

MAV

Displacement blade level indicator
for solids

Operating Instructions

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► **Read these Safety Instructions before using the switch for the first time and follow the Operating instructions.**

Safety instructions

1. The installation, initial operation and maintenance should only be carried out by a qualified expert with electrical know-how.
2. Comply with the local and statutory rules and/or the VDE0100.
3. Before electrical connection, check the specifications on the data plate and the technical data of this manual.
4. A fuse must be connected in series to the supply voltage, according to the Standard and Normative documents.
5. Protect the signal contacts of the limit switch against voltage peaks when inductive or capacitive loads are connected.
6. The device may be put into operation only if the electrical connection is correct.
7. For a proper function in models without protection box, ensure that the material hits the blade to the front and do not from behind or can settle in the back blocking the blade.
8. The blade must not to be struck by the filling stream.
9. Switch off the power supply, before disconnecting the device.

Operating instructions

1. Specification

1.1 Intended use

The level indicator observes the level as a limit switch in hoppers or little containers and typically for feeding. It can be used as a full and empty indicator for non sticky and easy flow bulk solids at atmospherical pressure.

1.2 Function

The blade must to be exposed to the material.

The movement of the switch is the result of the pressure exerted by the incoming bulk material against the blade which forces the membrane to move backwards, reversing the position of the switch and the signal is used for example to control the transport system in the silo.

1.3 Technical data

Manufacturer	Talleres Filsa, S.A.U.		
Address	Bernat Metge, 33 08100 Mollet del Vallès (Barcelona)		
Name	Blade level indicator		
Type	MAV	ref: 2330	
	MAV E	ref: 2330-1	
	MAV ET	ref: 2330-2	

Maximum voltage 250 V AC

Contact function 1 NO + 1 NC

Capacity of the contact 2 A / 250 V AC
(for resistive loads)

For inductive or capacitive loads reduce at 50%

Ambient temperature -10 °C ... +60 °C

Protection IP40 according DIN EN60529

Weight

MAV 0.07 kg

MAV E 0.15 kg

MAV ET 0.20 kg

1.4 Materials

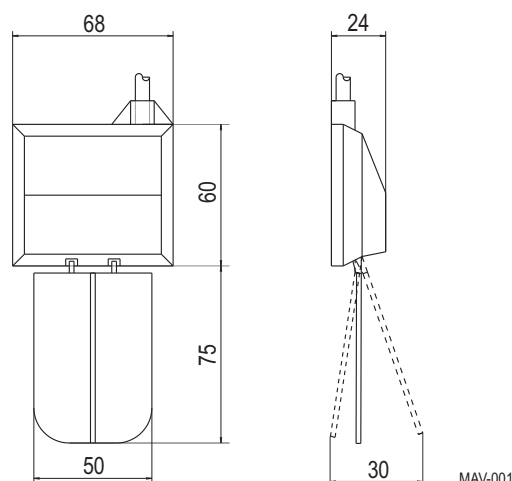
Housing and blade	Polyamide
Protection box	ABS
Tube	PVC
Fixing bracket	Zincated steel

1.5 Dimensions

Aproximate measures are given in mm.

MAV

Simple switch, with 3x0.5 mm² wires of 450 mm length .

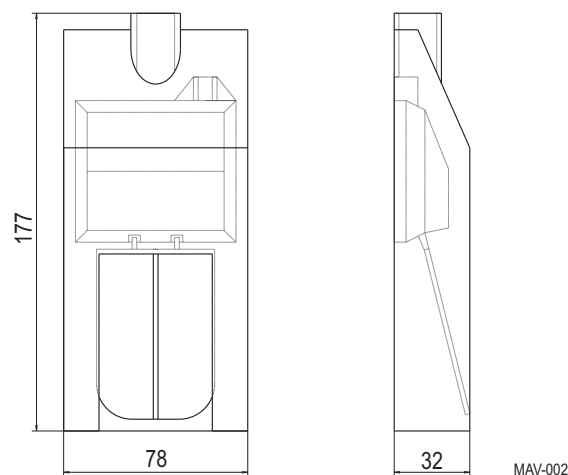


MAV E

Encapsulated switch with protection box, cable entry M16 and with 3x0.5 mm² wires of 450 mm length.

MAV ET

Encapsulated switch with protection box, tube of 330 mm, fixing bracket, cable entry M16 and with 3x0.5 mm² wires of 450 mm length.



2. Installation

2.1 Preparing for use

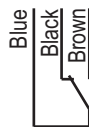
- Read the Safety Instructions and the Operating Instructions before using the controller.
- For a proper function in models without protection box, ensure that the material hits the blade to the front and do not from behind or can settle in the back blocking the blade.
- The membrane must not be struck by the filling stream.

2.2 Mechanical connection

The mounting of the device is fixing the controller to the wall using screws. The standar mounting for the models ET is fixing the device using the bracket.

2.3 Electrical connection

Connection diagram



3. Use

MAV-003

3.1 Commissioning

- Put the level indicator into operation only, if the installation and the electrical connection have been done correctly.

3.2 Normal operation

- Use the level indicator in its intended aplication only.
- Comply with the specifications on the data plate and the technical data of this manual.
- If the controller is damaged, disconnect it immediately.
- It is forbidden to make changes to the device. This violates the Normative.

3.3 Inexpert handling

- Ignoring the Safety instructions and the operating instructions.
- Not intended use.
- Making changes or handling the controller.
- Violation against applicable Law and Standards.
- Using non original parts.

4. Maintenance, servicing and spare parts

4.1 Maintenance

- If used correctly, no specific maintenance is required.

4.2 Servicing

- Check and review the state of the housing, rod and cone and the correct commutation of the electric contact, as well.

4.3 Spare parts

- There are no sapre parts for these controllers.

5. Storage

- Store the level indicator in a dry and dust-free envirnoment.
- Dismount the rod together with the cone. Store the housing on its top with the anti-buckling protection upwards.

6. Disposal

- Switch off the power supply, before disconnecting the device.
- The level indicator can be recycled.
- The disposal applies to the valid environmental Guidelines according to the location of he carrier and the local manufacturing conditions.

FILSA constantly strives to improve its products and reserves the right to modify designs, materials and data without prior notice.

Keep this manual for further questions!



Declaración UE de Conformidad EU-Declaration of Conformity

Nosotros/We

Talleres Filsa, S.A.U.

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por la presente declaramos bajo nuestra única responsabilidad, que los aparatos:
declares under our sole responsibility, that the product:

Controlador de Nivel / Level limit switch Tipo/Type

IR ..., F9 ..., ILV ..., IC ..., A-100 ..., M ..., SCP ..., L ..., LRN ..., LS ..., VS ...,
RS ..., MH ..., B ..., T ..., T-10 ..., T-15E ..., TM ..., T-28E ..., LIT ..., FA, L-E ...,
NS, CER, SER, NP, VCLQV ..., VPN ..., SES ..., SIS ..., SNS ..., KE ..., KI ...,
KN ..., VN ..., VO ..., PC ..., TD ..., TU ..., FDF ..., CD ..., PD ..., MS1 ..., KP ..., AD ...

cumplen con las siguientes Normas Europeas:
conforms with the following European directives:

CEM Directiva
Normativa de baja tensión

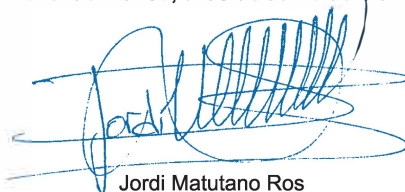
EMC Directive
Low voltage directive

2014/30/EU
2014/35/EU

Aplicado según las Normas armonizadas o documentos normativos:
Applied harmonized standards or normative documents:

EN 61326-1:2013**EN IEC 61000-6-2:2019****EN 61010-1:2010 + A1:2019 + A1:2019/AC:2019****EN 60529:1991 + A1:2000 + A2:2013**

Mollet del Vallés, el 09 de Junio del 2021



Jordi Matutano Ros
QB

Esta Declaración solamente podrá ser
utilizada en tanto no haya sido alterada.

This declaration is only allowed to
hand out in unchanged form.

Condiciones de Garantía

Talleres Filsa garantiza sus productos por un período de doce meses, a partir de la fecha de venta. Esta garantía cubre la reparación o sustitución de las piezas, materiales o equipos defectuosos, imputables a defectos de fabricación. El usuario correrá con los gastos de envío de los elementos defectuosos, hasta las instalaciones de Talleres Filsa.

Hasta que no se reciba el elemento en cuestión y se haya podido verificar por nuestros técnicos, no se debe entender aceptado el equipo como en garantía. En caso de encontrarse un deterioro o avería imputable a causas ajenas a nuestra empresa, se confirmará un presupuesto de reparación si fuese económicamente factible.

En ningún caso debe o puede llegar a entenderse que realizando la compra de otro equipo, éste puede llegar a ser excluyente de pagarse en caso de encontrarse un posible defecto de fabricación o imputable a una causa ajena a Talleres Filsa.

La sustitución de las piezas, materiales o equipos defectuosos, no implicará prórroga de la garantía.

Quedan excluidas de esta garantía las averías o deterioros debidos a la utilización de nuestros productos para fines distintos a los que les son propios, o no hayan sido instalados de acuerdo con las instrucciones de instalación y utilización.

Quedan excluidas de esta garantía las piezas o equipos que hayan sido manipulados por personas no autorizadas por Talleres Filsa.

Quedan excluidas de esta garantía, las averías producidas por causas catastróficas (fuego, inundaciones...), atmosféricas, golpes y caídas.

Talleres Filsa al no efectuar la instalación de los aparatos que suministra, no responde de los daños directos o indirecto, causados por avería o defecto de sus materiales y productos y cualquier otra reclamación que de ellos pueda derivarse, a menos de que la ley lo disponga con carácter obligatorio.

Para validar la garantía, los materiales o productos deberán ir acompañados de la factura de compra.

Warranty Conditions

Talleres Filsa guarantees its products for a period of twelve months as from the date of sale. This guarantee covers the repair or substitution of the defective parts, materials or equipment that are imputable to manufacturing defects. The user will be responsible for the costs of returning the defective elements to the facilities of Talleres Filsa.

Until the device is received and it has been verified by our technicians, the equipment should not be accepted as under warranty. In the event of a deterioration or breakdown attributable to causes beyond our company, an offer of reparation will be confirmed if it is economically feasible.

In no case should or can it be understood that by purchasing other equipment, it can be excluded from being paid in the event of a possible manufacturing defect or attributable to a cause beyond Talleres Filsa.

The substitution of defective parts, materials or equipment will not constitute an extension of the guarantee.

The breakdowns and deteriorations due to using our products for purpose other than those for which they were manufactured, or products which have not been installed in accordance with the instructions for installation and use are excluded from this guarantee .

The parts and equipment which have been manipulated by persons not authorised by Talleres Filsa are excluded from this guarantee..

The breakdowns caused by catastrophic conditions (fire, floods...), atmospheric conditions, knocks and falls are excluded from this guarantee.

Not having carried out the installation of the devices it supplies, Talleres Filsa accepts no responsibility for direct or indirect damage caused by breakdowns or defects of its materials or products and for any other claim which could be derived from these, unless otherwise obligatorily stipulated by the Law.

In order to validate the guarantee, the materials or products should be accompanied by proof of purchase.