

Conductive level program

Sensors

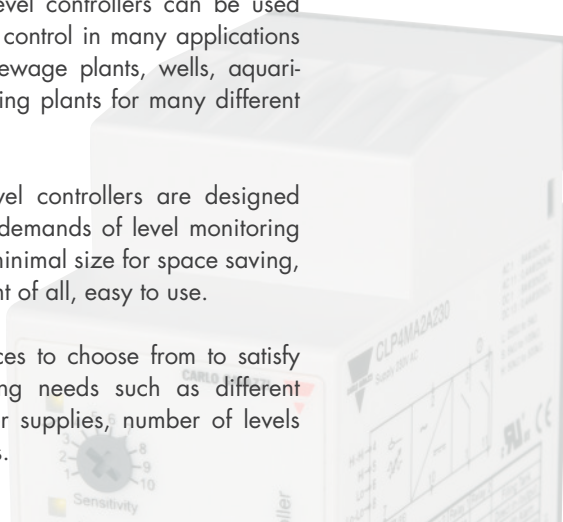
CL - Series

Conductive level program

The CL series of conductive level controllers can be used for level monitoring and pump control in many applications such as in tanks, reservoirs, sewage plants, wells, aquariums, swimming pools and mixing plants for many different conductive liquids.

Carlo Gavazzi conductive level controllers are designed specifically to meet the many demands of level monitoring such as flexibility, robustness, minimal size for space saving, affordability and most important of all, easy to use.

There are many different choices to choose from to satisfy every different level monitoring needs such as different housing, wide range of power supplies, number of levels required, cascading and others.



The complete product range for level measurement

Electrode probe

CL series can be used with all the Carlo Gavazzi's level probes that includes from 1 electrode up to 5 electrodes and also the level hanging probes.

Various level control functions

The level controllers can perform various level control functions such as filling, emptying or combinations of the two. It can also be cascaded up to 7 controllers for many levels. This provides full flexibility and adaptability for various applications.

Easy adjustments

The level controllers functions and sensitivity can be easily set and tuned by means of rotary switches and potentiometer. This makes installation and maintenance very easy.

Wide range of power supply

Many different power supply ranges to choose from such as 24VAC, 115VAC, 230VAC, 24VDC Or the CLD2EB1BU24 with 24-240VAC/DC.

LED status indication

Front LEDs indicate clearly the power state and status of each of the output relays for easy monitoring.

Space-saving design

The level controller is available in the compact 17.5 mm for extra panel space saving or the standard 35mm wide DIN-rail or 11 pin plug housing for different installation needs.

Approvals and markings

Exceptional and proven quality with UL, CSA and CE certified



Applications

Agriculture

- Level control in slurry tanks, water tanks, reservoirs, sewage plants, underground wells and mixing plants
- Flow detection in pipes, channels, and irrigation systems



Chemical

- Level in chemical tanks
- Indication of liquid build-up due to filter blockages.
- Alarm control warning of abnormal or dangerously high or low levels.



Food & beverage

- Level detection of liquids such as milk products, beer, wine, soft drinks and water, but also sticky or abrasive products such as chocolate or jam.



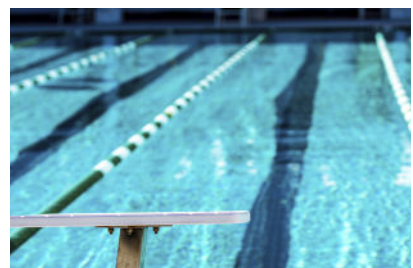
Water distribution/treatment

- For level and pump control
- Fill level control of purified city water, industrial water or sewage
- Hot water supply heated by solar energy
- Filling application of tank level



Swimming pool

- Swimming pools level control with level hanging probe



CL - Series

Conductive level program

CLD1EA, 1-point basic level controller

Slim 17.5 wide DIN-rail housing for excellent space saving and basic sensitivity range that covers the conductivity

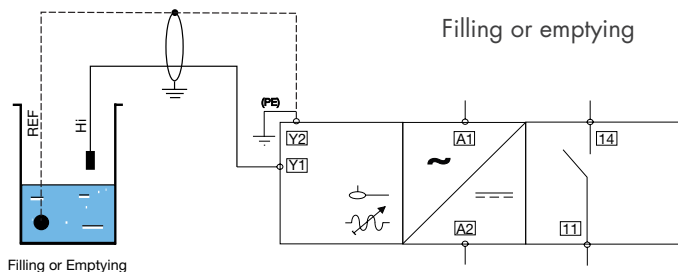
of most standard liquids in most applications. Equipped also with time delay from 1 to 30 seconds.

Features

- Max./min. control of filling or emptying of liquids by means of one level and a time delay function.
- Compact housing for mounting on standard rails in cabinet.
- Adjustable sensitivity by means of the potentiometer settings.
- SPST relay.
- Time settings from 1 to 30 seconds for filling or emptying.



Operation diagram



Technical data

Sensitivity	5k Ω to 150K Ω
Power supply	24 VAC/DC
Operating temperature	-20° to +50°C (-4° to + 122°F)
Input probe	1 + reference
Outputs	1 x SPST relay
AC1	8A/250 VAC
Approvals	UL508, CSA, CE

CLD2EA & CLP2EA, 2-point level controller

Level controller with an extended sensitivity range that covers the conductivity of most liquids such as chemi-

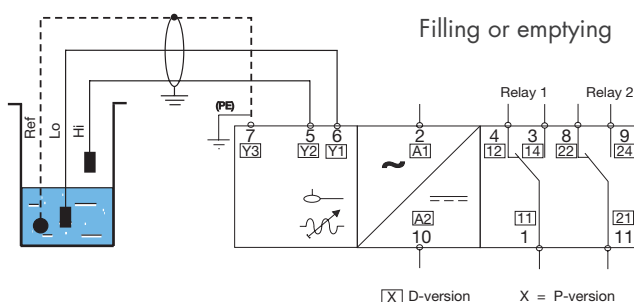
cals, sewage water, sea water, distilled water, etc.

Features

- Max./min. control of filling or emptying (charging or discharging) of liquids between two levels.
- Compact housing for mounting on standard DIN-rail or 11-pin plug-in socket.
- Extended and adjustable sensitivity by means of potentiometer with 3 sensitivity ranges.
- DPDT relay.



Operation diagram



[X] D-version X = P-version

Technical data

Low sensitivity	250 Ω to 5K Ω
Medium sensitivity	5k Ω to 100K Ω
High sensitivity	50k Ω to 500K Ω
Power supply	24 VAC/DC, 115 VAC, 230 VAC
Operating temperature	-20° to +50°C (-4° to + 122°F)
Input probe	2 + reference
Outputs	1 x DPDT relay
AC1	8A/250 VAC
Approvals	UL508, CSA, CE

CLD2EB1BU24, slim housing 2 point level controller

Slim 17.5mm wide housing for excellent space saving. The level controller has extended sensitivity range that covers the conductivity of most liquids

in any applications. Wide range of power supply from 24-240VAC/DC in a single unit ensures flexibility and reduces inventory.

Features

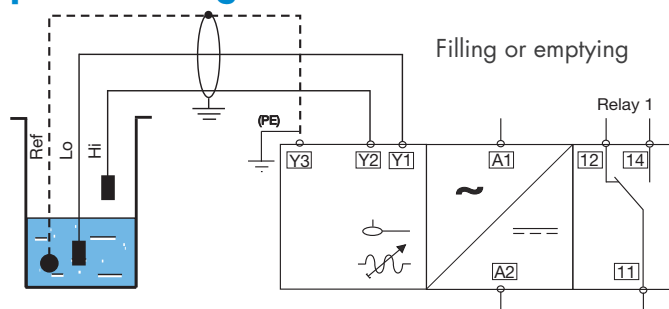
- Max./min. control of filling or emptying of liquids between two levels.
- 17.5mm slim housing for mounting on standard DIN-rail
- Wide power supply 24-240VAC/DC
- Extended and adjustable sensitivity by means of potentiometer with 3 sensitivity ranges
- SPDT relay



Technical data

Low sensitivity	250Ω to 5KΩ
Medium sensitivity	5kΩ to 100KΩ
High sensitivity	50kΩ to 500KΩ
Power supply	24-240 VAC/DC
Operating temperature	-20° to +50°C (-4° to + 122°F)
Input probe	2 + reference
Outputs	1 x SPDT relay
AC1	8A/250 VAC
Approvals	cULus, CE

Operation diagram



CLP2EB, 2 point basic level controller

Simple and easy to use level controller with basic sensitivity range that

covers the conductivity of most standard liquids in most applications.

Features

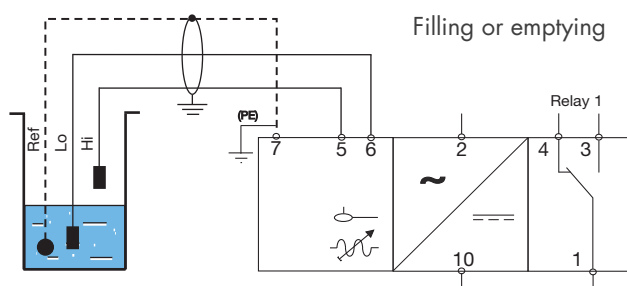
- Max./min. control of filling or emptying of liquids between two levels.
- Compact housing for mounting on standard 11 pin plug in socket
- Adjustable sensitivity by means of potentiometer settings.
- SPDT relay
- Good price to performance ratio



Technical data

Low sensitivity	5Ω to 150KΩ
Power supply	24 VDC, 24 VAC, 115 VAC, 230 VAC
Operating temperature	-20° to +50°C (-4° to + 122°F)
Input probe	2 + reference
Outputs	1 x SPDT relay
AC1	8A/250 VAC
Approvals	UL508, CSA, CE

Operation diagram



CL - Series

Conductive level program

CLP2FA, 2-point level controller, cascade coupling

A state of the art level controller that can cascade up to 7 units for many different levels. The main unit is the master that can link with several slaves for the

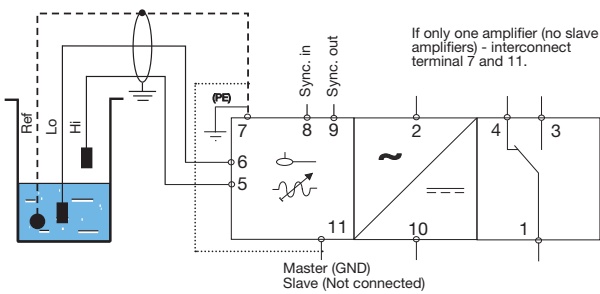
desired amount of levels. It can also be used as a standalone system with just 1 unit.

Features

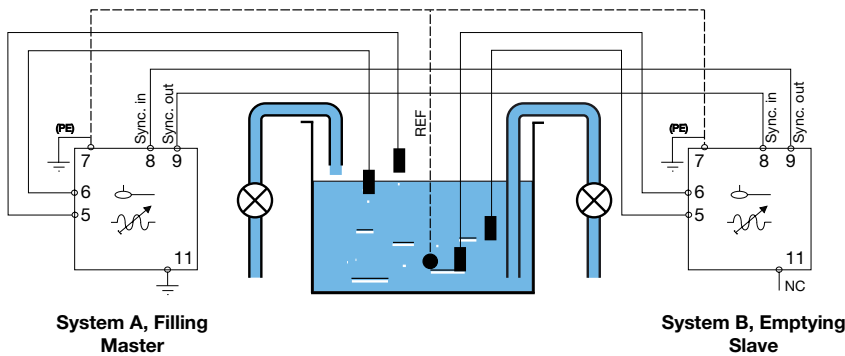
- Max./min. control of filling or emptying of liquids between two levels.
- Compact housing for mounting with 11-pin plug-in socket.
- Extended and adjustable sensitivity by means of potentiometer with 3 sensitivity ranges.
- SPDT relay.
- Master/slave system for cascade connecting of up to seven systems.



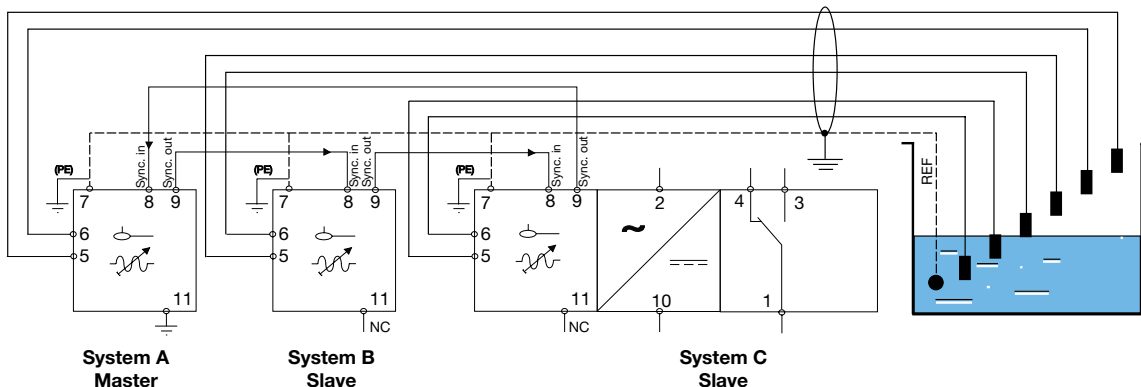
Operation diagram



Filling and emptying with more systems in one common tank



Multilevel application in one tank



Technical data

Low sensitivity	250Ω to 5KΩ
Medium sensitivity	5kΩ to 100KΩv
High sensitivity	50kΩ to 500KΩ
Power supply	24 VAC/DC, 115 VAC, 230 VAC
Operating temperature	-20° to +50°C (-4° to + 122°F)
Input probe	2 + reference
Outputs	1 x SPDT relay
AC1	8A/250 VAC
Approvals	UL508, CSA, CE

CLD4MA & CLP4MA, 2 to 4-point level controller

Advanced level controller with 2 to 4 levels that can be configured in many different operating modes. The controller can handle up to 2 filling operations

or 2 emptying operations or combination of these. It can also operate with HiHi or LoLo alarm or in a tank-well situation.

Features

- Max./min. control of filling or emptying of liquids between two levels.
- Compact housing for mounting with 11-pin plug-in socket or DIN-rail.
- Extended and adjustable sensitivity by means of potentiometer with 3 sensitivity ranges.

- SPDT & SPST (Din Rail); 2 x SPST (Plug In)
- Able to work in 4 different modes with many combinations

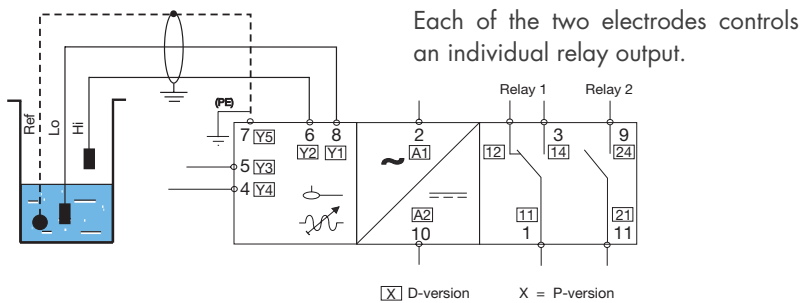


Technical data

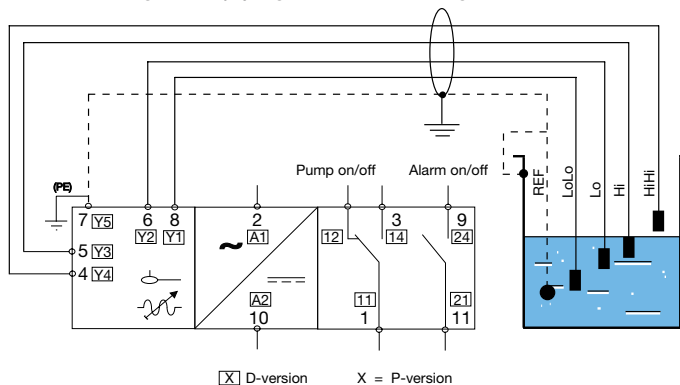
Low sensitivity	250Ω to 5KΩ
Medium sensitivity	5kΩ to 100KΩv
High sensitivity	50kΩ to 500KΩ
Power supply	24 VAC/DC, 115 VAC, 230 VAC
Operating temperature	-20° to +50°C (-4° to + 122°F)
Input probe	4 + reference
Outputs	1 x SPDT & 1 x SPST relay
AC1	8A/250 VAC
Approvals	UL508, CSA, CE

Operation diagram

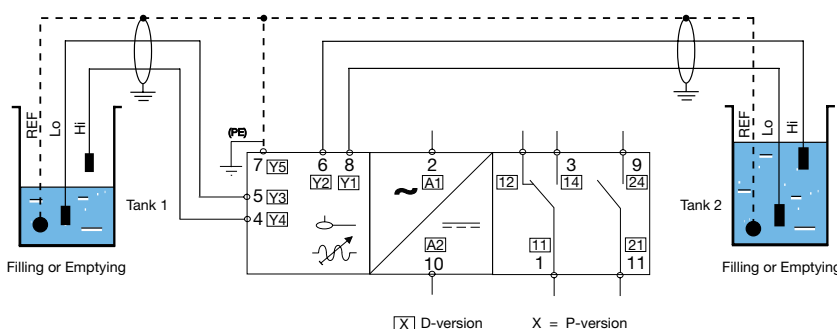
Mode 1: Direct input - output



Mode 2: Filling or emptying with low and high alarms.



Mode 3: 2 in 1

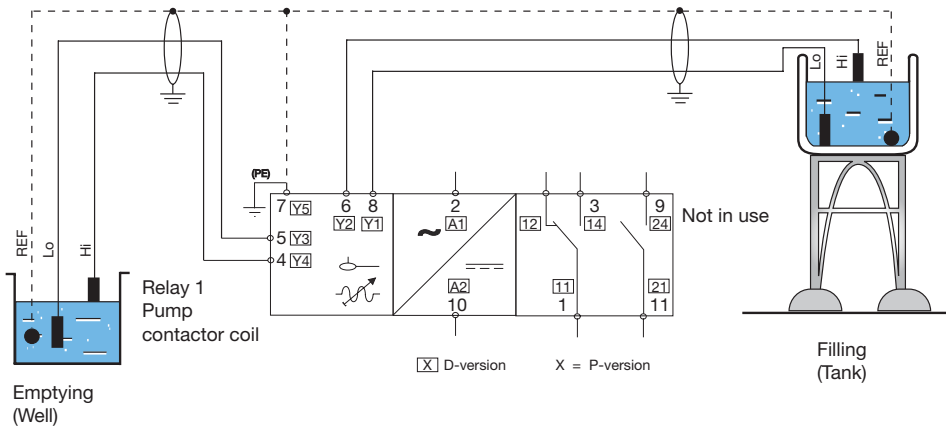


CL - Series

Conductive level program

CLD4MA & CLP4MA, 2 to 4-point level controller

Mode 4: Tank - Well



Maximum and minimum control of two systems, a filling system and a emptying system with the same kind of liquid to be measured and one common pump especially in application to transfer from one tank to another tank.

Type selection - level controller

Mounting	Relay	Power supply					
		115 VAC	230 VAC	24 VAC/DC	24 VAC	24 DC	24-240 VAC/DC
CLD1, 1-point basic level controller							
DIN-rail	SPST	-	-	CLD1EA1CM24	-	-	-
CLD2 & CLP2, 2-point level controller							
DIN-rail	DPDT	CLD2EA1C115	CLD2EA1C230	CLD2EA1CM24	-	-	-
11-pin plug*	DPDT	CLP2EA1C115	CLP2EA1C230	CLP2EA1CM24	-	-	-
CLD2EB1BU24, slim housing 2 point level controller							
DIN-rail	SPDT	-	-	-	-	-	CLD2EB1BU24
CLP2EB, 2 point basic level controller							
11-pin plug*	SPDT	CLP2EB1B115	CLP2EB1B230	-	CLP2EB1B024	CLP2EB1B724	-
CLP2FA, 2-point level controller, cascade coupling							
11-pin plug*	SPDT	CLP2FA1BM115	CLP2FA1B230	CLP2FA1BM24	-	-	-
CLD4MA & CLP4MA, 2 to 4 point level controller							
DIN-rail	SPDT + SPST	CLD4MA2D115	CLD4MA2D230	CLD4MA2DM24	-	-	-
11-pin plug*	2 SPST	CLP4MA2A115	CLP4MA2A230	CLP4MA2AM24	-	-	-

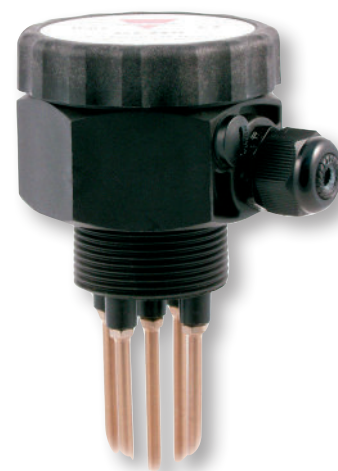
Accessories

* The 11-pin plug in level controller requires base socket which must be purchased separately with the part no ZPD11A.

CLH3 & CLH5 level probes

Flexible conductive level probe that can accommodate up to five electrodes for four different levels with 1 electrode used for reference. The electrodes are available without isolation or coated

with isolation material for aggressive or sticky mediums. Length of the electrode can be extended by using extension electrode according to the requirements.



Features

- Mounting probe head up to 5 electrodes (CLH 5) or 3 electrodes (CLH 3)
- Electrode length can be extended using extension electrodes.
- With Isolation or without isolation electrodes.

Technical data probe head

Material	Polypropylene
No of possible electrodes	3 or 5
Degree of protection	IP65 (Housing) IP68 (Elec. Conn.)
Operating temperature	-20° to 90°C (-4° to + 194°F)
Electrode connection	Screw terminals

Technical data electrodes

Material	Stainless steel AISI316
Length	1000 mm
Diameter	Ø 4 mm
Isolation	Kynar or polyolefine

Type selection - probes and electrodes

	Probes		Electrodes		
	For 3 electrodes	For 5 electrodes	1000 mm basic	2000 mm extended	Extension 1000 mm
	CLH3	CLH5	-	-	-
Electrode without isolation	-	-	CLE1	CLE2	CLE1X
Electrode with isolation, kynar (PVDF)	-	-	CLE1K	CLE2K	CLE1KX
Electrode with isolation, polyolefine (FR)	-	-	CLE1P	CLE2P	CLE1PX
Pipe thread	1.5"		-		
Housing material	PP		-		
Description			1000 mm basic electrode for no further extension	1000 mm basic electrode for extension. 1000 mm extension electrode. 1 extension joint. 1 isolation tube.	1000 mm extension electrode. 1 extension joint. 1 isolation tube.

- Please order 3 electrodes if using CLH3 or 5 electrodes if using CLH5.
- Example: if you need 3 levels with Kynar isolated 1m probe, you need to order 1 x CLH3 + 3 x CLE1K.
- Please order CLE1X or CLE1KX or CLE1PX if you require further extension according to the isolation type required.

Probe - Series

Conductive level program

VH3 & VH4 hanging probes

VH3 is a level hanging probe specifically designed to be used in swimming pools and resists high chlorine and high salinity. It is also suitable to be used in wells, reservoirs and tanks.

VH4 is a simple and easy to install level probe for general use. VH3-4-MB1 Snap-on brackets for easy and secure installation.



VH3

VH4

Features

- VH3 – resistant to chlorine and salinity and suitable for use in swimming pools
- VH4- simple and easy to install probe for general use and comes with double screw terminal for secure cable connection
- Can be used outdoors under sunlight
- Snap on bracket for easy installation

Technical data VH3

Electrode material	Stainless steel AISI316
Housing material	Polycarbonate
Over mould material	PA6
Operating temperature	0° to +80°C (32° to + 176°F)
Connection	6 m UV resistant PVC cable

Technical data VH4

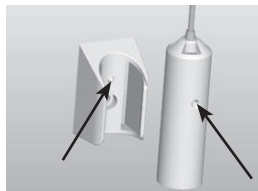
Electrode material	Stainless steel AISI304
Housing material	Polycarbonate
Operating temperature	0° to +80°C (32° to + 176°F)
Connection	2 x M4 Screw terminal

VH3-4-MB1

- Snap on bracket exclusively for VH3 and VH4
- Positioning pin on the bracket ensures right installation
- Durable polycarbonate bracket



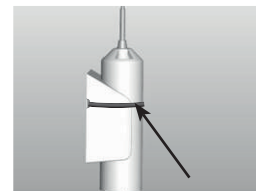
Installation



Step 1
Align the probe to the positioning pin of the bracket. Clamp the probe firmly in place.



Step 2
A misalignment of the pin and the blind hole prevents proper installation of the probe.








Step 3
Once the probe is snapped into the bracket, you can secure it with a cable tie around the recess on the rear of the bracket.

Type selection - hanging probes

6 m cable	VH3
No cable	VH4
Snap-on bracket*	VH3-4-MB1

* Bracket to be purchased separately. Bracket only for VH3 and VH4.

Conductive level sensors

Types	VN / VNI	VNY / VNYI	VPC	VPP	VT / VTI					
Connections	Cable 2 m (PVC)	Screw connection	Screw connection	Screw connection	Cable 1 m (Silicone)					
										
Electrodes										
Number of electrodes	1, 2, 3 or 4	1, 2, 3 or 4	1, 2 or 3	1, 2 or 3	1, 2, 3 or 4					
Diameter/length (mm)	D5/1000	D5/1000	D4/500	D4/500	D5/1000					
Material	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel					
Isolation of electrodes	Yes (VNI)	Yes (VNYI)	Yes	Yes	Yes (VTI)					
Isolation	Polyethylene	Polyethylene	Polyethylene	PVDF	Teflon					
Housing										
Pipe thread	1 1/2"	1 1/2"	1/2" (VPCx05) or 1" (VPCx10)	1/2" (VPPx05) or 1" (VPPx10)	1 1/2"					
Material	Nylon 6	Nylon 6	PVC	Polyethylene	Teflon					
References										
1 electrode	VN1	VNI1	VNY1	VNYI1	VPC105	VPC110	VPP105	VPP110	VT1	VTI1
2 electrodes	VN2	VNI2	VNY2	VNYI2	VPC205	VPC210	VPP205	VPP210	VT2	VTI2
3 electrodes	VN3	VNI3	VNY3	VNYI3		VPC310		VPP310	VT3	VTI3
4 electrodes	VN4	VNI4	VNY4	VNYI4					VT4	VTI4
Specifications										
Degree of protection	IP67	IP67	IP67	IP67	IP67	IP67	IP67	IP67	IP67	IP67
Operating temperature	0°C to 90°C	0°C to 90°C	0°C to 60°C	0°C to 60°C	0°C to 60°C	0°C to 60°C	0°C to 100°C	0°C to 100°C	0°C to 145°C	0°C to 145°C
Approvals/marks	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE

Types	VH1 / VH2	VH3	VH4	A 94-10
Connections	Cable 5 m (Neoprene)	Cable 6 m (UV resistant PVC)	Screw connection	Cable 6 m (PVC)
				
Electrodes				
Number of electrodes	1	1	1	2
Diameter/length (mm)	D18/36.5 or D32/75.5	D19/65	D19/65	D22/75.0
Material	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Isolation of electrodes	No (VH1) - Yes (VH2)	No	No	No
Isolation	Nylon 6	-	-	-
Housing				
Material	Nylon 6	Polycarbonate	Polycarbonate	Polyester
References				
1 electrode	VH1 OR VH2	VH3	VH4	-
2 electrodes	-	-	-	A 94-10
Snap On Bracket	-	VH3-4-MB1	VH3-4-MB1	-
Specifications				
Degree of protection	IP67	IP67	-	IP67
Operating temperature	0°C to 90°C	0°C to 80°C	0°C to 80°C	0°C to 60°C
Approvals/marks	CE	CE	CE	CE

OUR SALES NETWORK IN EUROPE

AUSTRIA

Carlo Gavazzi GmbH
Ketzergrasse 374,
A-1230 Wien
Tel: +43 1 888 4112
Fax: +43 1 889 10 53
office@carlogavazzi.at

FRANCE

Carlo Gavazzi Sarl
Zac de Paris Nord II, 69, rue de la Belle Etoile,
F-95956 Roissy CDG Cedex
Tel: +33 1 49 38 98 60
Fax: +33 1 48 63 27 43
french.team@carlogavazzi.fr

ITALY

Carlo Gavazzi SpA
Via Milano 13,
I-20020 Lainate
Tel: +39 02 931 761
Fax: +39 02 931 763 01
info@gavazziacbu.it

SPAIN

Carlo Gavazzi SA
Avda. Iparraguirre, 80-82,
E-48940 Leioa (Bizkaia)
Tel: +34 94 480 4037
Fax: +34 94 431 6081
gavazzi@gavazzi.es

BELGIUM

Carlo Gavazzi NV/SA
Mechelsesteenweg 311,
B-1800 Vilvoorde
Tel: +32 2 257 4120
Fax: +32 2 257 41 25
sales@carlogavazzi.be

GERMANY

Carlo Gavazzi GmbH
Pfnorstr. 10-14
D-64293 Darmstadt
Tel: +49 6151 81000
Fax: +49 6151 81 00 40
info@gavazzi.de

NETHERLANDS

Carlo Gavazzi BV
Wijkermeerweg 23,
NL-1948 NT Beverwijk
Tel: +31 251 22 9345
Fax: +31 251 22 60 55
info@carlogavazzi.nl

SWEDEN

Carlo Gavazzi AB
V:a Kyrkogatan 1,
S-652 24 Karlstad
Tel: +46 54 85 1125
Fax: +46 54 85 11 77
info@carlogavazzi.se

DENMARK

Carlo Gavazzi Handel A/S
Over Hadstenevej 40,
DK-8370 Hadsten
Tel: +45 89 60 6100
Fax: +45 86 98 15 30
handel@gavazzi.dk

GREAT BRITAIN

Carlo Gavazzi UK Ltd
4.4 Frimley Business Park,
Frimley, Camberley, Surrey GU16 7SG
Tel: +44 1 276 854 110
Fax: +44 1 276 682 140
sales@carlogavazzi.co.uk

NORWAY

Carlo Gavazzi AS
Melkeveien 13,
N-3919 Porsgrunn
Tel: +47 35 93 0800
Fax: +47 35 93 08 01
post@gavazzi.no

SWITZERLAND

Carlo Gavazzi AG
Verkauf Schweiz/Vente Suisse
Sumpfstrasse 3,
CH-6312 Steinhausen
Tel: +41 41 747 4535
Fax: +41 41 740 45 40
info@carlogavazzi.ch

FINLAND

Carlo Gavazzi OY AB
Petaksentie 2-4,
FI-00630 Helsinki
Tel: +358 9 756 2000
Fax: +358 9 756 20010
myynti@gavazzi.fi

PORTUGAL

Carlo Gavazzi Lda
Rua dos Jerónimos 38-B,
P-1400-212 Lisboa
Tel: +351 21 361 7060
Fax: +351 21 362 13 73
carlogavazzi@carlogavazzi.pt

OUR SALES NETWORK IN THE AMERICAS

USA

Carlo Gavazzi Inc.
750 Hastings Lane,
Buffalo Grove, IL 60089, USA
Tel: +1 847 465 6100
Fax: +1 847 465 7373
sales@carlogavazzi.com

CANADA

Carlo Gavazzi Inc.
2660 Meadowvale Boulevard,
Mississauga, ON L5N 6M6, Canada
Tel: +1 905 542 0979
Fax: +1 905 542 22 48
gavazzi@carlogavazzi.com

MEXICO

Carlo Gavazzi Mexico S.A. de C.V.
Calle La Montaña no. 28, Fracc. Los Pastores
Naucalpan de Juárez, EDOMEX CP 53340
Tel & Fax: +52.55.5373.7042
mexicosales@carlogavazzi.com

BRAZIL

Carlo Gavazzi Automação Ltda.Av.
Francisco Matarazzo, 1752
Conj 2108 - Barra Funda - São Paulo/SP
Tel: +55 11 3052 0832
Fax: +55 11 3057 1753
info@carlogavazzi.com.br

OUR SALES NETWORK IN ASIA AND PACIFIC

SINGAPORE

Carlo Gavazzi Automation Singapore Pte. Ltd.
61 Tai Seng Avenue
#05-06 UE Print Media Hub
Singapore 534167
Tel: +65 67 466 990
Fax: +65 67 461 980
info@carlogavazzi.com.sg

MALAYSIA

Carlo Gavazzi Automation (M) SDN. BHD.
D12-06-G, Block D12,
Pusat Perdagangan Dana 1,
Jalan PJU 1A/46, 47301 Petaling Jaya,
Selangor, Malaysia.
Tel: +60 3 7842 7299
Fax: +60 3 7842 7399
sales@gavazzi-asia.com

CHINA

Carlo Gavazzi Automation
(China) Co. Ltd.
Unit 2308, 23/F.,
News Building, Block 1, 1002
Middle Shennan Zhong Road,
Shenzhen, China
Tel: +86 755 83699500
Fax: +86 755 83699300
sales@carlogavazzi.cn

HONG KONG

Carlo Gavazzi Automation
Hong Kong Ltd.
Unit 3 12/F Crown Industrial Bldg.,
106 How Ming St., Kwun Tong,
Kowloon, Hong Kong
Tel: +852 23041228
Fax: +852 23443689

OUR COMPETENCE CENTRES AND PRODUCTION SITES

DENMARK

Carlo Gavazzi Industri A/S
Hadsten

MALTA

Carlo Gavazzi Ltd
Zejtun

ITALY

Carlo Gavazzi Controls SpA
Belluno

LITHUANIA

Uab Carlo Gavazzi Industri Kaunas
Kaunas

CHINA

Carlo Gavazzi Automation (Kunshan) Co., Ltd.
Kunshan

HEADQUARTERS

Carlo Gavazzi Automation SpA
Via Milano, 13
I-20020 - Lainate (MI) - ITALY
Tel: +39 02 931 761
info@gavazziautomation.com



CARLO GAVAZZI
Automation Components

Energy to Components!

www.gavazziautomation.com

