STEEL 8
13	0411-0209	1	RING, BOX/HOLDER, OD 45 x ID 28 x 1.5mm	SYNTHETIC
14	0736-0412	4	SCREW, SLOTTED CSK, HEAD, M4 x 12mm.	DIN 963 STEEL 4.8
16	0705-1510	1	PIN, PARALLEL, OD 1.5 x 10mm.	DIN 7 STEEL 50K, HRD.
17	0646-5087	2	SPACER, OD 6 x ID 3.2 x 25mm	SYNTHETIC
18	0708-0335	2	SCREW, SLOTTED CH. HEAD, M3 x 35mm.	DIN 84 STEEL 4.8
19	0646-5078	2	SPACER, OD 6 x ID 3.2 x 3mm	SYNTHETIC
21	0735-0620	4	STUD, M6x20mm (L TOTAL 28mm)	DIN 939 STEEL 8
22	0718-0600	4	WASHER, SPRING, M6.	DIN 127 SPRING STEEL
23	0313-0011	1	ASSY, MAGNET, OUTSIDE, OD 68 x 35.5mm	SPRING STEEL
24	0404-0435	1	SHAFT, MAGNET, OD 6 x 57 mm	AISI 316
25	0708-0412	2	SCREW, SLOTTED CH. HEAD, M4 x 12mm.	DIN 84 STEEL 4.8
26	0718-0400	2	WASHER, SPRING, M4.	DIN 127 SPRING STEEL
27	0397-2203	1	BOARD, PRINTED CIRCUIT, PULSE DISCRIMINATOR	SPRING STEEL
28	0410-0090	1	PLATE, 40 x 35 x 6mm	ALUMINIUM

ONLY USED IF BOX IS EQUIPPED WITH A CABLE GLAND:

29	0646-1230	1	GLAND, CABLE, PG 13.5, FOR CABLE DIA. 12-14mm	BRASS
30	0499-0651	1	BOX WITH PG 13.5, INCLUDING ITEM No. 29	ALUMINIUM

ONLY USED IF BOX IS EQUIPPED WITH A CONNECTOR:

30	0499-0652	1	BOX FOR CONNECTOR	ALUMINIUM
32	0431-0081	1	PACKING, CONNECTOR, 30 x 30 x 0.5mm	BUNA N
33	0708-0310	4	SCREW, SLOTTED CH. HEAD, M3 x 10mm.	DIN 84 STEEL 4.8
34	0648-0011	1	CONNECTOR, 6 PIN	
35	0648-0010	1	ELBOW, 6 PIN, CABLE DIA. 8-11mm	

VAF drawing 0879-2222

## 8. WARRANTY CONDITIONS

1. Without prejudice to the restrictions stated hereinafter, the contractor guarantees both the soundness of the product delivered by him and the quality of the material used and/or delivered for it, insofar as this concerns faults in the product delivered which do not become apparent during inspection or transfer test, which the principal shall demonstrate to have arisen within 12 months from delivery in accordance with subarticle 1A exclusively or predominantly as a direct consequence of unsoundness of the construction used by the contractor or as a consequence of faulty finishing or the use of poor materials.
  - 1A. The product shall be deemed to have been delivered when it is ready for inspection (if inspection at the premises of the contractor has been agreed) and otherwise when it is ready for shipment.
2. Articles 1 and 1a shall equally apply to faults which do not become apparent during inspection or transfer test which are caused exclusively or predominantly by unsound assembly/installation by the contractor. If assembly/installation is carried out by the contractor, the guarantee period intended in article 1 shall last 12 months from the day on which assembly/installation is completed by the contractor, with the understanding that in this case the guarantee period shall end not later than 18 months after delivery in accordance with the terms of subarticle 1A.
3. Defects covered by the guarantee intended under articles 1, 1A and 2 shall be remedied by the contractor by repair or replacement of the faulty component either on or off the premises of the contractor, or by shipment of a replacement component, this remaining at the discretion of the contractor. Subarticle 3A shall equally apply if repair or replacement takes place at the site where the product has been assembled/installed. All costs accruing above the single obligation described in the first sentence, such as are not restricted to shipment costs, travelling and accommodation costs or disassembly or assembly costs insofar as they are not covered by the agreement, shall be paid by the principal.
  - 3A. If repair or replacement takes place at the site where the product has been assembled/installed, the principal shall ensure, at his own expense and risk, that:
    - a. the employees of the contractor shall be able to commence their work as soon as they have arrived at the erection site and continue to do so during normal working hours, and moreover, if the contractor deems it necessary, outside the normal working hours, with the proviso that the contractor informs the principal of this in good time;
    - b. suitable accommodation and/or all facilities required in accordance with government regulations, the agreement and common usage, shall be available for the employees of the contractor;
    - c. the access roads to the erection site shall be suitable for the transport required;
    - d. the allocated site shall be suitable for storage and assembly;
    - e. the necessary lockable storage sites for materials, tools and other goods shall be available;
    - f. the necessary and usual auxiliary workmen, auxiliary machines, auxiliary tools, materials and working materials (including process liquids, oils and greases, cleaning and other minor materials, gas, water, electricity, steam, compressed air, heating, lighting, etc.) and the measurement and testing equipment usual for in the business operations of the principal, shall be available at the correct place and at the disposal of the contractor at the correct time and without charge;
    - g. all necessary safety and precautionary measures shall have been taken and adhered to, and all measures shall have been taken and adhered to necessary to observe the applicable government regulations in the context of assembly/installation;

- h. the products shipped shall be available at the correct site at the commencement of and during assembly.
4. Defects not covered by the guarantee are those which occur partially or wholly as a result of:
    - A. non-observance of the operation and maintenance instructions or other than foreseeable normal usage;
    - B. normal wear and tear;
    - C. assembly/installation by third parties, including the principal;
    - D. the application of any government regulation regarding the nature or quality of the material used;
    - E. materials or goods used in consultation with the principal;
    - F. materials or goods provided by the principal to the contractor for processing;
    - G. materials, goods, working methods and constructions insofar as are applied at the express instruction of the principal, and materials or goods supplied by or on behalf of the principal;
    - H. components obtained from third parties by the contractor insofar as that party has given no guarantee to the contractor.
  5. If the principal fails to fulfil any obligation properly or on time ensuing from the agreement concluded between the principal and the contractor or any agreement connected to it, the contractor shall not be bound by any of these agreements to any guarantee regardless of how it is referred to. If, without previous written approval from the contractor, the principal commences disassembly, repair or other work on the product or allows it to be commenced, then every agreement with regard to guarantee shall be void.
  6. Claims regarding defects must be submitted in writing as quickly as possible and not later than 14 days after the discovery of such. All claims against the contractor regarding faults shall be void if this term is exceeded. Claims pertaining to the guarantee must be submitted within one year of the valid complaint on penalty of invalidity.
  7. If the contractor replaces components/products under the terms of his guarantee obligations, the replaced components/products shall become the property of the contractor.
  8. Unless otherwise agreed, a guarantee on repair or overhaul work carried out by the contractor or other services shall only be given on the correctness of the manner in which the commissioned work is carried out, this for a period of 6 months. This guarantee only covers the single obligation of the contractor to carry out the work concerned once again in the event of unsound work. In this case, subarticle 3A shall apply equally.
  9. No guarantee shall be given regarded the inspection conducted, advice given and similar matters.
  10. Alleged failure to comply with his guarantee commitments on the part of the contractor shall not absolve the principal from his obligations ensuing from any agreement concluded with the contractor.
  11. No guarantee shall be given on products which form a part of, or on work and services on, goods older than 8 years.

Revision 0711:  
House style change

# VAF

INSTRUMENTS

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