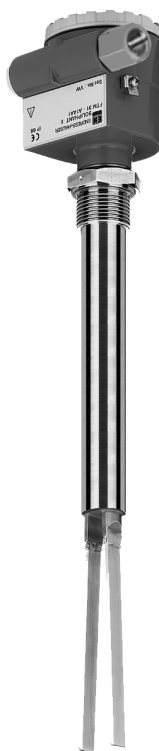


Level Switch *soliphant II* FTM 30, FTM 31, FTM 32

**Cost-effective vibration level switch for
fine-grained bulk solids**



*FTM 30 Compact
version for mounting
at any orientation*



*FTM 31 with extension
tube (up to 155 inches)
for top mounting in silos
or tanks*



*FTM 32 with cable for
mounting up to 65 feet
for top mounting in
silos or tanks*

Application

Soliphant II is a rugged level switch for use in silos containing fine-grained and powdery solids, including those with very low bulk densities. The various versions ensure it can be used in a wide range of applications, including dust, explosion areas and foodstuffs.

Typical applications include grain, flour, milk powder, cocoa, sugar, animal feed, washing powders, dyes, chalk plaster, cement, and plastic granules.

Features and Benefits

- No calibration: quick and low-cost start-up
- Insensitive to build-up: maintenance free
- No mechanical moving parts: no wear, long operating life
- Choice of various electronic inserts: optimum adaptability to the plant process
- Plastic housing with transparent cover: switching status seen externally, simple control
- Aluminum housing with separate electrical connection compartment: designed for hazardous locations

Endress + Hauser

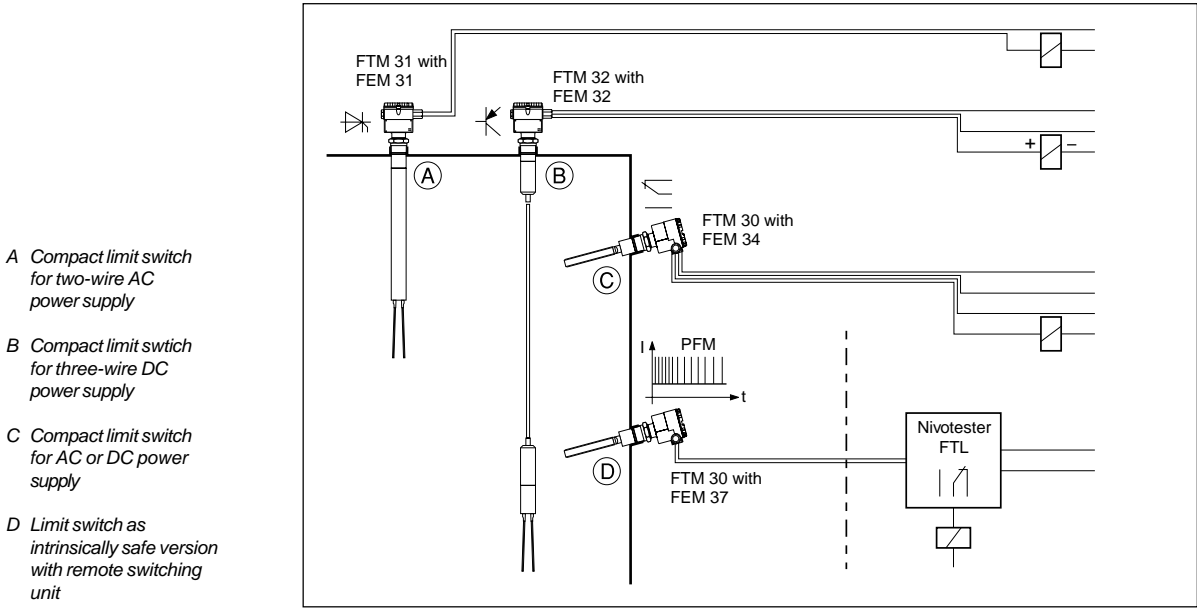
The Power of Know How



Measuring System

The Soliphant II with the integrated electronic inserts (FEM 32, 34 or 37) are a compact level switch that can be connected to miniature contactors, magnetic valves and programmable logic controllers (PLCs).

The electronics are dust-ignition proof and can be mounted in hazardous areas.



Function

The symmetrical vibrating fork is excited to its resonant frequency. Vibration characteristics change when the fork is submerged in solid material. The change is registered by the electronics which actuate an electronic switch or relay.

The tip of the Soliphant fork is particularly sensitive, while the base of the fork is completely insensitive. This enables solids with very low density to be detected even with material build-up on the vessel walls.

The function of the electronic switch or relay and LED depends on the level and fail-safe mode.

The electronic insert FEM 37 changes the frequency of the PRM signal causing the Nivotester FTL to switch accordingly.

	Fail safe mode	Electronic Insert				Red LED	Electronic Insert				Red LED	Green LED	Electronic Insert		Green LED
		FEM 31 FEM 41	FEM 32	FEM 34 FEM 44	FEM 35 FEM 45		FEM 37								
	Maximum										150 Hz				
	Minimum										50 Hz				

The Soliphant can be operated in both minimum or maximum fail-safe mode, i.e. the electronic switch opens or the relay

de-energizes when the minimum or maximum level is reached, on fault or on power failure.

Mechanical and Electrical Versions

Application
according to approvals

Plug-in electronic insert options
simple to replace with another electronic insert, without recalibration

Housing
all with NEMA 4X protection and a wide range of conduit entries

Process connections

Sensor options
vibrating fork in solid stainless steel, resistant to lateral loads

FTM	FTM . . D		FTM . . S	
- Standard application - Dust Ex area Zone 10	- Standard application - Dust Ex area Zone 10 - Ignition protection EEx de		- Standard application - Dust Ex area Zone 10 - Ignition protection EEx i	
Two-wire AC power supply (thyristor) FEM 31 for FTM 30, 30 D, 31, 32 FEM 41 for FTM 31 D, 32 D, 32 dust-Ex	Three-wire DC power supply (transistor, PNP) FEM 32 for FTM 30, 31, 32 and FTM 30 D (not for FTM 32 dust Ex)	Universal power supply (relay changeover contact) FEM 34 for FTM 30, 30 D, 31, 32 FEM 44 for FTM 31 D, 32 D, 32 dust-Ex	Universal power supply (2-relay changeover contacts) FEM 35 for FTM 30, 31, 32, 30 D, 31 D, 32 D FEM 45 for FTM 32, FTM 30 D, 31 D, 32 D	Intrinsically safe signal transmission along two-wire power cable to remote Nivotester switching unit FEM 37 for FTM 30 S, 31 S, 32 S
Aluminum housing F6 for FTM . . and FTM . . S	Plastic housing F10 with transparent cover for FTM . . and FTM . . S	Aluminum housing T3 with separate connection compartment for FTM . . D, FEM 35 / 45	Aluminum housing T3 with separate connection compartment for FTM . . D and FTM . . S	304 SS housing F8 for FTM . . S, FEM 37
Tapered thread 1-1/2 - 11-1/2 NPT	Tapered thread R 1-1/2, DIN 2999	Various flanges, ANSI, JIS, and DIN		
FTM 30 compact unit	FTM 31 with extension tube	FTM 31 with optional sliding sleeve	FTM 32 with cable (can be shortened)	

Installation Guidelines

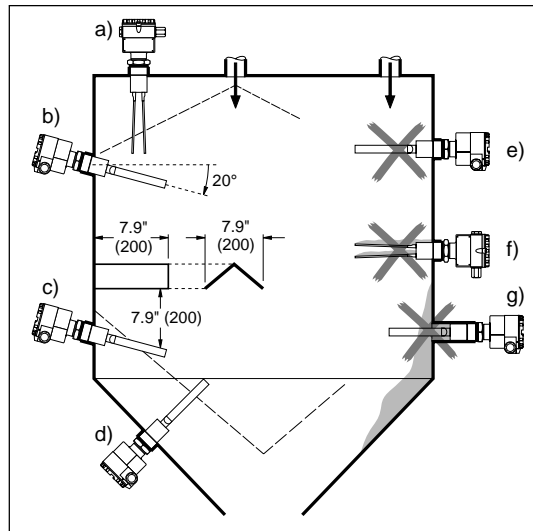
Soliphant FTM 30

The compact Soliphant version can be mounted at any position in a bulk solids vessel.

Correct Mounting, a, b, c, d

- a) top-mounted, tines vertical but at any orientation
- b) laterally mounted, fork slightly angled downward so that material can slide off easily. Maximum nozzle length is 2.4" (60 mm)
- c) side mounted with roof to protect against collapsing material mounds
- d) bottom mounted in angle portion of discharge hopper

NOTE: Take into account the angle of mound or discharge hopper when determining the height of the installation point



Incorrect Mounting, e, f, g

- e) mounted in filling curtain
- f) fork orientation incorrect (flat surface is subjected to excessive load, and false switching due to residual material)
- g) mounting nozzle is too long, allows material to build up inside nozzle causing false switching.

Soliphant FTM 31

With extension tube:

If mounting is only possible from the top;
With heavy build-up on the side wall; With optional sliding sleeve when the switch point is to be altered.

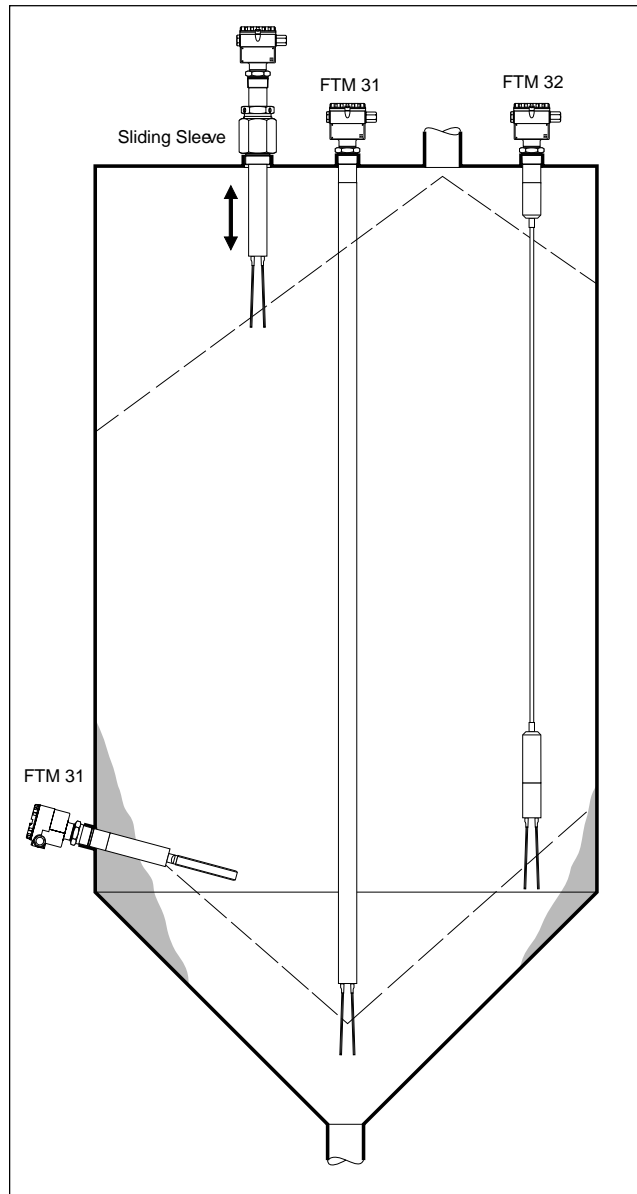
Mount in the center of the discharge hopper in order to keep the lateral load from the discharging material to a minimum.
If mounting close to the vessel wall, fasten the extension pipe near the fork.
Ensure there is enough space above the vessel for mounting.

Soliphant FTM 32

With cable:

Used in tall silos when top mounting is only available
Used when there is not enough clearance above the vessel to mount an extended version of the FTM 31.

The Soliphant should be mounted near the vessel wall to keep excessive tension from discharging material to a minimum. It should not be mounted too close to the wall to prevent the fork from hitting the wall when it swings.

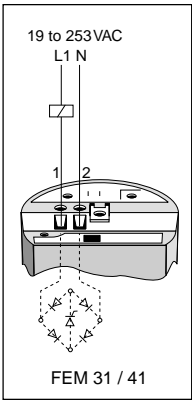


Electrical Connection

NOTE
The diagrams show the direct connection of the electronic insert into the F6 or F10 housing.

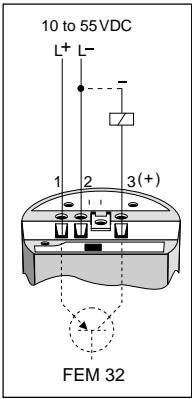
The terminals in the second connection compartment of the T 3 housing have the same designations as the built-in electronic inserts.

FEM 31, FEM 41
electronic insert
Two-wire, AC power supply. Always connect in series with load

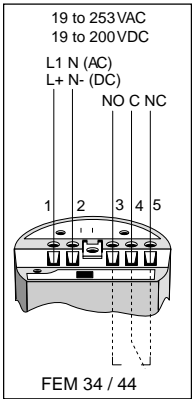


The terminal voltage at the electronic insert must not be below 19 V. Note the voltage drop across the electronic insert in the conducting state (max. 12 V), the residual current in the blocked state (max. 4 mA) and, when using low voltages, the voltage drop across the load.

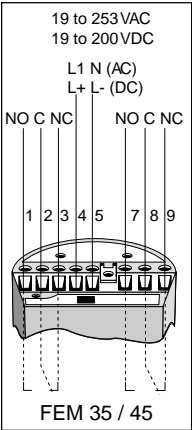
FEM 32
electronic insert
Three-wire, DC power, for use with programmable logic controllers (PLC). Positive signal at the switching output of the electronic insert (PNP)



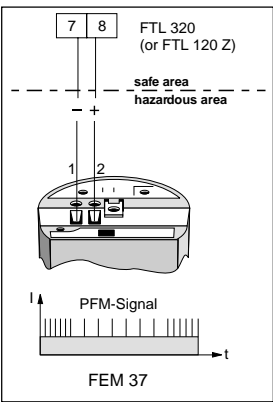
FEM 34, FEM 44
Universal power supply with relay output. Potential-free relay contact



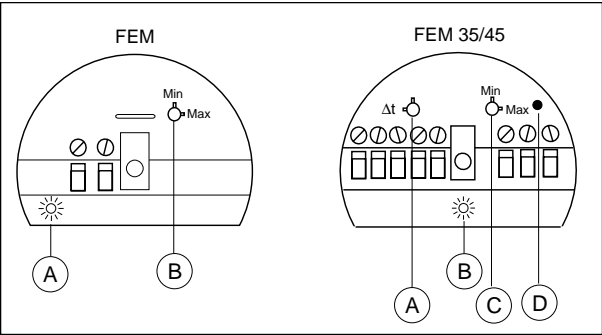
FEM 35, FEM 45
Universal power supply with DPDT relay output. Potential-free relay contact



FEM 37
electronic insert
Intrinsically-safe PFM signal transmission through two-wire cable remote switching of Nivotester FTL 320.



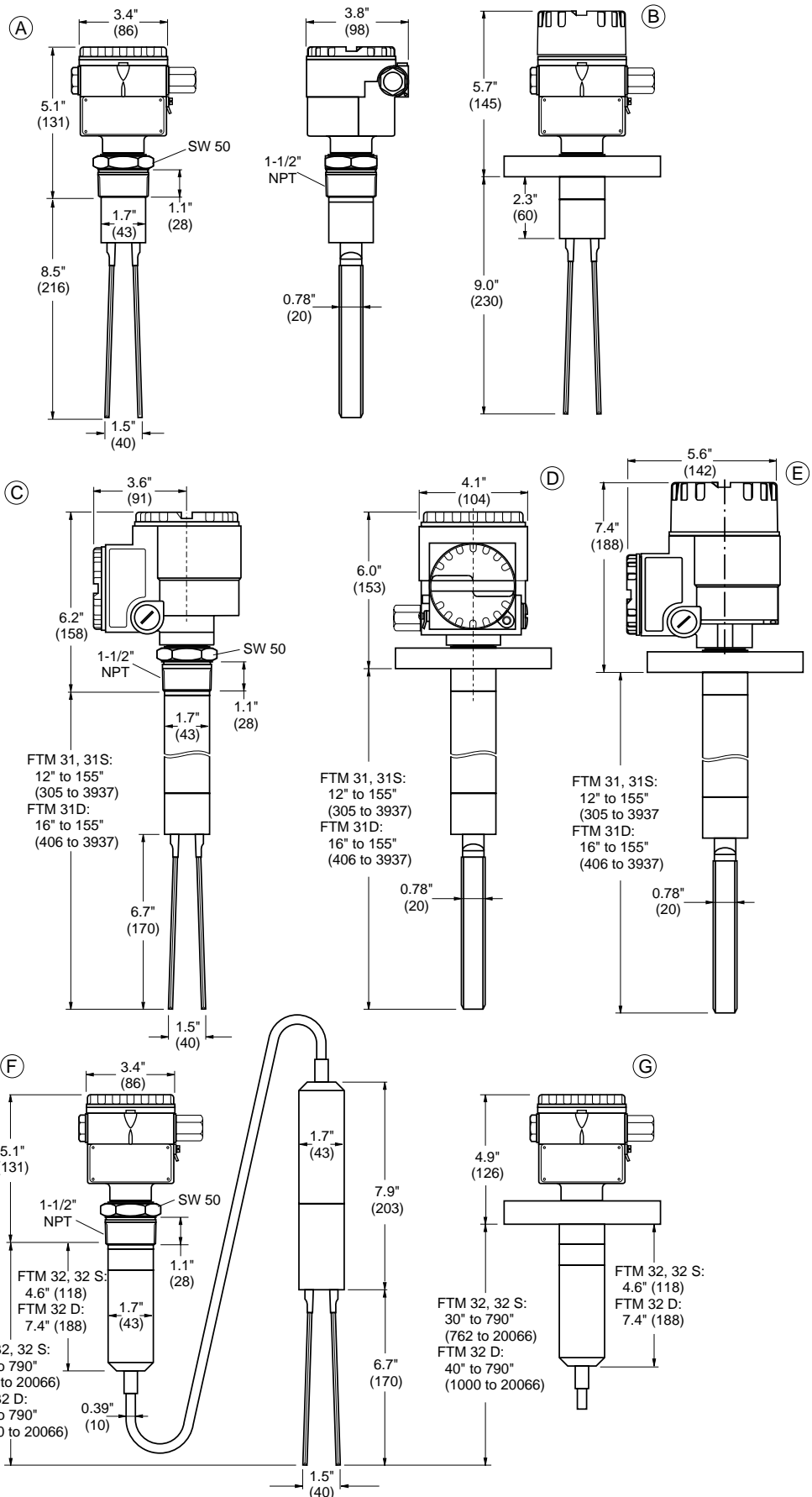
Plug-in electronic inserts can be exchanged without recalibration.



- A LED shows switching status
- B Fail-safe mode is selected using switch
- A Time delay mode is selected using switch
- B Green LED indicates power on
- C Fail-safe mode is selected using switch
- D Red LED shows switching status

Dimensions

- A FTM 30**
Compact version with threaded process connector shown with F 6 / F 10 style housing
- B FTM 30**
Compact version with flange mount, shown with F 6 / F 10 style housing
- C FTM 31**
Extended version, with extension pipe and threaded process connector shown with T 3 style housing
- D FTM 31**
Extended version, with extension pipe and flanged process connector shown with T 3 style housing
- E FTM 31D**
Extended version with T 3 housing with high top cover to accommodate the FEM 35 / FEM 45
- F FTM 32**
Extended version with cable and threaded process connector shown with F 6 / F 10 style housing
- G FTM 32**
Extended version with cable and flanged process connector shown with F 6 / F 10 style housing



Technical Data

General specifications

Instrument types	FTM 30, FTM 31, FTM 32FTM 30 D, FTM 31 D, FTM 32 D FTM 30 S, FTM 31 S, FTM 32 S
Intrument function	Level limit switch

Application

Limit detection	Maximum or minimum detection in silos with powdery and fine grained solids, maximum grain size of 9/16" (14 mm).
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Operation and system design

Measuring principle	Damping of the oscillation of a fork vibrating at its resonant frequency
Modularity	FTM and FTM D versions: complete limit switch, consisting of the sensor with integrated electronic inserts FEM series. FTM S versions: sensor with integrated electronic insert FEM 37 (transmitter) for connection to remote switching unit Nivotester FTL series.
Signal processing	Two-wire AC version (FEM 31, 41): load switched directly via a thyristor in the power supply Three-wire DC version (FEM 32): load switched via a transistor and separate connection Universal version with relay output (FEM 34, 44): load switched via a potential-free changeover contact Universal version with DPDT relay output (FEM 35, 45): load switched via potential-free changeover contact Remote switching version (FEM 37): PFM signal transmission, current pulses superimposed on the two-wire power cable
Electrical isolation	FEM 31, 32, 41: between sensor and power supply FEM 34, 35, 44, 45: between sensor and power supply and load FEM 37: between sensor and power supply; in remote switching unit Nivotestor between power supply and load

Input

Measured variable	Height (limit value, binary)
Measuring range (detection range)	FTM 30: determined by installation point FTM 31: determined by sensor length (extension pipe). Approximately 12" to 155" (300 mm to 4000 mm, mounted from top) FTM 31 D: as above, except: 16" to 155" (400 mm to 4000 mm) FTM 31 with sliding sleeve: 8" to 154" (200 mm to 3900 mm) FTM 32: determined by sensor cable length, 30" to 790" (800 mm to 20,000 mm, mounted from top) FTM 32 D: as above, except 40" to 790" (1000 mm to 20,000 mm)

Output

Output signal	Binary: output blocked on reaching limit
Signal failure	Output blocked
Load (connectable) FEM 31,FEM 41	(AC, load switched via thyristor dirctly in the power supply) to Transient (30 ms) max. 1.5 A, max. 375 VA at 253 V, or max. 36 VA at 24 V (no short circuit protection). Continuous max. 87 VA at 253V, max. 8.4 VA at 24 V. Min. 2.5 VA at 253 V (10 mA), min. 0.5 VA at 24 V (20 mA). Voltage drop across FEM, max. 12 V. Residual current max. 4 mA with blocked thyristor.
Load (connectable) with FEM 32	(DC, load switchedvia transistor and separate PNP connection) Transient (1 s) max. 1 A, max. 55 V (cyclic protection against overload and short circuiting); continuous max. 350 mA, max. 55 V; max. 0.5 µF at 55 V, max. 1.0 µF at 24 V; residual voltage < 3 V (with conducting transistor); residual current< 100 mA (with blocked transistor).
Load (connectable) with FEM 34, FEM 44	(universal current, load switched via potential-free changeover contact) I max. 6 A, V max. 253 VP max. 1500 VA, cos φ = 1, P max. 750 VA, cos φ > 0.71 max. 6 A to 30 V, I max. 0.2 A to 125V, additional switching delay 0.3 s.
Load (connectable) with FEM 35, FEM 45	(universal current, load switched via two potential-free changeover contacts) I max. 6 A, V max. 253 VP max. 1500 VA, cos φ = 1, P max. 750 VA, cos φ > 0.71 max. 6 A to 30 V, I max. 0.2 A to 125V, additional switching delay 0.3 s.
Time Delay (FEM 35 or FEM 45 only)	0.5 or 2.5 seconds when covered, 1.5 or 7.5 seconds when uncovered. Time delay is switch selectable.
Load (connectable) with FEM 37	(potential-free relay contact in switching unit Nivotester FTL) See Technical Data of the Nivotester FTL 320.
Fail safe	Minimum or maximum fail-safe mode, user-selectable

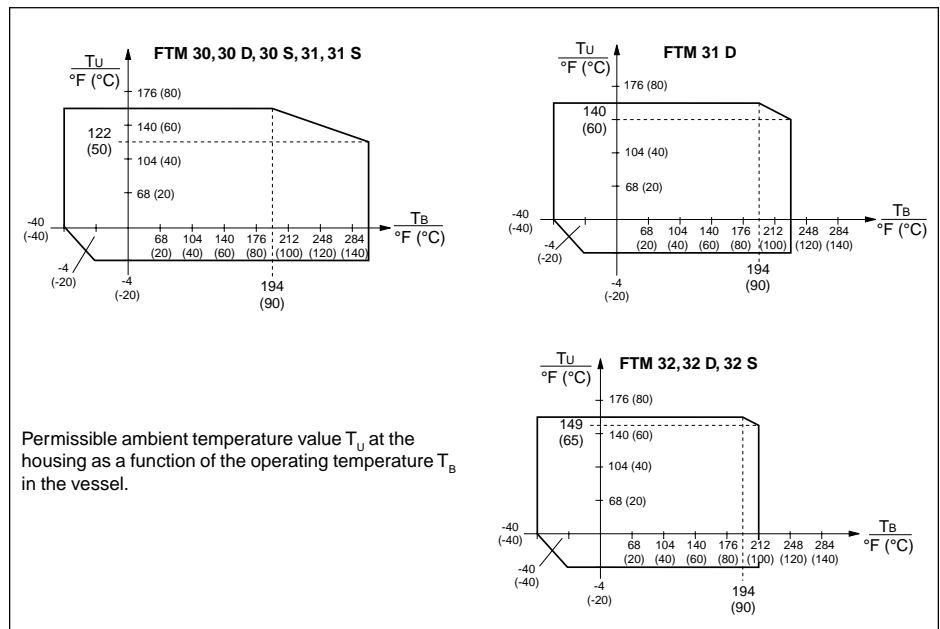
Technical Data (continued)

Operating Conditions

Orientation	Any position for FTM 30, 31 with short extension. Vertical for FTM 31 with long extension and FTM 32
Lateral load on FTM 30 fork	600 N on narrow edge of tines, static
Lateral load on FTM 31 tube	300 Nm (maximum 1 m)
FTM 32 cable tensile strength	2500 N
Operating temperature	-4° to +158°F (-20° to + 70°C). Refer to temperature charts below.
Storage temperature	-40° to +185°F (-40° to + 85°C)
Process material temperature	-40° to + 302°F (-40° to + 150°C). Refer to temperature charts below.
Operating pressure	FTM 30, 31: -14.5 to + 230 psi (-1 bar to +16 bar); FTM 32 D, 87 psi(6 bar); FTM 32 29 psi (2 bar)
Maximum pressure	Burst pressure minimum: FTM 30, 31 = 1450 psi (100 bar); FTM 32 D = 580 psi (40 bar); FTM 32 = 43 psi (3 bar)
Maximum material size	9/16" (14 mm)
Material density	Minimum 1.2 lb/ft ³ (20 g/l)
Climatic class	Climatic protection to IEC 68, Part 2-38, Fig. 2a
Ingress protection	NEMA 4X (IP 66 to DIN 40 050)
Electromagnetic compatibility	By attaching the CE mark, Endress+Hauser confirms that the Soliphant FTM fulfils all legal requirements of the relevant EC directives. Interference immunity to EN 50082-2 (field strength 10V/m), interference emission to EN 50081-1

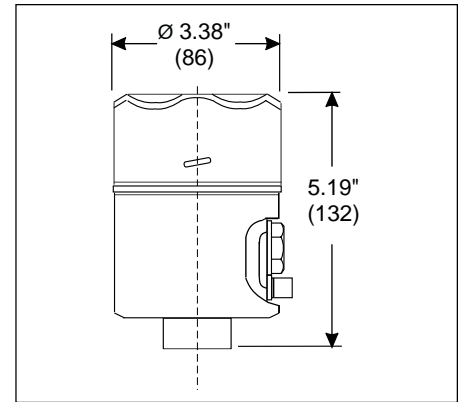
Construction

Materials	Process connection (threaded) and fork, 304 SS. Flange connections 316 SS. Extension tube, 304 SS. Cable, braided steel, 0.39" dia. (10 mm) polyurethane coated. Housing (F 10), fiberglass reinforced polyester, transparent polyamide cover, EPDM seal. Housing (F 6, T 3), aluminum, coated.
Process connections	Tapered thread 1-1/2" x 11-1/2 NPT to ANSI B 1.20.1 Tapered thread R 1-1/2 to DIN 2999 Part 1 Flanges: ANSI, DIN or JIS
Power supply	FEM 31, 41 insert: 19 to 253 VAC, 50/60 Hz, current consumption (stand-by) maximum 4 mA. FEM 32 insert: 10 to 55 VDC, ripple maximum 1.7 V, 0 to 400 Hz; current consumption maximum 15 mA, reverse polarity protection. FEM 34, 35 and FEM 44, 45 insert: 19 to 253 VAC, 16 to 60 Hz; 19 to 200 VDC; current consumption maximum 7 mA. FEM 37 insert: powered by Nivotester FTL switching unit.
Display / user interface	FEM 31, 32, 34, 41, 44: rotary switch for minimum / maximum fail-safe, red LED switching status indication. FEM 37: green LED indicates forks covered.



Stainless steel housing

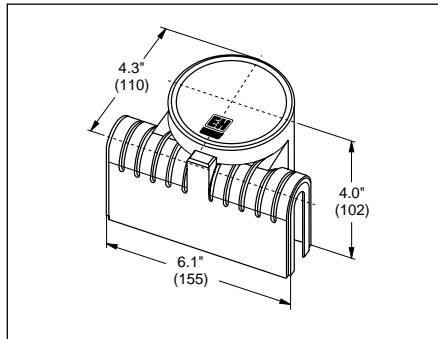
Endress+Hauser offers a NEMA 4X rated 304 SS housing (F 8) for sanitary applications. The housing is only available for the FTM 30S, 31S, and 32S with FEM 37 2-wire PFM electronic insert. Refer to page 11 for ordering information.



F8 304 Stainless Steel housing

Accessories

Protective hood for F 6 and F 10 housings. Polyamide material, 0.28 lbs (0.13 kg)

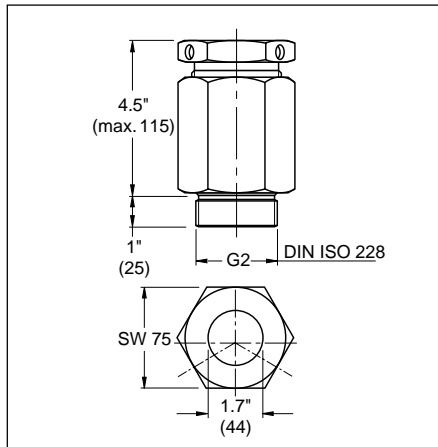


Protective Hood

Protects the Soliphant electronics housing when mounted in the field from excessive temperatures caused by direct sunlight. The hood also prevents condensation from entering the housing due to extreme temperature variations.

Part # 942262-0000

Sliding sleeve, 316 Ti SS.
145 psi (10 bar)
maximum pressure.
Maximum operating
temperature: 176°F (80°C).
Threaded gland packing
PTFE-fiber glass fabric. Weight:
5.7 lbs (2.6 kg)



Sliding Sleeve

When mounting the Soliphant FTM 31 in a silo from the top, the sliding sleeve allows the switch point to be infinitely adjusted.

NOTE: The sensor length of the FTM 31 must be at least 15.7" (400 mm) long.

Part # 916538-0000

Cable Shortening Kit

A kit is available for the Soliphant FTM 32 which consists of the accessories required to shorten the cable and make a permanent water-tight connection to the sensor.

The kit is always supplied with the 100" and 240" cable versions FTM 32, FTM 32 D and FTM 32 S. The user can cut the cable to suit the application without affecting the approvals.

Ordering Information, FTM 30 - 32

1 2 3 4 5
FTM 30 - ☐☐☐☐☐

- 1 Certificates
 - A Non-hazardous area use
 - D CSA dust ign., Cl II, III; div 1, Grps E-G, (only with aluminum housing)
 - F FM dust ign. proof Cl II, III; Div 1; Grps E-G (only with aluminum housing)
- 2 Electronics
 - 1 AC, 2-wire, 21 to 250 V, 50/60 Hz FEM 31 contactless
 - 2 10 to 55 VDC, PNP 3-wire FEM 32
 - 4 Relay SPDT, 21 to 253 VAC / 200 VDC FEM 34
 - 5 Relay DPDT, 21 to 253 VAC / 200 VDC FEM 35 *
- 3 Housing / Cable Entry
 - B Housing, Aluminum coated, F6, NEMA 4X / 1/2" NPT
 - F Housing, Polyester, F10, NEMA 4X / 1/2" NPT
 - 4 Housing, 304 SS, F 8 NEMA 4X / 1/2" NPT
- 4 Process Connection and Material
 - B 1-1/2" NPT, 304 SS
 - L 1-1/2" ANSI 150 lb RF flange, 316 SS
 - M 2" ANSI 150 lb RF flange, 316 SS
 - P 3" ANSI 150 lb RF flange, 316 SS
 - N 4" ANSI 150 lb RF flange, 316 SS
 - Y Special version
- 5 Version
 - 1 Basic version

* FM certificate consult factory

1 2 3 4 5 6
FTM 31 - ☐☐☐☐☐☐

- 1 Certificates
 - A Non-hazardous area use
 - D CSA dust ign., Cl II, III; div 1, Grps E-G
 - F FM dust ign. proof Cl II, III, III; Div 1; Grps E-G (only with aluminum housing)
- 2 Electronics
 - 1 AC, 2-wire, 21 to 250 V, 50/60 Hz FEM 31 contactless
 - 2 10 to 55 VDC, PNP 3-wire FEM 32
 - 4 Relay SPDT, 21 to 253 VAC / 200 VDC FEM 34
 - 5 Relay DPDT, 21 to 253 VAC / 200 VDC FEM 35 *
- 3 Housing / Cable Entry
 - B Housing, Aluminum coated, F6, NEMA 4X / 1/2" NPT
 - F Housing, Polyester, F10, NEMA 4X / 1/2" NPT
 - 4 Housing, 304 SS, F 8 NEMA 4X / 1/2" NPT
- 4 Process Connection and Material
 - B 1-1/2" NPT, 304 SS
 - L 1-1/2" ANSI 150 lb RF flange, 316 SS
 - M 2" ANSI 150 lb RF flange, 316 SS
 - P 3" ANSI 150 lb RF flange, 316 SS
 - N 4" ANSI 150 lb RF flange, 316 SS
 - Y Special version
- 5 Version
 - 1 Basic version
 - 9 Special version
- 6 Sensor Length (min. 12", max. 155")
 - 1 Price / inch probe length, 304 SS

* FM certificate consult factory

1 2 3 4 5 6
FTM 32 - ☐☐☐☐☐☐

- 1 Certificates
 - A Non-hazardous area use
 - E CSA Cl II, div 1, Grp G + Coal Dust
 - F FM dust ign. proof Cl II, III; Div 1; Grps E-G (only with aluminum housing)
- 2 Electronics
 - 1 AC, 2-wire, 21 to 250 V, 50/60 Hz FEM 31 contactless
 - 2 10 to 55 VDC, PNP 3-wire FEM 32
 - 4 Relay SPDT, 21 to 253 VAC / 200 VDC FEM 34
 - 5 Relay DPDT, 21 to 253 VAC / 200 VDC FEM 45 *
- 3 Housing / Cable Entry
 - B Housing, Aluminum coated, F6, NEMA 4X / 1/2" NPT
 - F Housing, Polyester, F10, NEMA 4X / 1/2" NPT
 - 4 Housing, 304 SS, F 8 NEMA 4X / 1/2" NPT
- 4 Process Connection and Material
 - B 1-1/2" NPT, 304 SS
 - L 1-1/2" ANSI 150 lb RF flange, 316 SS
 - M 2" ANSI 150 lb RF flange, 316 SS
 - P 3" ANSI 150 lb RF flange, 316 SS
 - N 4" ANSI 150 lb RF flange, 316 SS
 - Y Special version
- 5 Version
 - 1 Basic version
- 6 Sensor Length (min. 30", max. 790")
 - 2 Price / inch cable length, 304 SS
 - 7 Fixed length with cable shortening kit 100"
 - 8 Fixed length with cable shortening kit 240"
 - Y Special version

* FM certificate consult factory

Ordering Information, FTM 30 D - 32 D

1 2 3 4 5
FTM 30 D - ☐☐☐☐☐

- 1 Certificates
 - A Non-hazardous area use
 - G FM ex-proof, Cl I, II, III; Div 1; Grps A-G
 - K CSA Cl I, II, III; Div 1; Grps A-G
- 2 Electronics
 - 1 AC, 2-wire, 21 to 250 V, 50/60 Hz FEM 31 contactless
 - 2 10 to 55 VDC, PNP 3-wire FEM 32
 - 4 Relay SPDT, 21 to 253 VAC / 200 VDC FEM 34
 - 5 Relay DPDT, 21 to 253 VAC / 200 VDC FEM 35 / 45 *
- 3 Housing / Cable entry
 - K Housing, dual compartment, Aluminum coated, T3, NEMA 4X / 3/4" NPT
- 4 Process Connection and Material
 - B 1-1/2" NPT, 304 SS
 - M 2" ANSI 150 lb RF flange, 316 SS
 - P 3" ANSI 150 lb RF flange, 316 SS
 - N 4" ANSI 150 lb RF flange, 316 SS
 - Y Special version
- 5 Version
 - 1 Basic version

* FM certificate consult factory

1 2 3 4 5 6
FTM 31 D - ☐☐☐☐☐☐

- 1 Certificates
 - A Non-hazardous area use
 - G FM ex-proof, Cl I, II, III; Div 1; Grps A-G
 - M CSA Cl I, II, III; Div 1; Grps A-G
- 2 Electronics
 - 1 AC, 2-wire, 21 to 250 V, 50/60 Hz FEM 31 contactless
 - 4 Relay SPDT, 21 to 253 VAC / 200 VDC FEM 34
 - 5 Relay DPDT, 21 to 253 VAC / 200 VDC FEM 35 / 45 *
- 3 Housing / Cable Entry
 - K Housing, dual compartment, Aluminum coated, T3, NEMA 4X / 3/4" NPT
- 4 Process Connection and Material
 - B 1-1/2" NPT, 304 SS
 - M 2" ANSI 150 lb RF flange, 316 SS
 - P 3" ANSI 150 lb RF flange, 316 SS
 - N 4" ANSI 150 lb RF flange, 316 SS
 - Y Special version
- 5 Version
 - 1 Basic version
- 6 Sensor Length (min 16", max 155")
 - 3 Price / inch probe length, 304 SS
 - Y Special version

* FM certificate consult factory

1 2 3 4 5 6
FTM 32 D - ☐☐☐☐☐☐

- 1 Certificates
 - A Non-hazardous area use
 - Q FM ex-proof, Cl I, II, III; Div 1; Grps C-G
 - L CSA Cl II; Div 1; Grp G + Coal Dust
- 2 Electronics
 - 1 AC, 2-wire, 21 to 250 V, 50/60 Hz FEM 31 contactless
 - 4 Relay SPDT, 21 to 253 VAC / 200 VDC FEM 34
 - 5 Relay DPDT, 21 to 253 VAC / 200 VDC FEM 35 / 45 *
- 3 Housing / Cable Entry
 - K Housing, dual compartment, Aluminum coated, T3, NEMA 4X / 3/4" NPT
- 4 Process Connection and Material
 - B 1-1/2" NPT, 304 SS
 - M 2" ANSI 150 lb RF flange, 316 SS
 - P 3" ANSI 150 lb RF flange, 316 SS
 - N 4" ANSI 150 lb RF flange, 316 SS
 - Y Special version
- 5 Version
 - 1 Basic version
- 6 Sensor Length (min 40", max 790")
 - 4 Price / inch cable length, 304 SS
 - 7 Fixed length with cable shortening kit 100"
 - 8 Fixed length with cable shortening kit 240"
 - Y Special version

* FM certificate consult factory

Ordering Information, FTM 30 S - 32 S

FTM 30 S - ☐ ☐ ☐ ☐ ☐ ☐

- 1 Certificates
 - A Non-hazardous area use
 - P FM IS Cl I, II, III; Div 1; Grps A-G
 - T CSA IS Cl I, II, III; Div 1, Grps A-G
- 2 Electronics
 - 7 Two-wire PFM signal, FEM 37
- 3 Housing / Cable Entry
 - 4 Housing, 304 SS, F8, NEMA 4X / 1/2" NPT
 - B Housing, Aluminum coated, F6, NEMA 4X / 1/2" NPT
 - F Housing, Polyester, F10, NEMA 4X / 1/2" NPT
 - K Housing, dual compartment, Aluminum coated, T3, NEMA 4X / 3/4" NPT
- 4 Process Connection and Material
 - B 1-1/2" NPT, 304 SS
 - L 1-1/2" ANSI 150 lb RF flange, 316 SS
 - M 2" ANSI 150 lb RF flange, 316 SS
 - P 3" ANSI 150 lb RF flange, 316 SS
 - N 4" ANSI 150 lb RF flange, 316 SS
 - Y Special version
- 5 Version
 - 1 Basic version

NOTE: Dual compartment housing not available with process connection L.

FTM 31 S - ☐ ☐ ☐ ☐ ☐ ☐

- 1 Certificates
 - A Non-hazardous area use
 - P FM IS Cl I, II, III; Div 1; Grps A-G
 - T CSA IS Cl I, II, III; Div 1, Grps A-G
- 2 Electronics
 - 7 Two-wire PFM signal, FEM 37
- 3 Housing / Cable Entry
 - 4 Housing, 304 SS, F8, NEMA 4X / 1/2" NPT
 - B Housing, Aluminum coated, F6, NEMA 4X / 1/2" NPT
 - F Housing, Polyester, F10, NEMA 4X / 1/2" NPT
 - K Housing, dual compartment, Aluminum coated, T3, NEMA 4X / 3/4" NPT
- 4 Process Connection and Material
 - B 1-1/2" NPT, 304 SS
 - L 1-1/2" ANSI 150 lb RF flange, 316 SS
 - M 2" ANSI 150 lb RF flange, 316 SS
 - P 3" ANSI 150 lb RF flange, 316 SS
 - N 4" ANSI 150 lb RF flange, 316 SS
 - Y Special version
- 5 Version
 - 1 Basic version
- 6 Sensor Length (min. 12", max. 155")
 - 1 Price / inch probe length, 304 SS

NOTE: Dual compartment housing not available with process connection L.

FTM 32 S - ☐ ☐ ☐ ☐ ☐ ☐

- 1 Certificates
 - A Non-hazardous area use
 - P FM IS Cl I, II, III; Div 1; Grps A-G
 - U FM IS Cl I, II, III; Div 1; Grps C-G
 - W CSA XP Cl II, Div 1, Grps G + coal dust
- 2 Electronics
 - 7 Two-wire PFM signal, FEM 37
- 3 Housing / Cable Entry
 - 4 Housing, 304 SS, F8, NEMA 4X / 1/2" NPT
 - B Housing, Aluminum coated, F6, NEMA 4X / 1/2" NPT
 - F Housing, Polyester, F10, NEMA 4X / 1/2" NPT
 - K Housing, dual compartment, Aluminum coated, T3, NEMA 4X / 3/4" NPT
 - Y Special version
- 4 Process Connection and Material
 - B 1-1/2" NPT, 304 SS
 - L 1-1/2" ANSI 150 lb RF flange, 316 SS
 - M 2" ANSI 150 lb RF flange, 316 SS
 - P 3" ANSI 150 lb RF flange, 316 SS
 - N 4" ANSI 150 lb RF flange, 316 SS
 - Y Special version
- 5 Version
 - 1 Basic version
- 6 Sensor Length (min. 30", max. 790")
 - 2 Price / foot cable length, 304 SS
 - 7 Fixed length with cable shortening kit 100"
 - 8 Fixed length with cable shortening kit 240"

NOTE: Dual compartment housing not available with process connection L.

United States

Endress+Hauser, Inc.
2350 Endress Place
Greenwood, IN 46143
Phone: (317) 535-7138
1-800-428-4344
FAX: (317) 535-8498

Regional Office
Endress+Hauser, Inc.
P.O. Box 901
Harvey, LA 70059
Phone: (504) 366-3264
FAX: (504) 366-3816

Regional Office
Endress+Hauser, Inc.
942 Town Center
New Britain, PA 18901
Phone: (267) 880-1750
1-877-880-1750
FAX: (267) 880-1759

Regional Office
Endress+Hauser, Inc.
2901 W. Sam Houston
Parkway North
Suite C-250
Houston, TX 77043
Phone: (832) 590-6200
FAX: (832) 590-6202

Sterling IPC
Div. of Endress+Hauser, Inc.
68950 Powell Road
Romeo, MI 48065
Phone: (586) 752-0700
FAX: (586) 752-0705

AD Instruments
Div. of Endress+Hauser, Inc.
4711-A Nations Crossing Road
Charlotte, NC 28217
Phone: (704) 522-8415/8536
FAX: (704) 527-5005

RPS Industries
Div. of Endress+Hauser, Inc.
500 W. Central Avenue
Suite A
Brea, CA 92821
Phone: (714) 529-1925
FAX: (714) 529-2966

Canada

Endress+Hauser
Canada Ltd.
1440 Graham's Lane
Unit 1, Burlington
ON, L7S 1W3
Phone: (905) 681-9292
1-800-668-3199
FAX: (905) 681-9444

Endress+Hauser
Canada Ltée
6800 Côte de Liesse, Ste. 100
St. Laurent, Que H4T 2A7
Téléphone: (514) 733-0254
Télécopieur: (514) 733-2924

Endress+Hauser
Canada, Ltd.
18103 - 105 Ave. NW #101
Edmonton, AB T5S 2L5
Phone: (780) 486-3222
FAX: (780) 486-3466

Mexico

Endress+Hauser
Paseo del Pedregal No. 610
Col. Jardines del Pedregal
01900, Mexico D.F.
Mexico
Phone: (525) 568-2405
FAX: (525) 568-7459

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