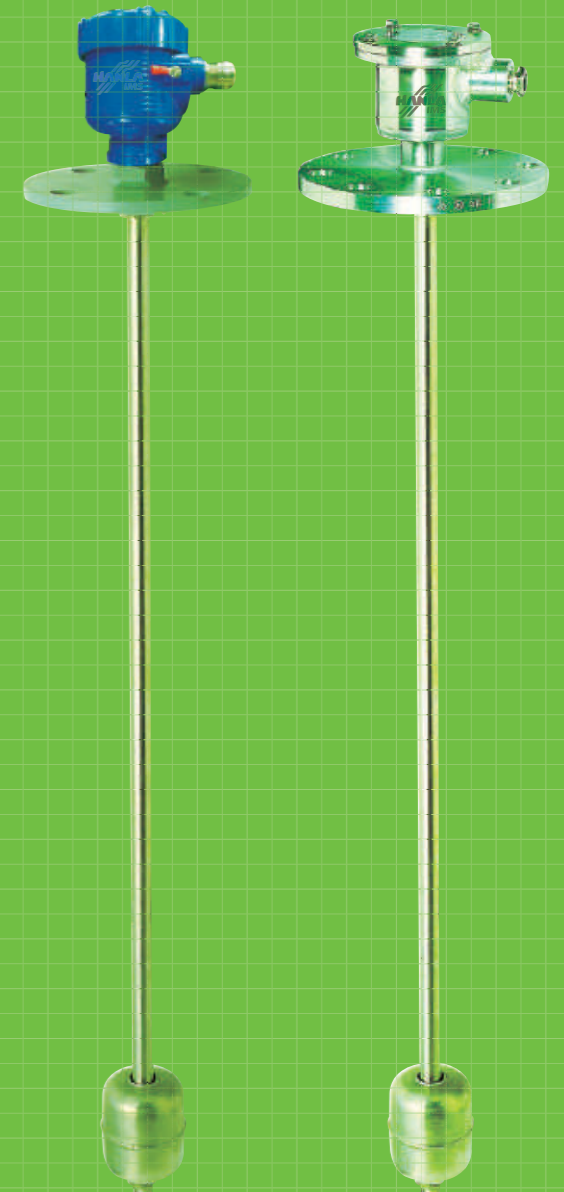
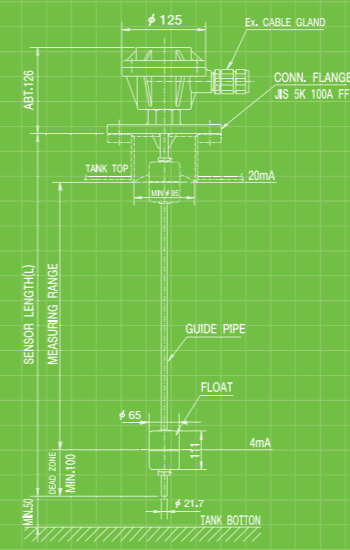
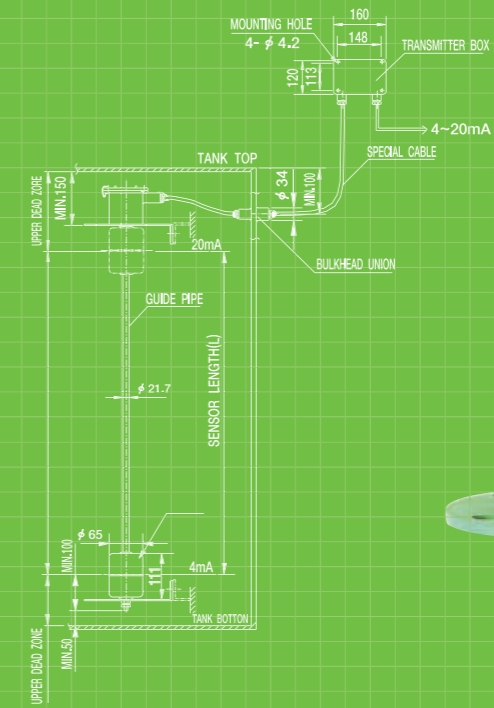


Level Transmitters

- Electric Pressure Type Level Transmitter
- Microwave Type Level Transmitter
- Capacitive Level Measurement
- Magnetic Float Type Level Transmitter



Level Transmitters

Microwave Type Level Transmitter

Model : Vegapuls Series



Introduction

Radar is a sophisticated level measuring principle. VEGA's new design of small, compact and price favourable radar sensors VEGAPULS are in its function as loop powered sensors a sensation in radar level measuring technology. First, radar sensor in two-wire technology supply voltage and output signal (4-20mA analog or digital); connectable with max. 15 sensors on a two-core line. VEGAPULS radar sensors offer benefits which meet the technicians requirements: Pressure and temperature independent, Ex-approved, small housing dimensions and process connections (1 1/2" or DN 50); integrated analog and digital display; convenient connection form to all BUS systems. Radar technology can also be realized in low budget applications. The sensors are very informative and can be operated optionally with check card-sized and detachable adjustment module, HART® handheld or self explanatory operating program on PC, hence the operation at any place e.g. signal line, directly on the sensor, switch cabinet or DCS is possible.

Application

VEGAPULS radar sensors are made of resistant materials. Unaffected by pressure, temperature, density and gas composition, they are not subjected to an aging process.

Communicative and adaptable they speak many languages and are hence used in many systems and industries.

- Waste water, disposal
- Recycling
- Chemicals
- Pharmaceutical industry
- Foodstuffs
- Metal treatment and generation
- Automobile industry
- Power generation and transport
- Process technology
- Mining
- Shipbuilding
- Offshore

Features

- Small housing and small process connection
- Low cost with VEGA high quality
- Two-wire technology loop powered
- Accurate and rugged design
- Adjustment choice

Standard model and specification

	PULS 61	PULS 62	PULS 63	PULS 65	PULS 66	PULS 68
Application	Aggressive liquids in small vessels under easy process conditions	Storage and process vessels under arduous process conditions	Aggressive liquids under arduous process conditions	Aggressive liquids under easy process conditions	Storage and process vessels under arduous process conditions	Large solid vessels under arduous process conditions
Measuring range	up to 35m	up to 35m	up to 35m	up to 35m	up to 35m	up to 75m
Process temperature	-40..80°C	-200..450°C	-200..200°C	-40..150°C	-60..400°C	-200..450°C
Process pressure	-1..3bar	-1..160bar	-1..16bar	-1..16bar	-1..160bar	-1..160bar
Accuracy	±2mm	± 2mm	± 2mm	± 8mm	± 8mm	± 2mm

Model : Vega flex Series



Specification

High frequency microwave pulses are coupled on a cable or rod and guided along the probe. The pulses are reflected by the product surface and received by the processing electronics. A microcomputer identifies these level echoes which are measured, evaluated and converted into level information by using the ECHOFOX software. Thanks to this measuring principle, the adjustment with medium in no longer necessary. The sensors are preset to the ordered probe length. The cable and rod versions (can be shortened) can be adapted in an ideal way to the individual conditions on site.

Application

- Liquids and solids
- Measuring range : cable up to 32m
- Process temperature : -40~150°C (Max.-100~400°C)
- Process pressure : -1~40bar (Max.-1~160bar)

Capacitive Level Measurement

Model : Vegacal Series



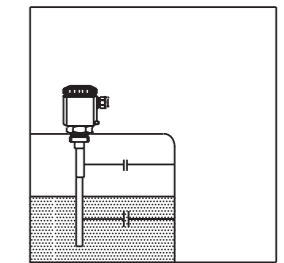
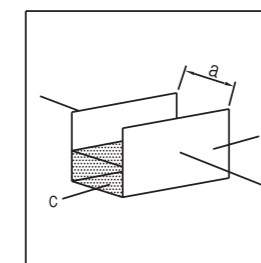
Application

Capacitive electrodes of series detect levels of virtually every product, such as liquid, powder, granule or pasty. This includes also adhesive products.

Measuring principle

Electrode product and vessel wall form an electrical capacitor. The capacitance is mainly influenced by three factors:

- distance of the electrode plates(a)
- size of the electrode plates(b)
- dielectric value of material between the electrodes(c)



The product is the dielectricum. Due to the higher dielectric constant(DK-value) of the product against air, the capacitance value increases with the height of covering. The capacitance change is converted by the oscillator into a level proportional, floating current in the range of 4...20mA or into a switching signal.

Level detection

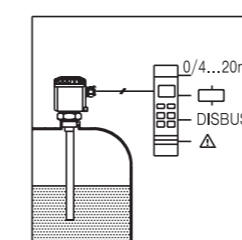
Level switches should signal the reaching of certain levels, e.g. max. or min. level. These levels are detected at a fixed point and converted into a switching signal. For level detection the capacitive electrodes type A switching signal can be either triggered when the electrode is covered or when the electrode is uncovered(adjustable mode).

Continuous level measurement

With continuous level measurement the product level is continuously monitored and converted into a level proportional signal which is either indicated directly or further processed. A capacitive electrode of series with oscillator and a VEGAMET signal conditioning instrument converting the proportional current of the oscillator into standardized current and voltage signals is required. The continuous measurement requires a constant dielectric value ϵ i.e. the product should have steady features. The floating measuring signal of the electrode electronics is in the range of 4...20mA and be therefore connected to other processing systems without providing an additional potential equalization. In addition to the continuous measurement, also levels can be detected.

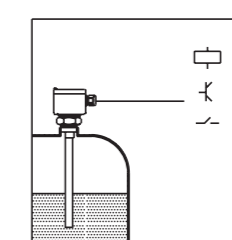
Configuration of the measuring system

Electrode with signal conditioning instrument



- A measuring system consists of:
- a capacitive electrode type
 - an oscillator mounted in the electrode housing
 - a VEGAMET signal conditioning instrument or a VEGALOG processing system
 - connected instruments(e.g. indicating instruments, VEGASEL auxiliary level switches)

Compact level switch VEGACAP



- A measuring system consists of:
- a VEGACAP capacitive compact level switch
 - an oscillator mounted in the housing
 - connected instruments operated with the output signal of VEGACAP

Level Transmitters

Magnetic Float Type Level Transmitter

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HANLA IMS
Level Measurement Systems
& Instrumentations

Continuous liquid level meter, display, with four separated adjustable alarm points, and Output signal for remote level transmitter.



Operating principle

Reed switches arranged with a certain pitch inside a pipe as shown on fig. 1, activated by means of the magnet inside float, the detecting circuit electric equivalent to the potentiometer is constituted. By adjusting the size and power of the magnet inside the float so as one or two reed switches could be operated in any time. Resolution of the potentiometer would become 1/2 of the pitch of the reed switches. Consequently, when the pitch is 10mm, a resolution of 5mm can be obtained. A necessary accuracy can be ensured in the FLT-100 series by modifying the pitch of the reed switches and the divided number of the measuring range conforming with the total measuring range.

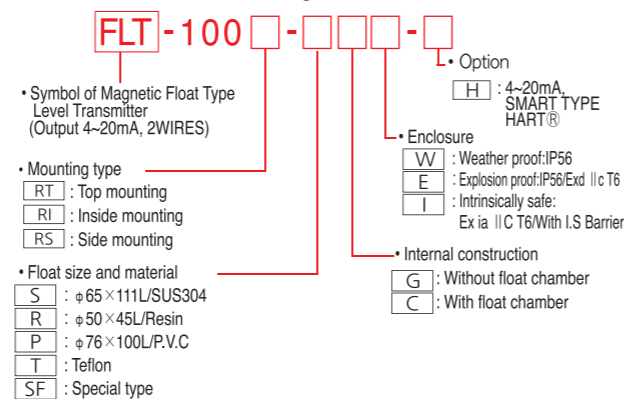
Features

- Consistent accuracy regardless of the tank depth.
- High accuracy.
- Service-proven reliability.
- Simple installation.
- Magnet-float type in which the construction is simple.
- Easy maintenance
- Only single 2core cable.
- Wide measuring range.

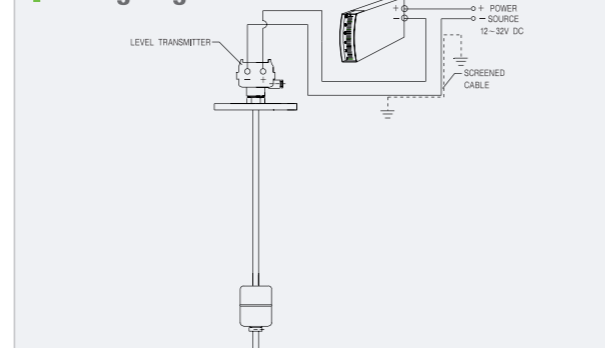
Application

Level measurement continuously indicates the actual level and can provide an analogue and digital indication as well as operation of switching contacts predetermined levels. Typical applications are the measurement of water, H.F.O, D.O, L.O, Vegetable oil, and others.

Model number code system



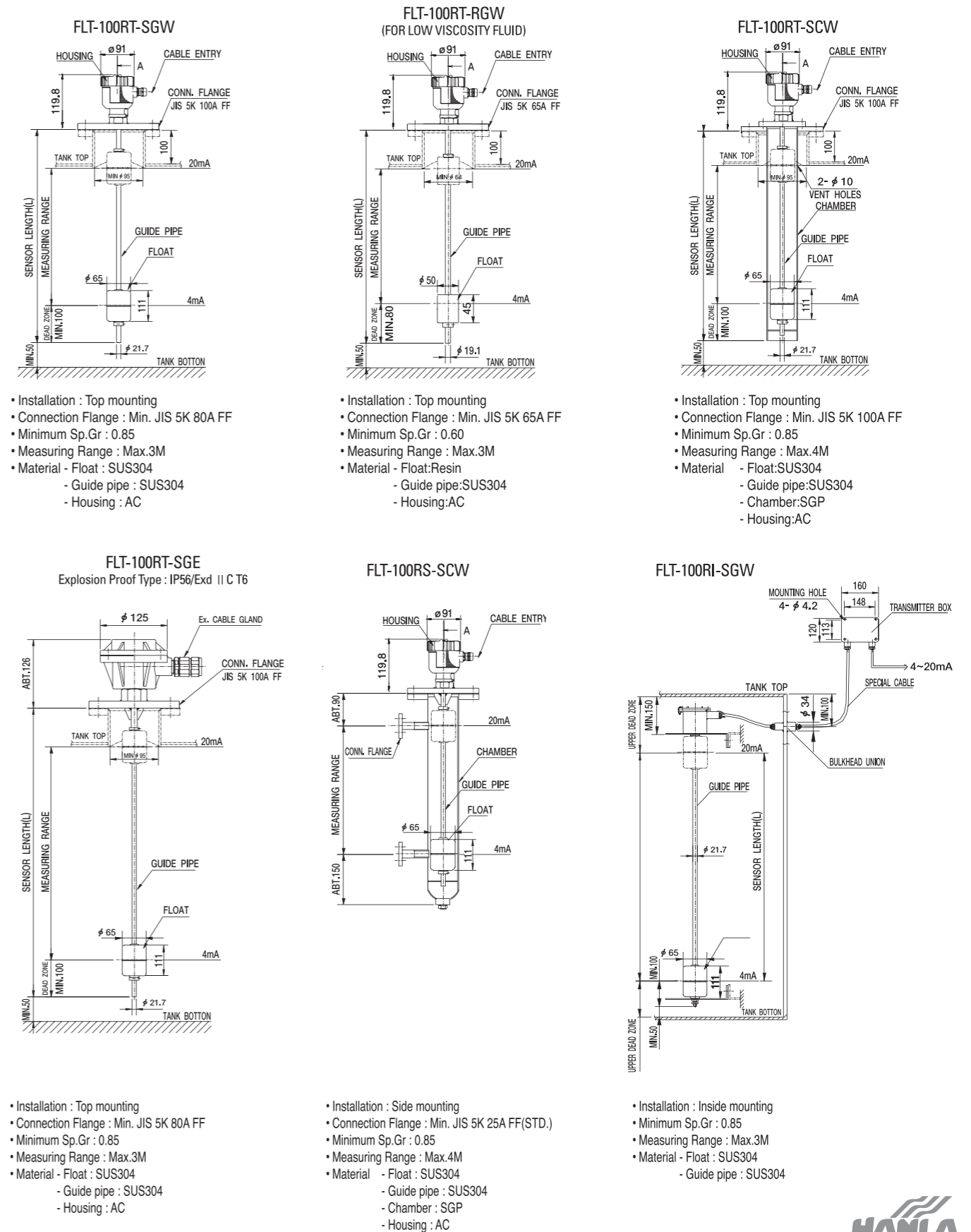
Wiring diagram



Standard specifications

- Connection size : JIS 5K 80A, 100A
With float chamber type: JIS 5K 100A only
- Max. pressure : 10kg/cm²
- Max. temperature - SUS 316 float : 100°C
- RESIN float : 70°C
- P.V.C float : 60°C
- Min. Sp. Gr - SUS 316 float : 0.85
- RESIN float : 0.6
- P.V.C float : 0.7
- Measuring range : Max. 5m (Option : up to 30m)
- Sensor resistance : about 1k Ω
- Max. current : 25mA
- Power source : 12~32VDC
- Output : 4~20mA DC
- 2 Wire system balancing type
- Cable entry : 15b
- Enclosure : Weather proof/IP56
- Material - Housing : AC and SUS 304
- Flange : Carbon steel
- Float : SUS 304
- Guide pipe : SUS 304
- Accuracy : $\pm 1.5\%$ of F.S

Outline / Dimensions



Manufacturing Line Authorized by the Quality

