



# CV 82 - 83 - 84

## Minimum and maximum level control with vibrating foil

REPORT 200 / 84

ELECTRONIC EQUIPMENT

ACOUSTIC

WEIGHING

ANTI-TILTING

VALVES

TEMPERATURE

DETECT A FIRE®

FLOW/RATE

DENSITY

INTERFACE

PRESSURE

LEVEL

TF 02



Suitable for any type of silo and hopper, for minimum or maximum level, no counter electrode required. It works with any type of polyvalent product with variable capacity or that packs, such as:

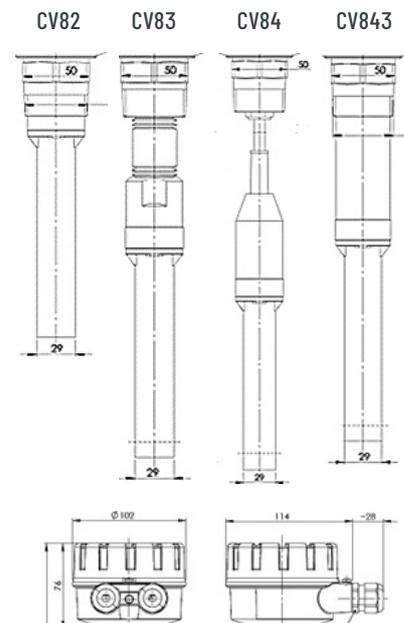
- powdered milk
- fries
- coffee grounds
- foundry ground
- pieces of stearin
- powdered cellulose
- plastic granules
- powdered clay
- ballast
- dried soot
- pellets chips
- kaolin
- micronized
- frozen fries
- coffee beans
- freeze-dried coffee
- tea (leaves)
- wood shavings
- sawdust
- fine ground glass
- polystyrene powder
- expanded polystyrene (eps)
- animal fats
- litharge
- cement
- feldspar
- green beans
- sugar
- salt
- dehydrated mud
- flour
- spices
- peanuts
- tobacco
- chalk
- soda
- minium
- smoky black
- detergent

### Operating principle

Terry Ferraris' vibrating foil level control is set into vibration in the air at 165 Hz by an electronic circuit: when the material wraps around the foil, the vibration is damped, so there is a change in voltage, which through the electronic circuit controls the relay. For products that pack on the walls, there is no problem, since the foil is insensitive to BASE, while it is very sensitive to the END, and the vibration itself is self-cleaning.

Fig. 1

### Technical data



The continuous development of the product displayed in this bulletin requires changes in the data displayed without prior notice

TERRY FERRARIS S.R.L.

Viale Ortles, 10 - 20139 Milano | Tel. 02 5391005 | Fax 02 5692864 | info@terryferraris.it | www.netaqua.it | [www.terryferraris.it](http://www.terryferraris.it)

**Minimum or maximum safety**

The probe is equipped with a minimum safety circuit (Fig. 2). That is, if the material fails or the voltage fails, the relay de-energises. If the probe is to be operated in a fail-safe circuit, simply change the switch position on the circuit board from FSL to FSH, so that the relay de-energises when there is no material or no voltage.

**FL: Minimum security**

**FH: Maximum safety**

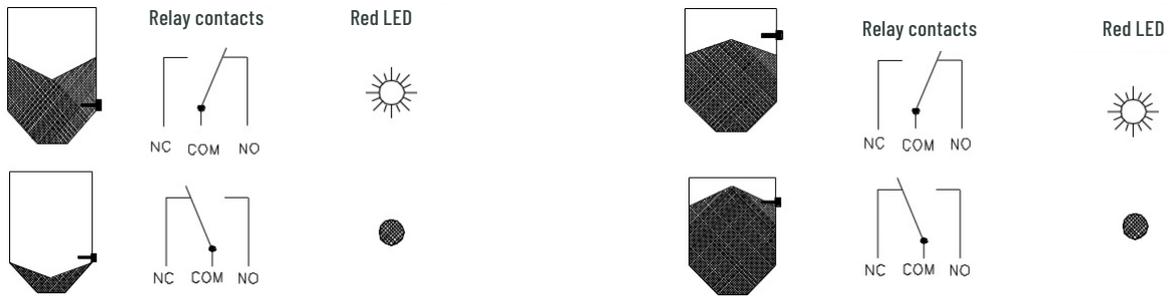


Fig. 2 - FL Minimum safety/FH Maximum safety

**Installation (see Fig. 5):**

- When the CV 82/83 is mounted on the side of the silo, the foil faces downwards at an angle of 45°.
- Position the foil so that it is always cutting (the notch on the nozzle indicates the position of the foil (Fig. 1), so that the material does not

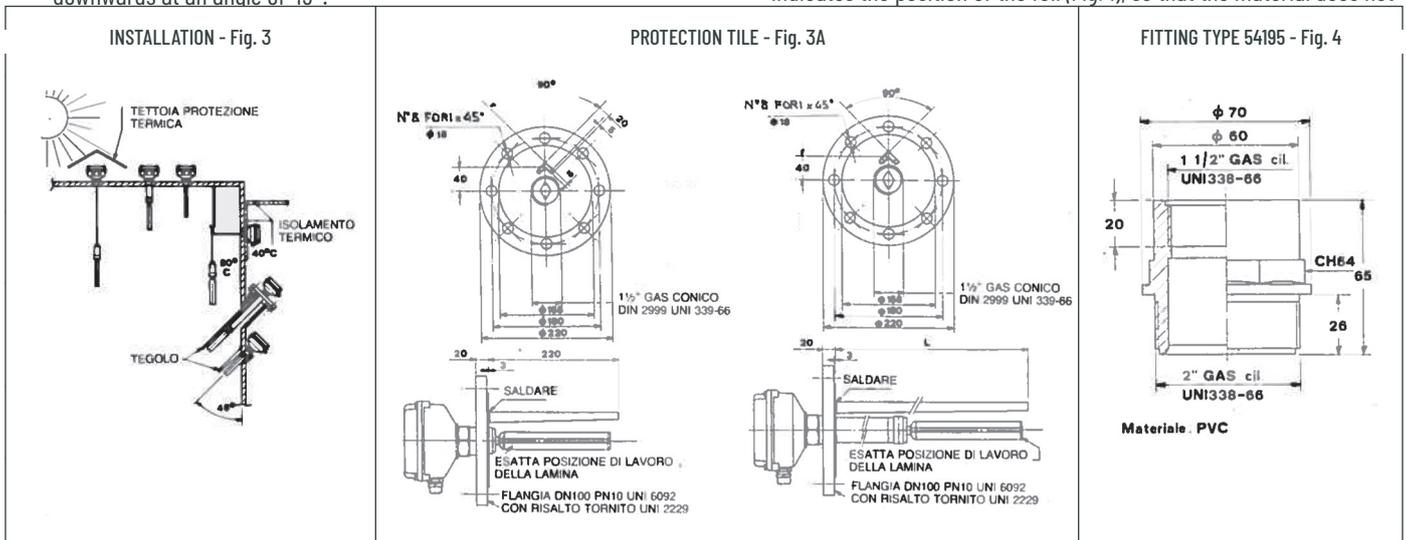
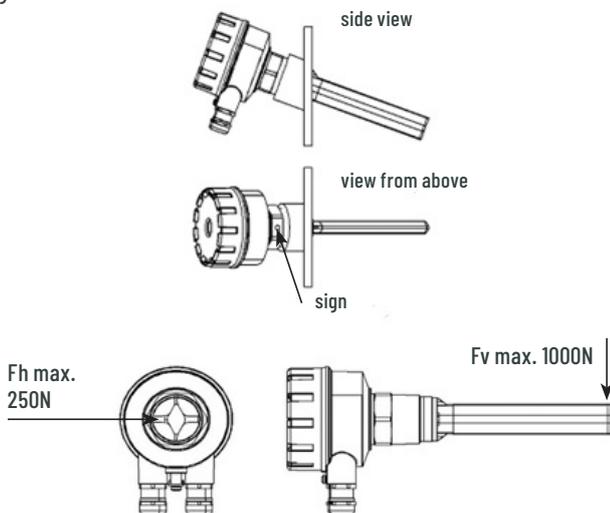
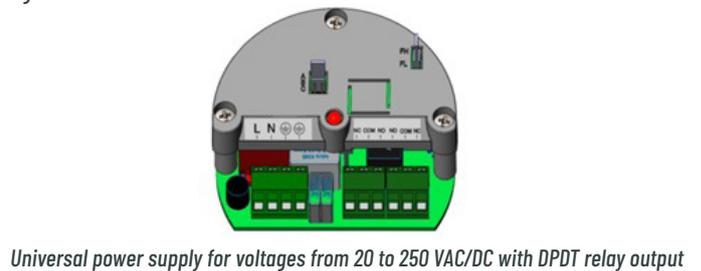


Fig. 3

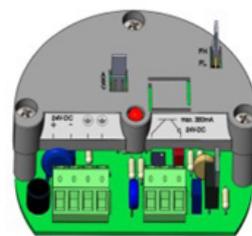
Fig. 4 - Printed circuit board



Max. load on blade: Horizontal 250N - Vertical 1000N



Universal power supply for voltages from 20 to 250 VAC/DC with DPDT relay output



24 V DC power supply with transistor output

Fig. 5 - Installation

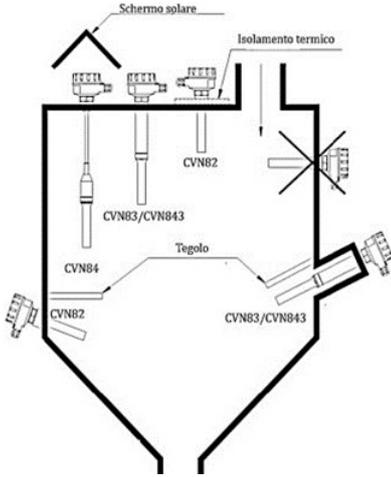


Fig. 6 - CV 82-83-84-843 - Separate electronics

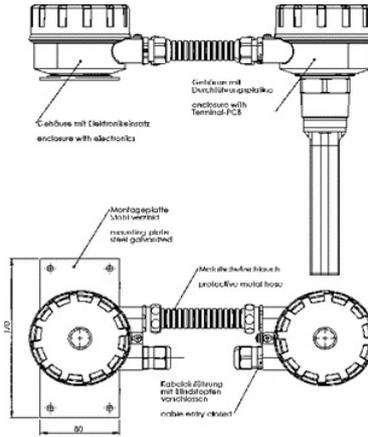


Fig. 7 - Isolation joint connection type 54195

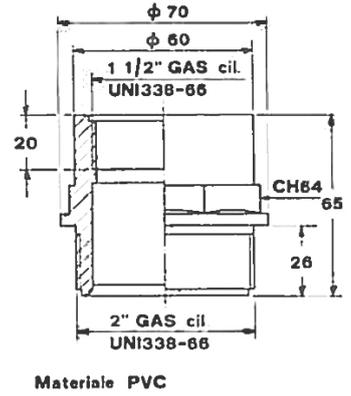
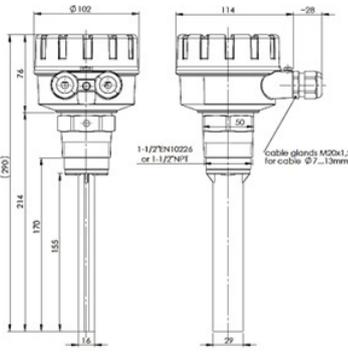
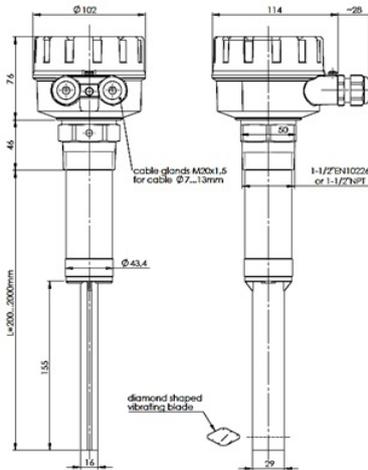


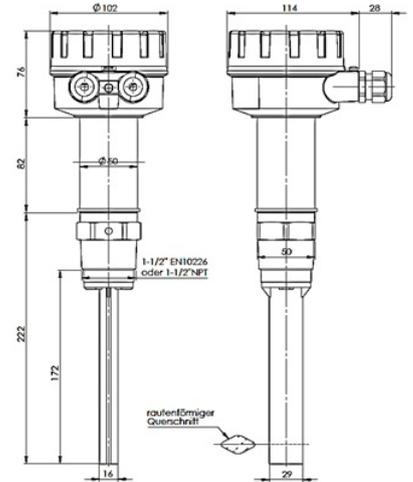
Fig. 8 - CV 82-83-84-43-82HT-83HT



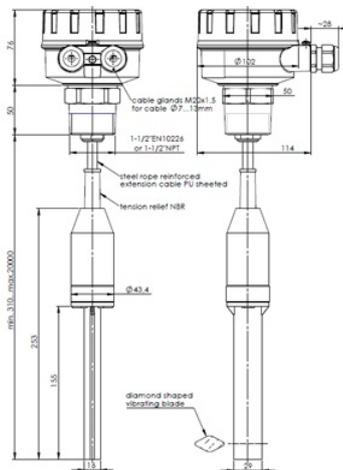
CV 82



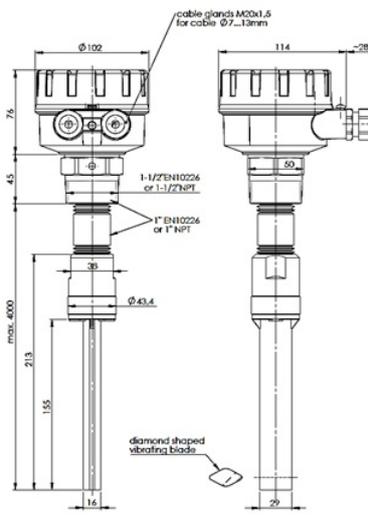
CV 83



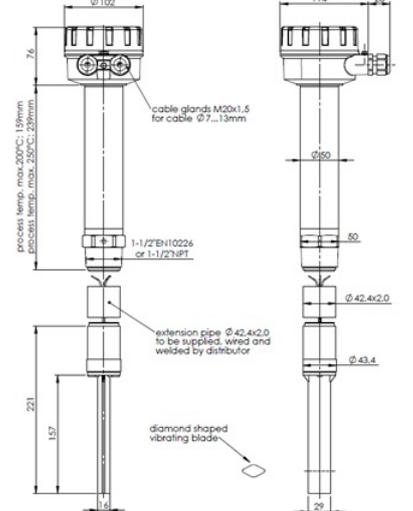
CV 82HT



CV 84



CV 843



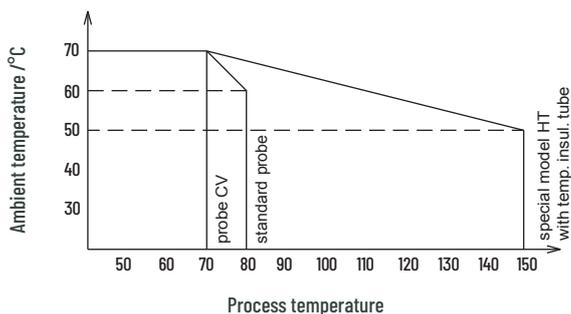
CV 83HT

# Technical specifications

Enclosure	aluminium die-casting, epoxy resin coating on request
Antifreeze	IP66 and IP67 (IP65 for the model with separate electronics) No. 2 PG13.5 cable glands for cable entry from 7 to 13mm diameter
Power supply	22÷250Vac/dc (supply polarity irrelevant), 8A,2000VA, cos = 1 DC: at 24Vdc max. 8.0A / at 48Vdc max. 1.5A, minimum 24Vdc - 100mA
On request	24VDC+/-10% PNP/NPN output 350mA @ 24V-DC, max. power consumption <1VA 2-wire with 8/16mA output, (8mA probe vibrates, 16mA probe does not vibrate)
Relay	No.1 DPDT 8A @ 250Vac non-inductive, for Vdc 8A@24Vdc, 1.5A@48Vdc
Time delay	1 second from vibration stop; 2÷5 seconds at vibration start
Probe	Material: Stainless steel 1.4301 / AISI 304, on request AISI 316Ti Mechanical connection: 11/2 "Gas Conical DIN2999, on request 11/2 "NPT on request Tri Clamp DIN 32676 only for model CVN93 Max. horizontal/vertical load on the end of the foil: 100N Max. tensile load of the CVN94 shielded cable covered polyurethane coated: 200kg Resonance frequency: 290Hz
Directions	Relay status: red LED on printed circuit board, external LED visible on request
Power supply	Yellow LED, on printed circuit board On request: housing-mounted indicator light indicating relay status
Min. product density	20 g/l for the STD model, 10g/l for the high sensitivity model
Max. pressure	inside tank 10 bar (0.8 ..... 1.1 bar for Atex-certified models)
Max. load applicable to blade	1000N
Max. voltage applicable to CV84 rope	200 kg

## Max. ambient or working temperature and max. process temperature range:

	Std CV Probe	Probe CV84	Probe for-HT
<b>Process temperature</b>	-40...+80°C	-40...+70°C	-15...+150°C
<b>Ambient temperature</b>	-40...+70°C	-40...+70°C	-15...+70°C

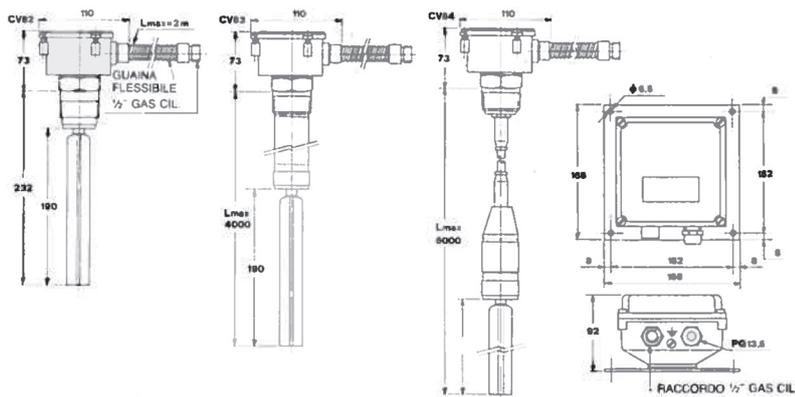


## EC Directive Compliance

CV8 instruments comply with the following regulations:

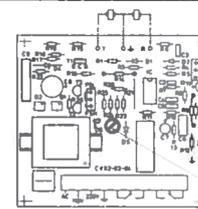
- EG-EMC-directive 2014/34/EU
- EG-Low Voltage Directive 2014/35/EU
- Applied standards EN 61326-1, EN 61010-1

CV 82-83-84 WITH SEPARATE ELECTRONICS - Fig. 5

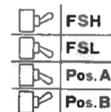


PRINTED CIRCUIT - Fig. 6

	T	⏏	R
CV82	Rosso	Nero	Rosso
CV83	Azzurro	Nero	Azzurro
CV84	Rosso	Nero	Giallo

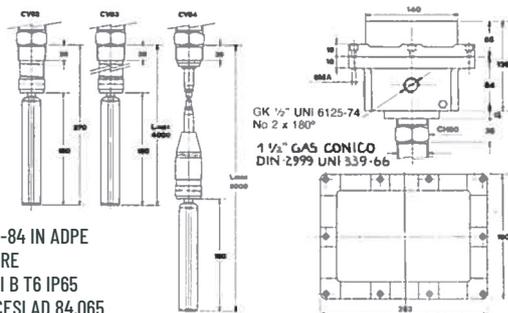


POSITION  
DIVERSERS  
ON THE CIRCUIT  
INTRINSICALLY  
SAFE PRINTED

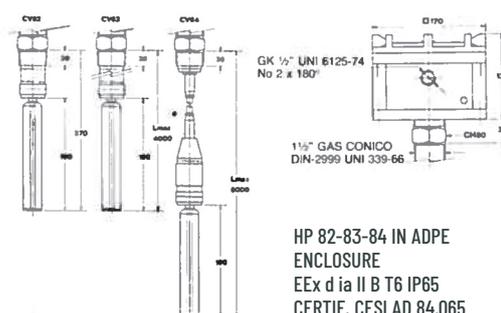


VITE ORIENTAMENTO PRESSACAVI

POS A - NORMALE  
POS B - PER MATERIALI CHE DEPOSITANO  
SULLA SONDA



HP 82-83-84 IN ADPE  
ENCLOSURE  
EEx d ia II B T6 IP65  
CERTIF. CESI AD 84.065  
Fig. 7



HP 82-83-84 IN ADPE  
ENCLOSURE  
EEx d ia II B T6 IP65  
CERTIF. CESI AD 84.065  
Fig. - 8

## Technical specifications

Enclosure	aluminium die-casting
Antifreeze	IP55/IP65 for ADPE enclosure
Max. ambient temperature	-30 ÷ +60°C
Dimensions	see Fig. 1
Vibrating plate	stainless steel AISI 304 or DIN 1.4301
Connection	1 1/2" conical gas (DIN 2999) UNI 339-66
Weight	2000 g
Minimum apparent volumetric weight of product	30 g/Lit.
Maximum operating temperature in the silo	-30 ÷ 90°C
Maximum operating pressure	10 bar
Power supply voltage	110/220V.50/60W, -15% +10%V
Upon request	24,127V 50-60Hz
Max consumption	0.78VA
Characteristics of the relay used	1 SPDT changeover contact voltage-free with max. capacity 2200VA/10A 80W 250V
Upon request	1 DPDT 1,100VA/5A 50W 250V d.c.
Delay time to foil coating	1 second
Foil uncovering delay time	2 ÷ 5 seconds
Relay status display	by means of a light-emitting diode on the circuit board
Upon request	indicator light fixed on the enclosure