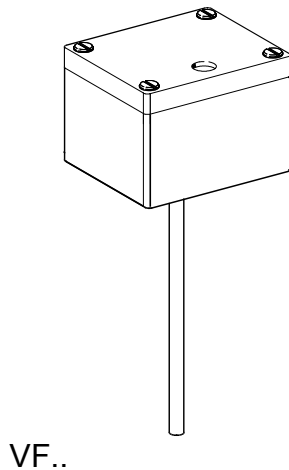


Fitting and Operating Instruction



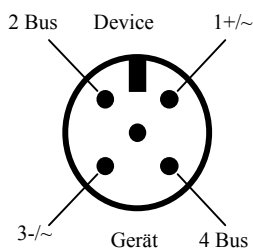
Temperature Sensors

VF20..-L

General

A qualified installer has to carry out and to supervise mounting and first operation of the appliance

Connection diagramm



Description

The FEMA LON series is provided with default configuration settings from the factory (figure 2). The NTC 20 characteristic is approximated with 12 straight lines in the range -30 to $+110^{\circ}\text{C}$. Using standard Echelon configuration tool or LNS based tools, the sensor can be configured with job-specific settings. The power and bus connection is provided by a M12 plug (included in delivery).

Safety Instruction

Mounting

- You never use housing as lever arm and do not turn the housing.

Electrical wiring and power

- The unit is supplied with 24VAC or 24 to 36VDC. With a DC power supply pay attention to correct polarity. The device can be destroyed if the connection is faulty. Connect the appliance to the plug as shown in connection diagramm.
- You never apply a voltage higher 48 V to one of the terminals.
-

Installation

The series VF..-L sensors are fitted directly to the pipeline with an immersion tube

Protection class

IP 54 (with vertical sensor position)

Operation LED (green)

LED task, error handling:	priority	set nvo_press invalid	set nvo_limit invalid	LED blink quantity (*) 1 = on 0 = off (16 steps)
LP_Status.VrefFail (1)	1	y	y	1010000000000000
LP_Status.LimitError (2)	2	n	y	1010100000000000
wink command active	3	n	n	1111111100000000
normal run	4	n	n	1111111111111111

(*) The duration of one step is: 150ms

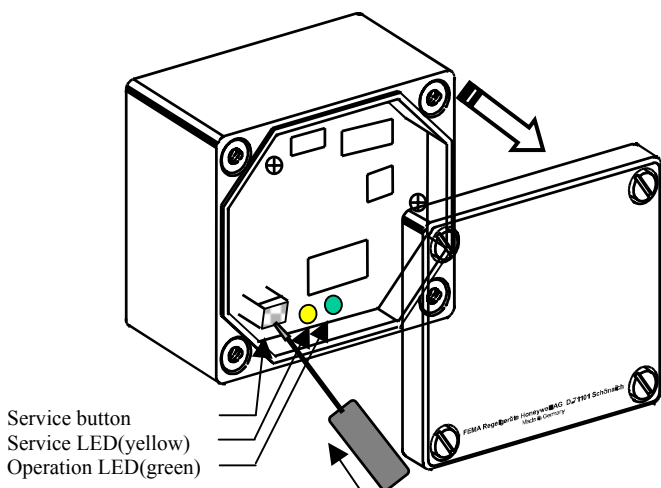
(1) Operation power to low

In this case the sensor element is measuring wrong values.

All values are set to invalid.

(2) Low limit (nciLimitLow) is set higher than a high limit (nciLimitHigh).

For function of service LED and service button see Echelon documentation.



Safety Instruction

Do not touch the plane with the screw driver.

The application

The graph in figure 1 shows the software application

In this range four limit values can be activated:

nciLimitLowP1, nciLimitLowP2, nciLimitHighP1, nciLimitHighP2

When the LimitHigh values are reached (coming from low temperature) a relating alarm value (network output variable) is set:

nciLimitHighP1 sets nvoLimitHigh1,

nciLimitHighP2 sets nvoLimitHigh2,

When the LimitLow values are reached (coming from high temperature) a relating alarm value (network output variable) is set:

nciLimitLowP1 sets nvoLimitLow1

nciLimitLowP2 sets nvoLimitLow2

The alarm values for the LimitHighs is reset when the temperature value falls under the limit an ist hysteresis:

nciHystHighP1 belongs to nciLimitHighP1,

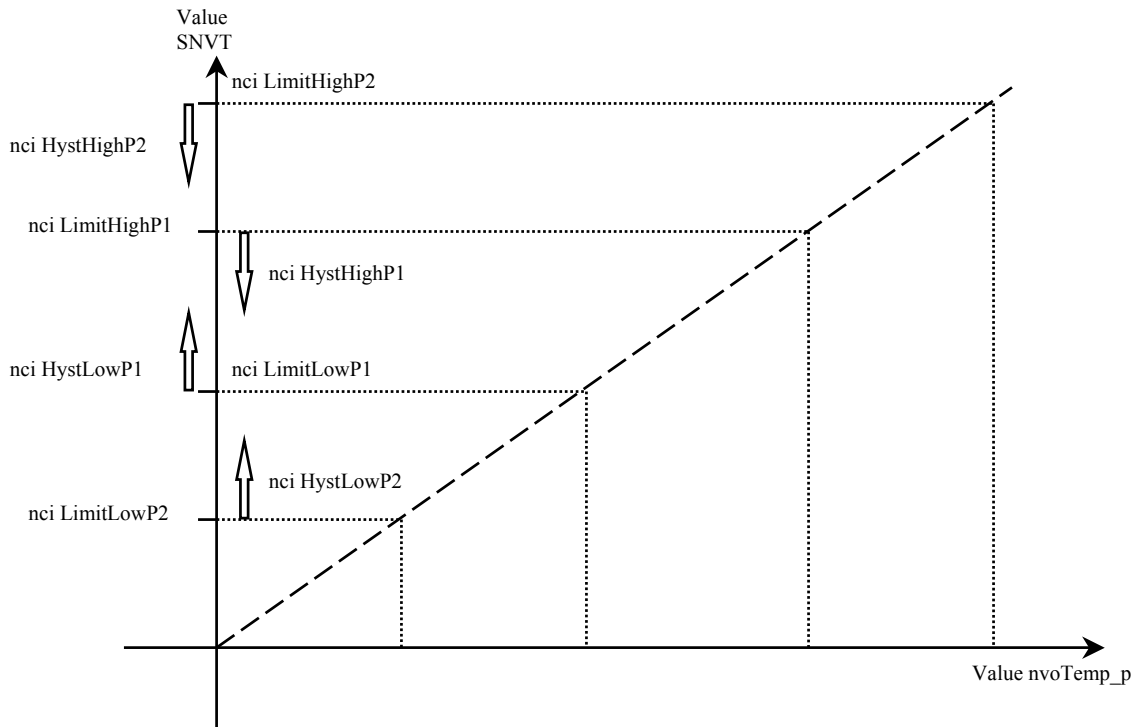
nciHystHighP2 belongs to nciLimitHighP2

The alarm values for the LimitLows is reset when the temperature value rises over the limit an ist hysteresis:

nciHystHighP1 belongs to nciLimitHighP1,

nciHystHighP2 belongs to nciLimitHighP2

Limits and Hysteresis (figure 1)



Description of the used SNVT/ SCPT (figure 2)

This table shows all used standard network variables.

Network Variable / Self documentation string	SNVT type {Default value}	Range	Network Outputs: Send conditions / Service	Description
<i>Temperature Sensor (Profile1040)</i>				
nvoHVACTemp ("@0 1;")	SNVT_temp_p {temperature for delivery}	-273,17 ... 327,66°C 0x7FFF = 327,67°C = Invalid	nciSendOnDelta, nciMaxSendTime, nciMinSendTime, change of nvoLimitHigh,Low / unack. Service	Actual temperature value
nciSendOnDelta ("&1, 0, 0\x80, 64;")	SNVT_temp_p {0,3°C}	-273,17 ... 327,66°C 0 = Send any change		
nciMinSendTime ("&1, 0, 0\x80, 52;")	SNVT_time_sec {0 sec for factory} {5 sec for delivery}	0..6553,4 sec 0 = Maximum refresh rate		for delivery = 5 sec
nciMaxSendTime ("&1, 0-1, 0\x80, 49;")	SNVT_time_sec {300 sec}	0..6553,4 sec 0 = No automatic update		

Temperature application

nvoTempPercent ("@0 # 1;")	SNVT_lev_percent {percent temperature for delivery}	-163,84%...163,83% (res.=0,005%) 0x7FFF = Invalid	nciSendOnDelta, nciMaxSendTime, nciMinSendTime, change of nvoLimitHigh,Low / unack. Service	Actual temperature value in % of total range
nciLimitLowP1 ("&1,0,0\x80,18;")	SNVT_temp_p {Invalid for factory} {No Limit Check for delivery}	-273,17 ... 327,66°C -50,05°C = No Limit Check		
nciLimitHighP1 ("&1,0,0\x80,9;")	SNVT_temp_p {Invalid for factory} {No Limit Check for delivery}	-273,17 ... 327,66°C +150,1°C = No Limit Check		
nciLimitLowP2 ("&1,0,0\x80,19;")	SNVT_temp_p {Invalid for factory} {No Limit Check for delivery}	-273,17 ... 327,66°C -50,05°C = No Limit Check		
nciLimitHighP2 ("&1,0,0\x80,10;")	SNVT_temp_p {Invalid for factory} {No Limit Check for delivery}	-273,17 ... 327,66°C +150,1°C = No Limit Check		
nciHystHighP1 ("&1,0,0\x80,11;")	SNVT_temp_p {0 K}	-273,17 ... 327,66°C 0 = No Hysteresis		Delivery default = 0
nciHystHighP2 ("&1,0,0\x80,12;")	SNVT_temp_p {0 K}	-273,17 ... 327,66°C 0 = No Hysteresis		Delivery default = 0
nciHystLowP1 ("&1,0,0\x80,13;")	SNVT_temp_p {0 K}	-273,17 ... 327,66°C 0 = No Hysteresis		Delivery default = 0
nciHystLowP2 ("&1,0,0\x80,14;")	SNVT_temp_p {0 K}	-273,17 ... 327,66°C 0 = No Hysteresis		Delivery default = 0

Alarming

nvoLimitHigh1 ("@0 # 2;")	SNVT_switch {Invalid for factory} {OFF for delivery}	OFF = {0, false} ON = {200, true} invalid = {x, 255}	Any Change / ackd. Service	for delivery = off
nvoLimitLow1 ("@0 # 4;")	SNVT_switch {Invalid for factory} {OFF for delivery}	OFF = {0, false} ON = {200, true} invalid = {x, 255}	Any Change / ackd. Service	for delivery = off
nvoLimitHigh2 ("@0 # 3;")	SNVT_switch {Invalid for factory} {OFF for delivery}	OFF = {0, false} ON = {200, true} invalid = {x, 255}	Any Change / ackd. Service	for delivery = off
nvoLimitLow2 ("@0 # 5;")	SNVT_switch {Invalid for factory} {OFF for delivery}	OFF = {0, false} ON = {200, true} invalid = {x, 255}	Any Change / ackd. Service	for delivery = off
nvoRaw ("@0 # 6;")	UWORD	raw value of A/Dconverter: 0...4095	polled / not acknowledged	only for factory
nvoSWversion ("@0 # 7;")	SNVT_char_ascii	software version number 0...255	polled	Software version number

#pragma set_node_sd_string "3.0@0,1040"

#pragma set_std_prog_id 80:00:0C:0A:28:04:04:00 (for Temperature application)

Transceiver and profile

FTT 10A

Profile 1040#

Ambient temperature

0...+50°C

Accessories included in delivery

Plug M12 five-pole