



P.A. – S.p.A. – EQUIPAGGIAMENTI TECNICI DEL LAVAGGIO

VIA MILANO, 13 – CASELLA POSTALE 115 – 42048 RUBIERA (REGGIO EMILIA) – ITALY
 Tel. +39 0522 623611 – Fax. +39 0522 629600 – R.E.A. RE 156319 – R.I. RE11535 – Mecc. RE 013446
 C.F. e P. IVA 01035950359 – Cap. Soc. i.v. € 750.000,00 – Codice Identificativo C.E.E. IT 01035950359
 ART. 2497 – BIS C.C. DIREZIONE E COORDINAMENTO BENETTI srl R.I. TRIB. DI RE 01480690351
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FL3 – Electric signal flow switch

Technical manual: E 803-04

Electro-mechanical device in which the fluid passage moves a magnetized piston that closes an electric circuit.

DN10



- **28.0500.10** G3/8 MM
- **28.0530.10** G3/8 MM + G1/4 F
- **28.0540.10** G3/8 MM Magnetholder OT

- Reed switch with high resistance.
- Electrical insulation: class **IP55**
- Reduced dimensions both axial and lateral.
- Magnetic drive obtained by the plunging piston movement.
- Magnet covered by plastic casing to minimize the braking effect of metal particles and scale.
- Wire for earth
- * Version with 1/4 Bsp gauge port.

TECHNICAL SPECIFICATIONS

Rated voltage:	12 ÷ 230 V AC/DC	Max commutable power :	60VA
Cable length:	1250 mm	Electric wire:	2 x 0,50mm²
Ambient temp:	75°C	Type of action:	1C
Max current:	3 A		

Electrical component life: from 100.000 to 1.000.000 commutations at max power.
 Pollution situation of the device control: High

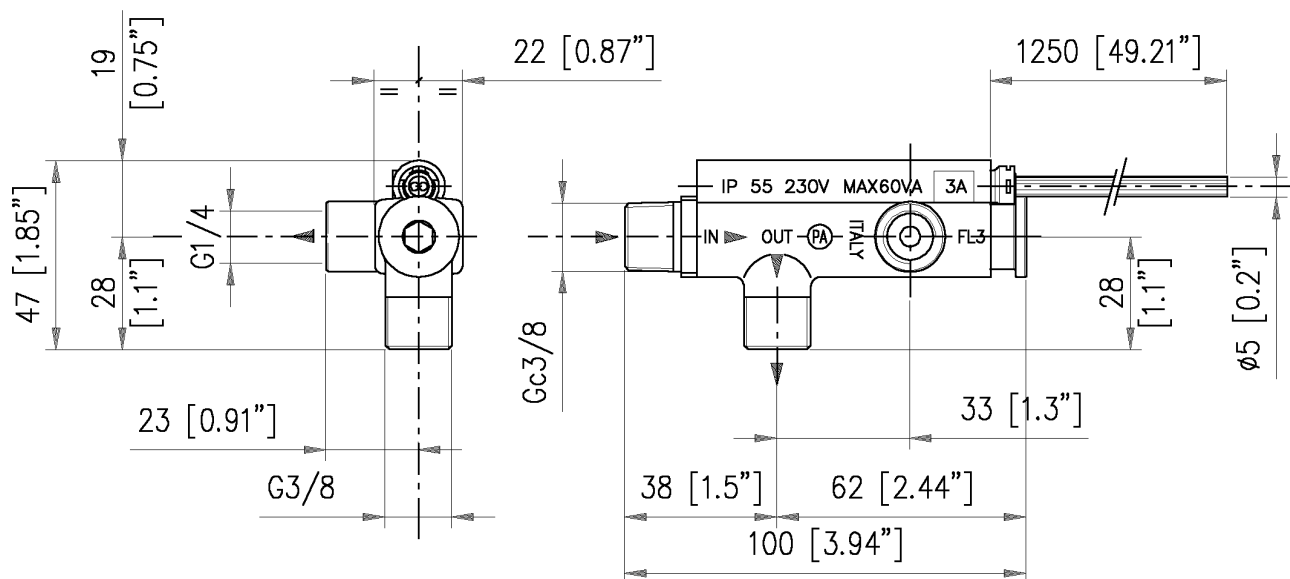
PART NUMBER	RATED PRESSURE bar - MPa	PERMISSIBLE PRESSURE bar - MPa	MAX FLOW RATE l/min	MIN FLOW RATE INTERVENT. l/min	MAX TEMP FLUID °C	WEIGHT g
28.0500.10	250 - 25	280 - 28	30	3	(1) 75	275
28.0540.10	250 - 25	280 - 28	30	3	(2) 75	290
28.0530.10*	250 - 25	280 - 28	30	3	(1) 75	290
28.0535.00*	250 - 25	280 - 28	30	3	(2) 75	305

* Version with 1/4Bsp gauge port

(1) The flow switch has been designed for a continuous use at a water temperature of 50°C. It can resist for short periods at a maximum temperature of 75°C.

(2) The flow switch has been designed for a continuous use at a water temperature of 75°C

DIMENSIONAL DRAWING



INSTRUCTIONS

SELECTION

This product is to be utilized with clean fresh water, even slightly additivated with normal detergents. For use involving different or corrosive liquids, contact the PA Technical department.

Choose the flowswitch in line with the data of nominal running (system rated pressure, max flow and max temperature). In any case, the pressure of the machine should not exceed the permissible pressure rate imprinted on the body.

Check the real value of voltage and current of the system: they should be kept within the max indicated value.

INSTALLATION

Connection to the Hydraulic system.

Use correct fittings in line with the dimensions and performance of the valve. Avoid restrictions on the passage diameters that might cause malfunctions, pressure reduction and wearing. This accessory, on a system that produces hot water, must be fitted in **front of the generator**.

Attention: on the stud G1/4F, flowswitch FL3 PN 28.0530.00, fit only pressure tracking devices like pressure switches and pressure gauges. DO NOT FIT ANY SAFETY VALVES.

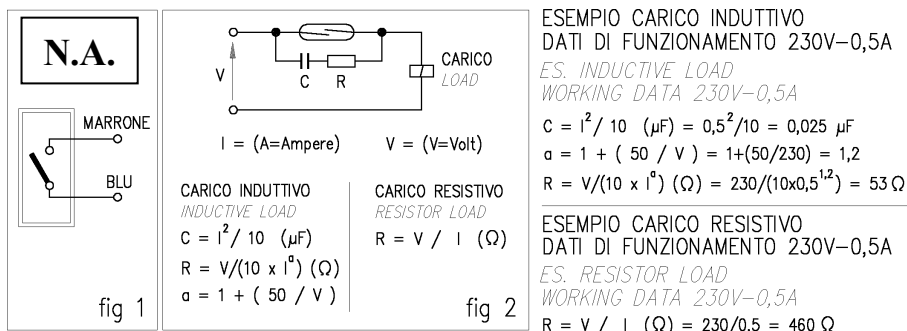
This product is to be installed on a finished machine.

Electric installation

For the connection of the electric installation, **see fig.1**

Electrical installation is to be carried out by **qualified personnel**.

CAUTION!! - The electric device must be mounted on an earthed hydraulic system.



ELECTRIC LIFETIME OF THE CONTACT

The electric circuit, contained in the probe, consists of a reed switch that can function up to 1 million operations. Current or voltage in excess, superior to the allowed limits, damage considerably the contacts reducing the electric lifetime (pitting; sticking). To prevent these phenomena, it is necessary to evaluate with attention the transient ratings in which the take off current might be 10/12 times the rating current.

OPERATIONS

In order to prevent malfunctions, the flow switch must not be set near heat or magnetic sources. Do not store or handle on full metal structures nor test the magnetic strength of the piston on magnetic material. It is advisable to properly clean the system before operation in order to expell possible residual metal. The electric probe is stamped at the end of the exit cable, indicating the setting in relation to the brass body and allows a correct assembly of the "reed" bulb. In case of intervention or repair, **follow this indication**: wrong positioning could damage the probe.

PROBLEMS AND SOLUTIONS

PROBLEMS	PROBABLE CAUSES	SOLUTIONS
The Piston does not move	<ul style="list-style-type: none"> - Insufficient flow - Faulty assembly - Piston jammed by scale and metal shavings 	<ul style="list-style-type: none"> - Check leaks in the circuit - Re-assemble, observing the flow direction - Check, clean and/or replace
Electric signal missing	<ul style="list-style-type: none"> - Damaged "reed" electric contacts - Electric connection incorrect or disconnected - Un-phased probe or displaced 	<ul style="list-style-type: none"> - Replace electric probe - Provide eventual circuit protection - Check and/or repair - Renew

REGULATIONS :

The accessory hereby described bears the CE marking in accordance with the Norms and Directives applied on the **Declaration of Conformity**.

For a correct utilization, follow the directions described in this manual and re-print them on the Use and maintenance manual of the machine

Make sure that you are given the Original Conformity Declaration for the accessory chosen. The present manual is valid for all Flowswitches named **FL3**

SPARES

Use only original PA spares, in order to benefit for a correct function and long reliability.

MAINTENANCE

Maintenance has to be carried out by **Specialized Technicians**.

Every 400 working hours (circa 10,000 cycles) check the magnetic pin (pos 3) and clean.

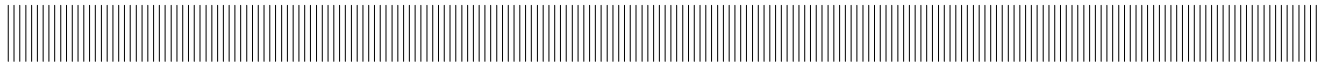
For a correct assembly, follow the phases indicated on the exploded view referred.

The Manufacturer is not to be considered responsible for damage as a result from incorrect fitting and maintenance.

Technical data, descriptions and illustrations are indicative and liable to modification without notice.

Instruction manual, maintenance, installation, spare parts. <u>For a correct utilization follow the directions of this manual.</u> Re-print them on the use and maintenance booklet of the machine.	n. 12.9803.04
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	EQUIPAGGIAMENTI TECNICI LAVAGGIO	FLUSSOSTATO <i>FLOW SWITCH</i> 28.04XX.XX	STROMMESSER <i>FLUSSOSTAT</i> 28.05XX.XX	(I) (GB)	10/11/10 8	(D) (F)
		10.9110.00				



FLUSSOSTATO Codice 28.04XX.XX–28.05XX.XX

Attenzione !!!!!

Il flussostato PA è composto da un'ampolla reed e da una magnete permanente.
Per un corretto funzionamento di questo accessorio, Vi invitiamo a seguire le seguenti avvertenze:

1. maneggiare con cura
2. riporre a magazzino nell'imballo originale
3. togliere dall'imballo solo al momento del montaggio
4. evitare assieme di più flussostati
5. non avvicinarlo a campi magnetici
6. non riporre su piani metallici.

Il non rispetto di queste norme può causare la smagnetizzazione del magnete permanente e determinare il mancato funzionamento del flussostato.

Grazie per la gentile collaborazione.

P.A. S.p.A.

FLOW SWITCH PN 28.04XX.XX – 28.05XX.XX

IMPORTANT:

The PA flow switch consists of a reed bulb and a permanent magnet.
For a correct use of the device, please read the following instructions:

1. Handle with care
2. Keep stored in its original packaging
3. Only unpack immediately before installation
4. Avoid assembling several devices at the same time
5. Protect from magnetic fields
6. Keep away from metallic surfaces

Not complying with these guidelines may cause demagnetisation of the permanent magnet and therefore prevent the flow switch from working properly.

Thank you for your kind cooperation.

P.A. S.p.A.

FLUSSOSTAT REF. 28.04XX.XX – 28.05XX.XX

Attention !!!!!

Le flussostat PA se compose d'une ampoule reed et d'un aimant permanent.

Pour un fonctionnement correct de cet accessoire, nous vous prions de bien vouloir suivre les indications suivantes:

1. Manipuler avec précaution
2. Emmagasiner dans l'emballage d'origine
3. Ne pas le sortir de l'emballage qu'au moment du montage
4. Eviter de monter de plusieurs flussostats ensemble
5. Protéger l'appareil de l'exposition aux champs magnétiques
6. Ne pas le poser sur des surfaces métalliques

Le manque de respecter ces instructions peut provoquer la démagnétisation de l'aimant permanent, et par conséquent, le mal fonctionnement du flussostat.

Merci de votre attention.

P.A. S.p.A.

STROMSCHALTER BEST-NR. 28.04XX.XX – 28.05XX.XX

WICHTIG:

Der Stromschalter besteht aus einem Reedschalter und einem Dauermagneten.

Um eine einweindfreie Funktion zu gewährleisten, bitten wir Sie, folgende Anweisungen zu beachten:

1. sorgfältige Handhabung
2. in der Originalverpackung lagern
3. Die Verpackung erst kurz vor der Benutzung entfernen
4. nicht mehrere Stromschalter zusammen installieren
5. Stromschalter von Magnetfeldern fernhalten
6. Stromschalter nicht auf Metalloberflächen stellen

Bei Nichtbeachten der o. g. Empfehlungen, kann dass ein Entmagnetisieren des Dauermagneten hervorrufen, sowie ein Nichtfunktionieren des Stromschalters.

Wir danken Ihnen für Ihre Aufmerksamkeit!

P.A. S.p.A.



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EU DECLARATION OF CONFORMITY 97/23/EC, 2014/30/EU

We under signed declare under our responsibility that the product:

Noi firmatari della presente dichiariamo sotto la nostra responsabilità che il prodotto:

FLOW SWITCH “Model FL3 – FL7” *FLUSSOSTATO “Modello FL3 –FL7”*

has been designed and manufactured in accordance with the standards CEI EN 60335-2-79:2015, UNI EN 1829-1:2010, UNI EN 1267:2012 and Art. 3.3, reference annex II & III Directive 97/23/EC;

è stato progettato e fabbricato in conformità alle norme CEI EN 60335-2-79:2015, UNI EN 1829-1:2010, UNI EN 1267:2012 e quanto previsto da Art. 3.3, riferimento allegati II e III Direttiva 97/23/CE;

to which this declaration relates is in conformity with the following standards or other normative document(s):

al quale questa dichiarazione si riferisce, è conforme alle seguenti norme:

- **CEI EN 55014-1:2008 + A1:2010 + A2:2012 – Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission**
- *Prescrizione per gli elettrodomestici, gli utensili elettrici e gli apparecchi similari – Parte 1: Emissione*
- **CEI EN 55014-2:2015 – Requirements for household appliances, electric tools and similar apparatus - Part 2: Immunity - Product family standard**
- *Prescrizione per gli elettrodomestici, gli utensili elettrici e gli apparecchi similari – Parte 2: Immunità – Norma di famiglia per prodotti*
- **CEI EN 60335-1:2013 + A11:2015 – Household and similar electrical appliances - Safety - Part 1: General requirements**
- *Sicurezza degli apparecchi d'uso domestico e similare – Sicurezza – Parte 1: Norme generali*

following the provisions of the Directive: 2014/30/EU.

in base a quanto previsto dalla Direttiva: 2014/30/UE.

Restrictions

When installed with other products or as part of an assembly, the EMC characteristics might change. In this case the manufacturer of the final product has to check the EMC characteristics to ensure that they are still in compliance with EMC Directive.

Limitazioni

Quando installato in altri prodotti o come parte di un insieme, le caratteristiche EMC possono essere alterate. Pertanto in tal caso il costruttore del prodotto finito deve verificare nuovamente le caratteristiche EMC per assicurare che siano ancora in conformità con la Direttiva EMC.

We also declare:

Si dichiara inoltre:

that the pressure apparatus has been submitted with successful outcome to: electric test control according to the European norm EN 60204-1 and hydraulic pressure test;

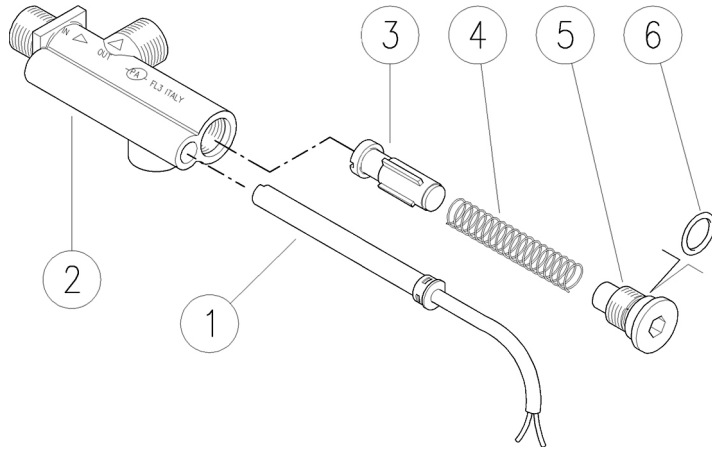
che l'attrezzatura a pressione è stata sottoposta con esito favorevole a: prova di sicurezza elettrica secondo la norma europea EN 60204-1 e prova di pressione idraulica.

P.A. SpA
II PRESIDENTE
Ing. Arnaldo Benetti

Rubiera, li 24/05/2017.

28.0500.10 FL3 Flow switch 3/8MM Bsp

28.0530.10 FL3 Flow switch 3/8MM +1/4F Bsp



28.0540.10 FL3-2 FI.switch 3/8MM Bsp brass pist.

Pos.	P/N	Description	Q.ty	K1	K2	K3	K4	
1	28.0518.23	Feeler, 3A +1250 mm cable	1					5
2	28.0501.35R	FI/sw. housing, 3/8MBsp -3/8M Bspt brass	1					3
2	28.0531.35R	FI/sw.hous., 3/8M Bsp-3/8M Bspt-1/4F brs (1)	1					3
3	28.0502.23R	Magnet holder,plast. POM	1					5
3	28.0508.23R	Magnet holder, brass (2)	1					5
4	28.0505.51R	Spring, 0,7x11,7x52 mm Sst.	1					10
5	28.0517.31R	Plug -fi/sw., M14x1 brass	1					5
6	10.3059.01R	O-ring, 1,78x11,11 mm Ni 85	1					10

(1) 28.0530.10 (2) 28.0540.10