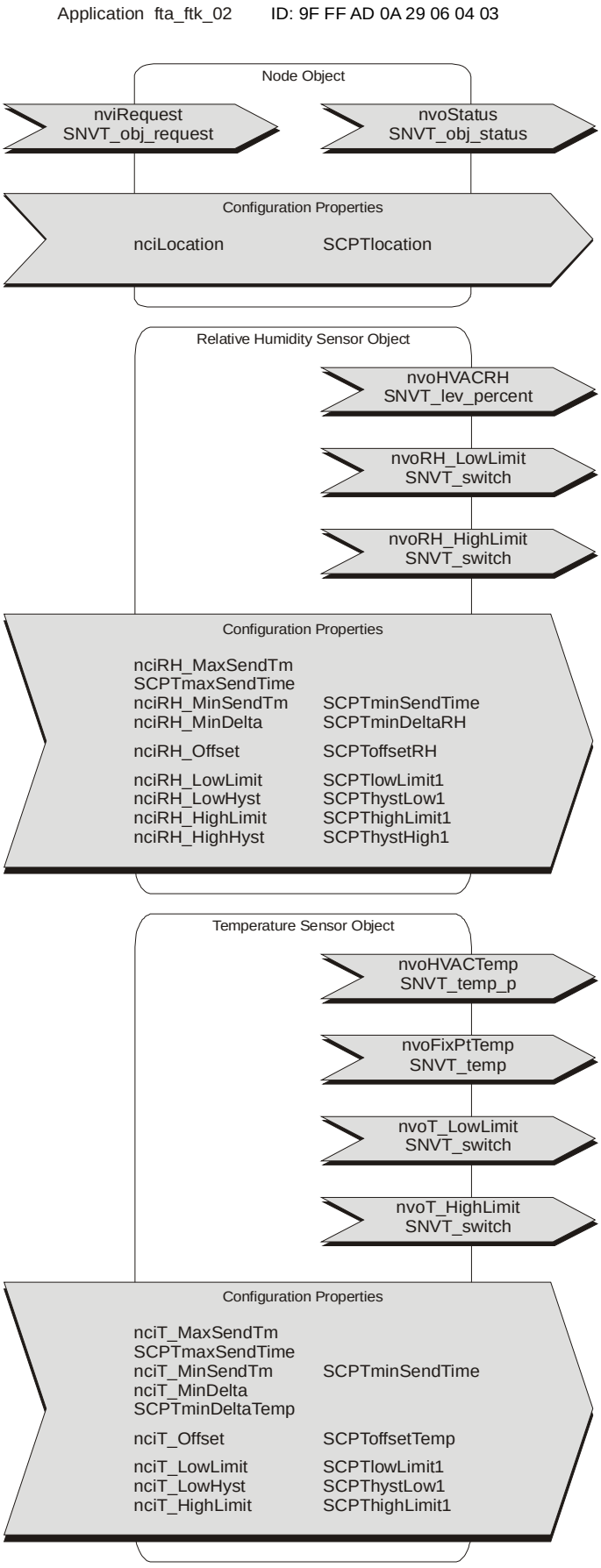
Software Applicationen fta_ftk_02 (Sensors, Limit Switch)

For models FTA54 LON and FTK LON (FT-X1 transformer/FT3120 transceiver)



Standard application for measuring relative humidity and temperature.

All functions are converted under consideration of the LonMark® function profile **1040** *Temperature Sensor* and **1050** *Rel. Humidity Sensor.*
The application uses standard network variables (SNVT) and standard configuration parameters (SCPT).

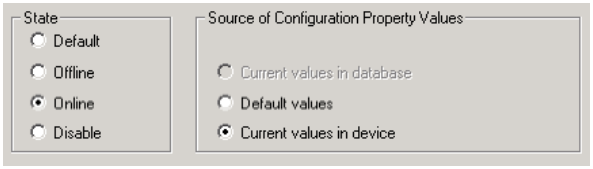
Output Variables:

Relative Humidity: nvoHVACRH (SNVT_lev_percent)

Temperature: nvoHVACTemp (SNVT_temp_p)
nvoFixPtTemp (SNVT_temp)

!! The temperature sensor is calibrated by the !! configuration parameter nciT_Offset during !! production. Thus, the adjusted device-specific !! values should be taken over, when integrating the !! device to the LON network.

Example LonMaker:



Limit Switch: Each sensor object offers the possibility to configure an upper and lower limit switch with hysteresis values. Output is made by means of the variables *nvoLowLimit* and *nvoHighLimit* of type SNVT_switch.

Node Object

The Node Object supervises and controls the functions of the individual objects within the device. The basic functions required by the LonMark® are supported.

Network Variables Node Object:

nviRequest

SNVT Type: SNVT_obj_request, Index 92
Function: Input variable with functions RQ_NORMAL, RQ_UPDATE_STATUS and RQ_REPORT_MASK.

nvoStatus

SNVT Type: SNVT_obj_status, Index 93
Function: Output variable including the required status bits „invalid_id“ and „invalid_request“.

Configuration Parameter Node Object:

nciLocation

SCPT Type: SCPTlocation, Index 17, SNVT_str_asc
Function: Additional input possibility, in order to store information for location.

Relative Humidity Sensor Object

The object includes functions for detection of relative humidity, limit switchs and data output.

Network Variables Relative Humidity Sensor Object:

nvoHVACRH

SNVT Type: SNVT_lev_percent, Index 81
Function: Output variable for the measured relative humidity in percent. Data output is made depending on the configuration parameter *nciRH_MinSendTm*, *nciRH_MaxSendTm*, *nciRH_MinDelta*, upon change of a limit switch and approx. 3 sec. after reset.

nvoRH_LowLimit

SNVT Type: SNVT_switch, Index 95
Function: Output variable of limit switch for lower limiting value.
If the lower limiting value (nciRH_LowLimit - nciRH_LowHyst / 2) is under-run,
nvoRH_LowLimit = 100.0 1 is set.
If the lower limiting value(nciRH_LowLimit + nciRH_LowHyst / 2) is exceeded,
nvoRH_LowLimit = 0.0 0 is set.
Data output is made upon change of output value, in dependence on *nciRH_MaxSendTm* and approx. 3 sec. after reset.

nvoRH_HighLimit

SNVT Type: SNVT_switch, Index 95
Function: Output variable of limit switch for upper limiting value.
If the upper limiting value (nciRH_HighLimit + nciRH_HighHyst / 2) is exceeded,
nvoRH_HighLimit = 100.0 1 is set.
If the upper limiting value (nciRH_HighLimit - nciRH_HighHyst / 2) is under-run,
nvoRH_HighLimit = 0.0 0 is set.
Data output is made upon change of output value, in dependence on *nciRH_MaxSendTm* and approx. 3 sec. after reset.

Configuratin Parameter Relative Humidity Sensor Object:

nciRH_MaxSendTm

SCPT Type: SCPTmaxSendTime, Index 49, SNVT_time_sec
Function: Heartbeat function. Stipulates interval period, after which all output variables are sent independently of a value change. By means of the input values < 1 the heartbeat function is deactivated. (Preset value: 5 min)

nciRH_MinSendTm

SCPT Type: SCPTminSendTime, Index 52, SNVT_time_sec
Function: Stipulates the smallest update interval of the output variable *nvoHVACRH*. An update is made after expiration of *nciRH_MinSendTm*, if the relative humidity has changed by more than *nciRH_MinDelta*. By means of input values < 1 the function is deactivated. (Preset value: 5 sec)

nciRH_MinDelta

SCPT Type: SCPTminDeltaRH, Index 62, SNVT_lev_percent
Function: If the relative humidity has changed by the adjusted value *nciRH_MinDelta*, the new value is transmitted. The function is depending on the adjustment of the parameter *nciRH_MinSendTm*.
(Range >= 0 %; Preset value: 1 %)

nciRH_Offset

SCPT Type: SCPToffsetRH, Index 69, SNVT_lev_percent
Function: Offset value for additional calibration of relative humidity.
!! The sensor is calibrated upon production. A change of these values overwrites manufacturer's !! adjustments.

nciRH_LowLimit

SCPT Type: SCPTlowLimit1, Index 18, SNVT_lev_percent
Function: Lower limiting value. (Range: 0 - 100 %, Preset value: 20 %)

nciRH_LowHyst

SCPT Type: SCPThystLow1, Index 13, SNVT_lev_percent
Function: Hysteresis for calculation of lower switching treshold. (Preset value: 5 %)

nciRH_HighLimit

SCPT Type: SCPThighLimit1, Index 9, SNVT_lev_percent
Function: Upper limiting value. (Range: 0 - 100 %, Preset value: 80 %)

nciRH_HighHyst

SCPT Type: SCPThystHigh1, Index 11, SNVT_lev_percent
Function: Hysteresis for calculation of upper switching treshold. (Preset value: 5 %)

Temperature Sensor Object

The object includes functions for detection of relative humidity, limit switch and data output.

Network Variables Temperature Sensor Object:

nvoHVACTemp

SNVT Type: SNVT_temp_p, Index 105
Function: Output variable for measured temperature value (resolution 1/100 °C). Data output is made in dependence on the configuration parameters *nciT_MinSendTm*, *nciT_MaxSendTm*, *nciT_MinDelta*, upon change of a limit switch and approx. 3 sec. after reset.

nvoFixPtTemp

SNVT Type: SNVT_temp, Index 39
Function: Output varialbe for measured temperature value (resolution 1/10 °C). Data output is made analog to nvoHVACTemp.

nvoT_LowLimit

SNVT Type: SNVT_switch, Index 95
Function: Output variable of limit switch for lower limiting value.
If the lower limiting value (nciT_LowLimit - nciT_LowHyst / 2) is under-run,
nvoT_LowLimit=100.0 1 is set.
If the lower limiting value (nciT_LowLimit + nciT_LowHyst / 2) is exceeded,
nvoT_LowLimit=0.0 0 is set.
Data output is made upon change of output value, in dependence on nciT_MaxSendTm and approx. 3 sec. after reset.

nvoT_HighLimit

SNVT Type: SNVT_switch, Index 95
Function: Output variable of limit switch for upper limiting value.
If the upper limiting value (nciT_HighLimit + nciT_HighHyst / 2) is exceeded,
nvoT_HighLimit = 100.0 1 is set.
If the upper limiting value (nciT_HighLimit - nciT_HighHyst / 2) is under-run,
nvoT_HighLimit = 0.0 0 is set.
Data output is made upon change of output value, in dependence on nciT_MaxSendTm and approx. 3 sec. after reset.

Configuration Parameter Temperature Sensor Object:

nciT_MaxSendTm

SCPT Type: SCPTmaxSendTime, Index 49, SNVT_time_sec
Function: Heartbeat function. Stipulates interval period, after which all output variables are sent independently of a value change. By means of input values < 1 the heartbeat function is deactivated. (Preset value: 5 min)

nciT_MinSendTm

SCPT Typw: SCPTminSendTime, Index 52, SNVT_time_sec
Function: Stipulates the smallest update interval of temperature output variable. An update is made after expiration of *nciT_MinSendTm*, if a temperature value has changed by more than *nciT_MinDelta*. By means of input values < 1 the function is deactivated. (Preset value: 5 sec)

nciT_MinDelta

SCPT Type: SCPTminDeltaTemp, Index 64, SNVT_temp_p
Function: If the temperature is changing by the adjusted value *nciT_MinDelta*, the new temperature values are transmitted. The function is depending on the adjustment of the parameter.
(Range >= 0°C; Preset value: 0,30 °C)

nciT_Offset

SCPT Type: SCPToffsetTemp, Index 70, SNVT_temp_p
Function: Offset for temperature value. By this parameter a software calibration is possible. Please note the remarks for room temperature sensors in our „Infoblatt THK“.
!! The sensor is calibrated during production. A value change overwrites manufacturer's adjustment.

nciT_LowLimit

SCPT Type: SCPTlowLimit1, Index 18, SNVT_temp_p
Function: Lower limiting value. (Range = measuring range, preset value: 8,00 °C)

nciT_LowHyst

SCPT Type: SCPThystLow1, Index 13, SNVT_temp_p
Function: Hysteresis value for calculation of lower switching treshold. (Preset value: 1,00 °C)

nciT_HighLimit

SCPT Type: SCPThighLimit1, Index 9, SNVT_temp_p
Function: Upper limiting value. (Range = measuring range, preset value: 40,00 °C)

nciT_HighHyst

SCPT Type: SCPThystHigh1, Index 11, SNVT_temp_p
Function: Hysteresis for calculation of upper switching treshold. (Preset value: 1,00 °C)

General Remarks:

Wink - Event

The Service LED is triggered and blinking two times.

Configuration Parameter:

A download of the application overwrites manufacturer's parameter adjusted. The configuration parameters are designed as configuration network variables. Thus, they are also available as bindable network variables in the virtual-functional-bock. A parameter change can be made even without installation tool via another LON node, thus.

!! An update of the variables is directly written into the non-volatile program memory of the hardware. User !! must guarantee, that the total number of writing cycles does not exceed maximum capacity of non-volatile !! memory. (dimension <10000).