



SIGMA

RF LEVEL SWITCH



WORLDWIDE LEADING



Suitable for any working condition.
Suitable for all Materials,
No Maintenance required,
No Moving Parts,
Easy Installation



Level Switch Purposes

SIGMA RF Level Switches are designed to detect the presence of different materials accrue in the surroundings of the probe's position. Materials can be any fluids, semi- fluids, powders solids and granules, conductive or non-conductive.

The probe may be installed in free air or closed vessels. Vessels may be metallic or non-metallic pipes or reservoirs.

Any material sticking to it does not affect the function of the sensing unit.

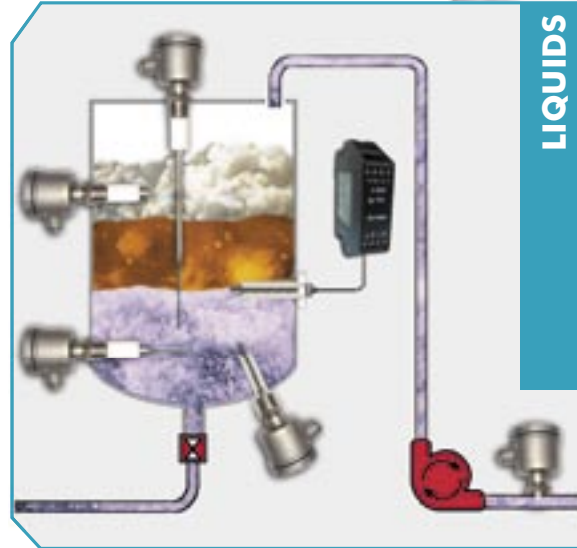
- To indicate the presence of material at a fixed place.
- To enable material in container to reach a predetermined level.
- To guarantee a lower level.
- To keep material within 2 fixed levels (liquid in tanks, material in bins etc.).
- To prevent pumps from dry-running.
- Overflow protection in water pools, liquid containing (e.g. beer) tanks etc.

Operating principles:

- SIGMA operates on the basis of RF absorption measurement in the probe environment.
- The electronic unit generates a continuous sinusoidal wave applied to the probe, creating a field around it.
- RF environment absorption changes (electrical loss) around the probe, are reflected on changes of the generator supply current.
- Such a change, when converted to voltage, is the data compared to reference voltage.

Advantages:

- No moving parts.
- Not affected by sticking materials (**glue, pigments, paints, pulps etc.**)
 - Not affected by density and flexibility of the material.
 - Not affected by static electricity.
 - Suitable for any working condition.
 - Suitable for all Materials.



Material Samples:

- Pigments for the color industry.
- Paints in containers and industrial processes.
- Glues and adhesives on watery and non watery basis (such as in paper industry, laminates, gluing metal films on plastic).
- Various chemicals in industrial processes and storage tanks.
- Cement, flour, etc. (in tanks and tankers).
- Level of stones, sand, lime and aggregates in silos at quarries and in ready- concrete plants.
- Fly-ash and settled ash.
- Plastic raw material.
- Control of level in oil (mineral and organic) - in tanks and tankers.

Special Applications:

- Very corrosive materials (bromines and compounds, hydrochloric acid, chlorine, etc).
- Materials in high temperature up to 900°C, (reactors, and furnaces).
- Pharmaceutical process
- Distinguish intrusion of oil in water / water in oil
- Liquid – liquid interface separation.
- Keep water contents in material (such as water content in margarine).
- Control of condense water.
- Foam detection and differentiation of foam from liquid.
- Very Light materials.

Types of SIGMA RF Level Switch Units



SIGMA 807

- For non conductive materials (Powders, grains, oil...) or for conductive liquids when the probe is fully coated (Corrosive materials, food industry).
- Insensitive to adherence.
- Static electric protection.

Heavy duty (S.S case)
Ambient temp. -20c°~80c°
Connection- M5 thread

Supply voltage – 24VAC/DC
Power consumption – 1W (max)
Output relay (SPDT) - 1A(max) 240VAC
Response time – 0.1sec
Vibration resist. (relay) – 10G 10 to 500 Hz

Dielectric figure > 1.6 εr
Sensitivity – 0.5pf
Sensitivity adjustment – 2kΩ
Minimum distance between sensors: 200mm

Size – 40mmx40mm
Weight – 100gr

Typical Materials: Chemicals, Salt, Glues, Diluted paint, Detergents, Treated water, Organic / non-organic oil, Flour, Corn, Grains, Sugar, Gypsum, Minerals, Fly ash, Plastic raw materials, Sodium Hydroxide.

SIGMA 902

- For conductive liquids.
- Interface separation.
- Insensitive to foam and Adherence.

Heavy duty (S.S case)
Ambient temp. -20c°~80c°
Connection- M5 thread

Supply voltage – 24VAC/DC
Power consumption – 1W (max)
Output relay (SPDT)- 1A(max) 240VAC
Response time – 0.1sec
Vibration resistance (relay) – 10G 10 to 500 Hz

Conductivity figures > 100μs
Sensitivity adjustment – 2kΩ
Hysteresis – 1 mm

Size – 40mmx40mm
Weight – 100gr

Typical Materials:

Solutions, Glues, Detergents, Milk & Milk products, Juices, Mud, Foam, Water in oil, Chemicals, paints.

SIGMA 909

For low conductive liquids (Grounding is not necessary).

Heavy duty (S.S case)
Ambient temp. -20c°~80c°
Connection- M5 thread

Supply voltage – 24VAC/DC
Power consumption – 1W (max)
Output relay (SPDT)- 1A(max) 240VAC
Response time – 0.1sec
Vibration resistance (relay) – 10G 10 to 500 Hz

Conductivity figure > 40μs
Sensitivity adjustment – 2kΩ
Hysteresis – 3mm

Size – 40mmx40mm
Weight – 100gr

Typical Applications: Conductive liquids in non-grounded vessels.

SIGMA 12/D

For conductive liquids
Without adjustment
One level or Min / Max level control (selection via a switch).

Low cost (P.V.C case)
Ambient temp. -10c°~60c°
Connection- M5 screw

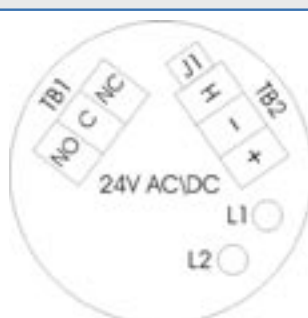
Supply voltage – 24Vac/dc
Power consumption – 1W (max)
Output relay (SPDT) - 1A(max) 240VAC
Response time – 0.1sec
Vibration resistance (relay) – 10G 10 to 500 Hz

Conductivity figure > 100μs
Sensitivity adjustment – Non
Hysteresis – 1 mm
Distance between sensors- 1mm

Size – 40mmx40mm
Weight – 60gr



SIGMA-807/902/909



SIGMA-12

SIGMA 807R

Remote unit
Connect to din rail control box
S-Box.

For non conductive materials, (powders, grains, oil...)
Or for conductive liquids when
The probe is fully coated.
Insensitive to adherence.
Static electric protection.

Heavy duty (S.S case).
Ambient temp. -20c°~80c°
Connection- M5 thread

Connection to control box:
Twin cable 0.5Ø (min)
Distance - 1km
Voltage between control box - 10-18 V DC

Dielectric figure > 1.6 εr
Sensitivity – 0.5pf
Sensitivity adjustment – 2kΩ
Distance between sensors-200mm

Size – 30mmx40mm
Weight –80gr

SIGMA 902R

Remote unit
Connect to din rail control box
S-Box.

For conductive liquids
(and interface separation)
Insensitive to foam and adherence

Heavy duty (S.S case)
Ambient temp. -20c°~80c°
Connection- M5 thread

Connection to control box:
Twin cable 0.5Ø (min)
Distance 1km
Voltage between control box - 10-18 V DC

Conductivity figure > 100μs
Sensitivity adjustment – 2kΩ
Hysteresis – 1mm
Distance between sensors- 1mm

Size – 30mmx40mm
Weight –80gr

SIGMA 909R

Remote unit
Connect to din rail control box
S-Box.

For low conductive liquids
(grounding is not necessary)

Heavy duty (S.S case)
Ambient temp. -20c°~80c°
Connection- M5 thread

Connection to control box:
Twin cable 0.5Ø (min)
Distance 1km
Voltage between control box - 10-18 V DC

Conductivity figure > 40μs
Sensitivity adjustment – 2kΩ
Hysteresis – 3mm
Distance between sensors- 10mm

Size – 30mmx40mm
Weight –80gr

S-BOX

Din rail control box

For single remote unit.

Supply voltage – 24VAC/DC, 240VAC.

Power consumption – 1W (max)

Output relay (SPDT) – 5A (max) 240VAC

Response time – 0.1sec

Vibration resistance (relay) – 10G

10 to 500 Hz

Connection to sensing unit:
Twin cable – 0.5Ø (min)
Distance – 1km
Voltage between sensing unit –
10-18 V DC

Size –22.5x92x99

S-BOX 12

Din rail control box (includes electronics
parts in one unit) that located up to 10m
from the probe (tank/vessel etc.).

For clean conductive liquids.
For single level or Min / Max system
(selection via a switch).
Connected to one or two remote probes.

Supply voltage – 24VAC/DC, 240VAC.
Power consumption – 1W (max)
Output relay (SPDT) – 5A (max) 240VAC
Response time – 0.1sec
Vibration resistance (relay) – 10G
10 to 500 Hz

Connection to sensing unit:
Twin cable – 0.5Ø (min)
Distance – 1km
Voltage between sensing unit – 10-18 V DC

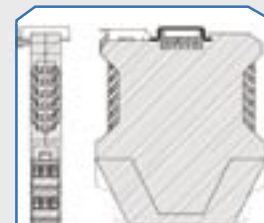
Size –22.5x92x99



Sigma 807R-902R

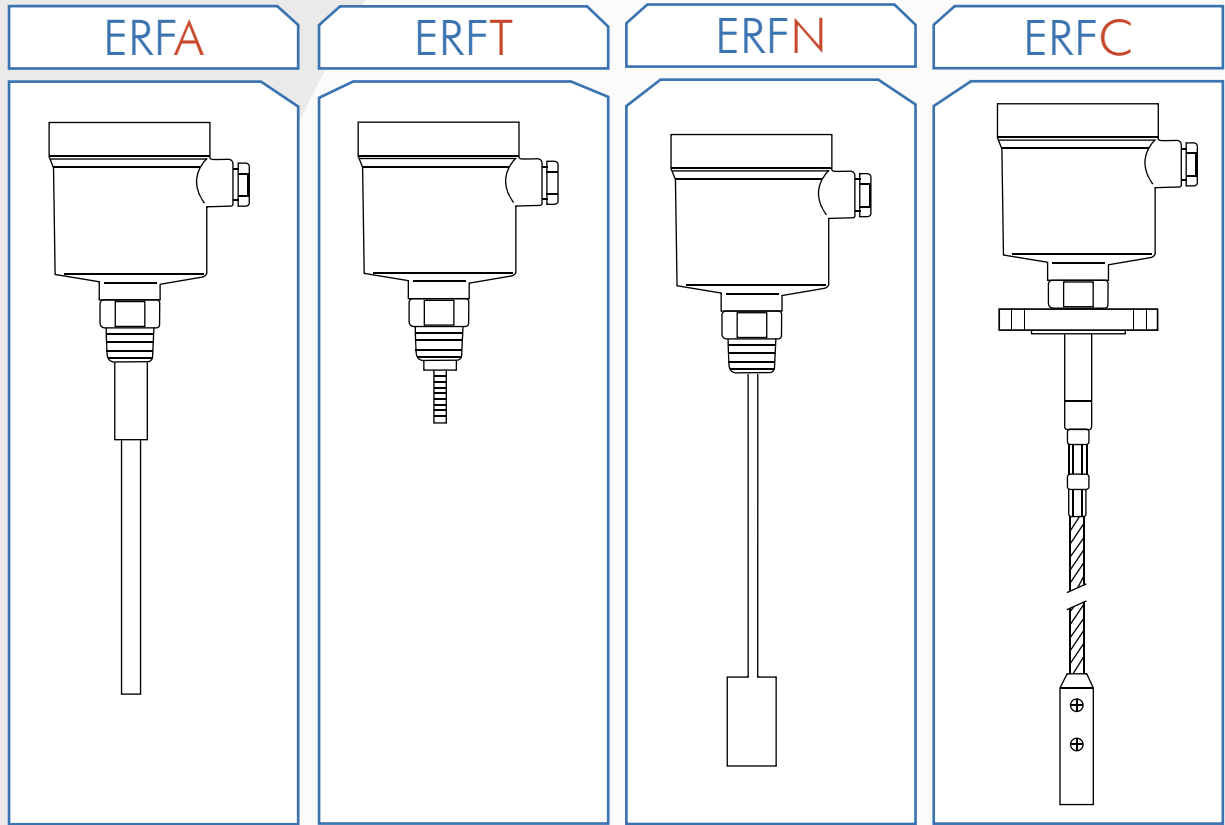


S-BOX

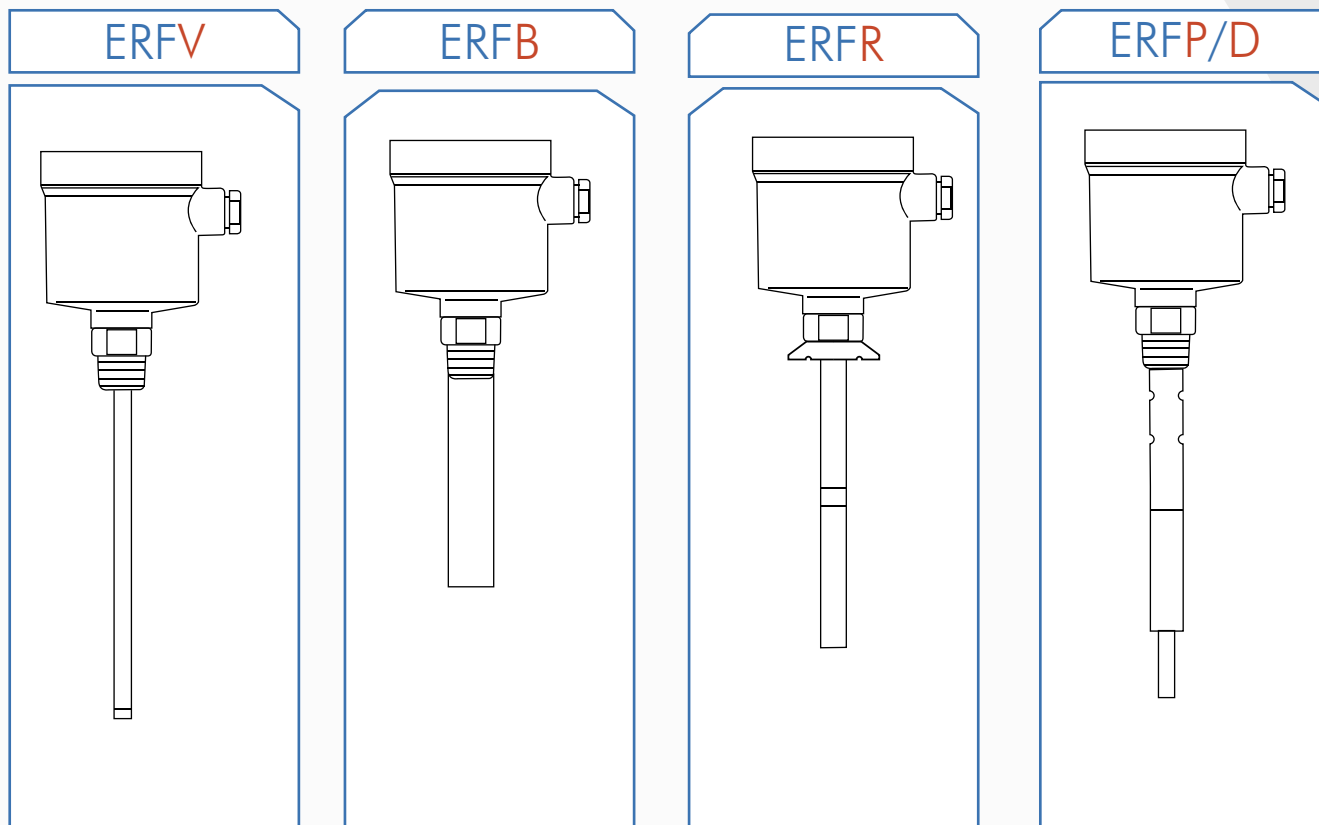


S-BOX

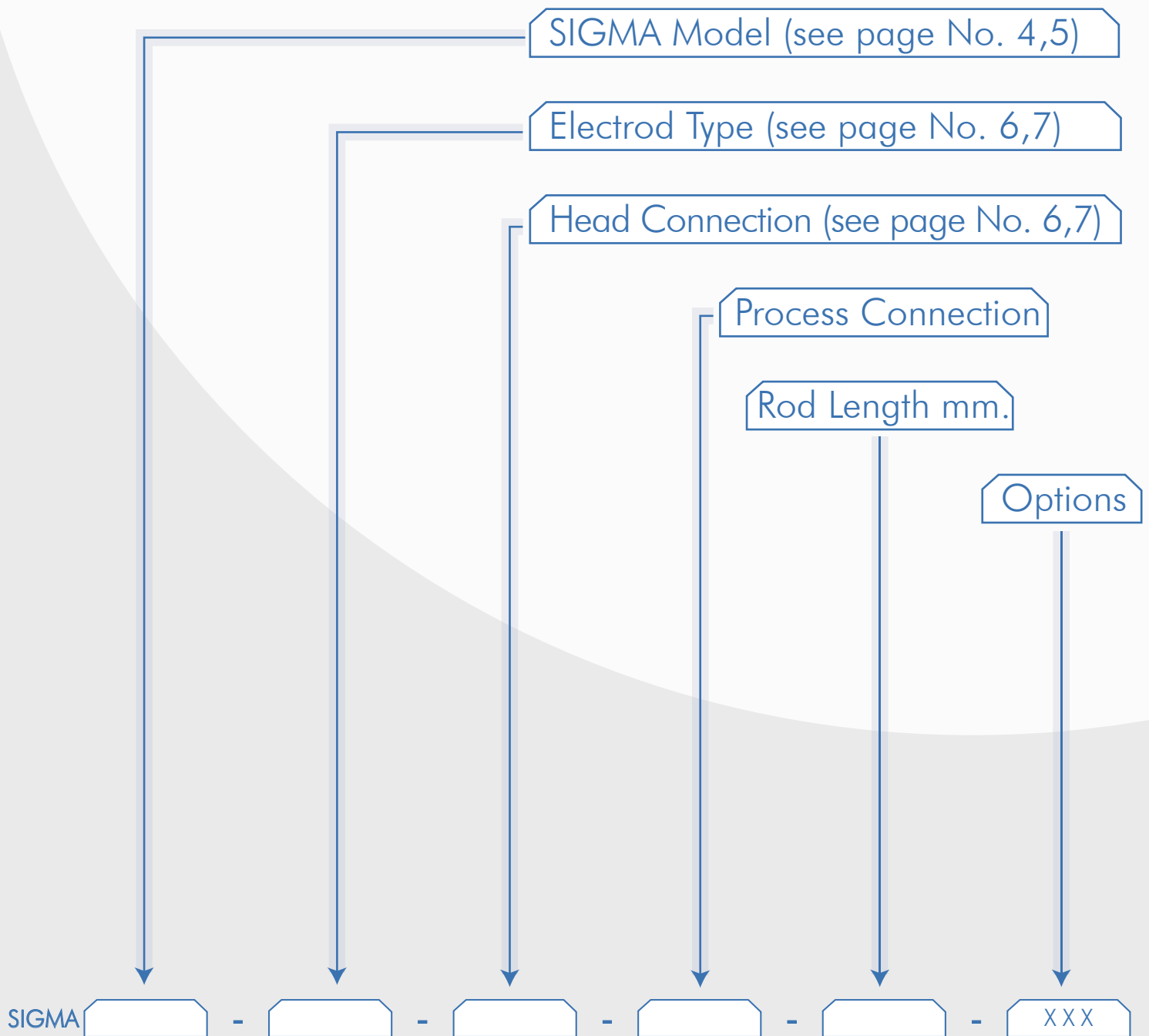
Electrodes



Electrode figure	Standard rod	Threaded tip	Blade	Flexible Cable
Functions Application	Standard for Non conductive or conductive materials	Standard for Non conductive or conductive materials	For very light Powders	For long deep Detection
Body material	S.St 316 +PTFE Option: other material	S.St 316 +PTFE Option: P.V.C low cost	S.St 316 +PTFE	S.St 316 +PTFE Up to 6m
Process Connection	Above 1" Threaded or Flange	Above 1" Threaded or Flange	Above 1" Threaded or Flange	Above 1" Threaded or Flange
Head connection	Aluminum (code 0), S.ST 316 (5), PP (3), CAST IRON (2), EEXD (4)			
Protection	IP 65/67	IP 65/67	IP 65/67	IP 65/67
Compatibility with Sigma	807/807R 902/902R 12	807/807R 902/902R 12	807/807R	807/807R 902/902R 12



Fully Coated Rod(welded)	Heavy Duty Fully Coated	Standard for Sanitary Uses	Standard for Conductive Liquids
For aggressive materials Top Mounting	For aggressive materials Side Mounting	For food, pharmaceutical	High Pressure min & or max system
PP, P.V.C, PTFE.(welded)	PP, P.V.C, PTFE. up to 200mm	S.St 316 +PTFE	S.St 316 +PTFE
Above 1/2" Threaded or Flange	Above 1" Threaded or Flange	Above 1" Threaded or Flange Triclamp	Above 1/2" Threaded or Flange Triclamp
Aluminum (code 0), S.ST 316 (5), PP (3), CAST IRON (2), EEXD (4)			
IP 65/67	IP 65/67	IP 65/67	IP 65/67
807/807R	807/807R	807/807R 902/902R	902/902R 909/909R 12/12D



Note: When SIGMA remote unit is been chosen S-BOX (control box) is required

