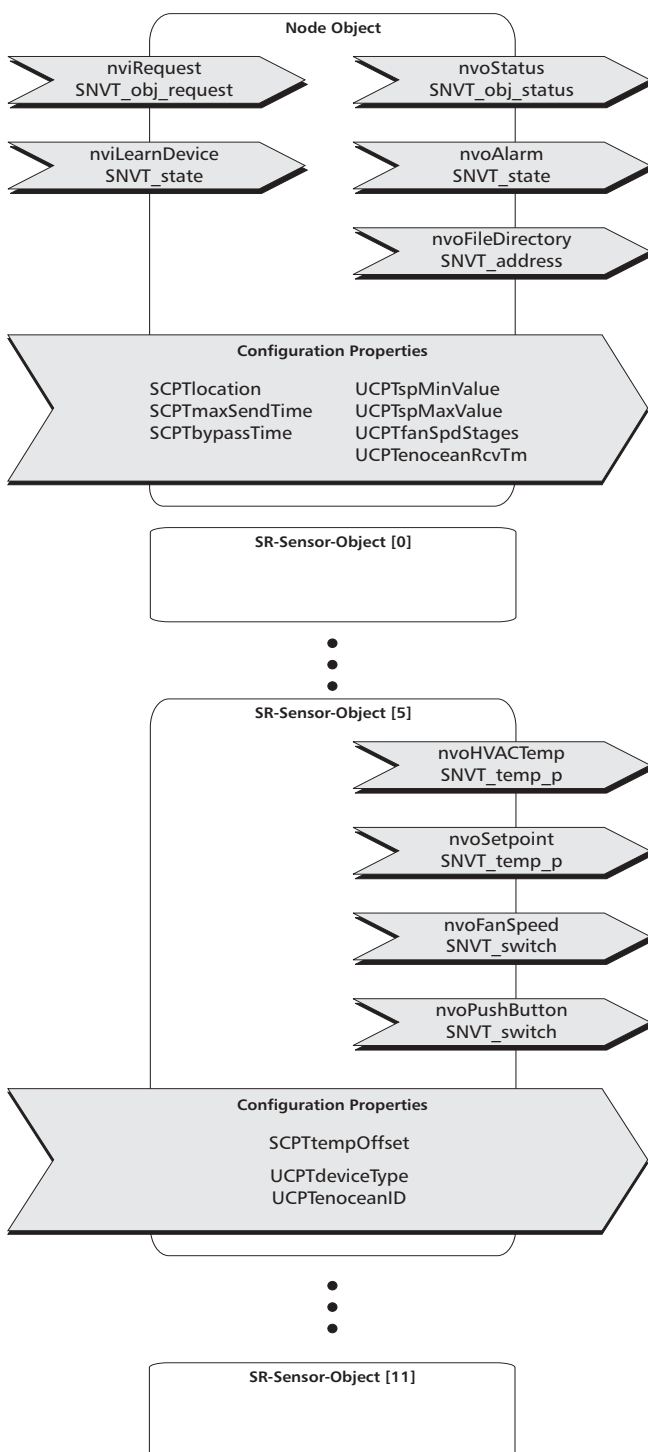
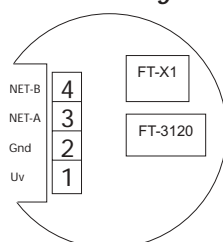


**Software Application srcn\_12\_1\_01 (SR-Sensor-Receiver)**

For radio receiving module SRC-FTT

Application srcn\_12\_1\_01 ID: 9F FF AD 46 00 06 04 19

**connection diagramm**

Application for detection of 12 Thermokon radio sensors type SR04, SR04P, SR04PT, SR04PST and SR65.

The application uses the standard network variables (SNVT) and standard configuration parameters (SCPT). For extended adjustment options, user-defined configuration parameters (UCPT) are used. The UCPTs used are defined in the *Thermokon Device Resource Files* from **version 1.4** or higher and should be installed at the PC before the device masters are made up by means of the installation tool.

**Node Object:** Besides the network variables prescribed by LonMark the object receives further general network variables and configuration parameters for control and parameterization of the SR sensor objects.

**Sensor Monitoring / Alarm Message:**

If no telegram is received for a time exceeding the monitor time *UCPTenoceanRcvTm*, an alarm message is generated, whereas each sensor is allocated to a bit of the *SNVT\_state* - variable *nvoAlarm* and can be identified, thus. The alarm bits are cleared automatically by receiving the next associated telegram.

**Setpoint adjustment:**

The parameter *UCPTspMinValue* and *UCPTspMaxValue* determine the output values by means of left and right stop of the setpoint potentiometers (e.g. -3°C to +3°C or 19°C to 25°C).

**Fan speed adjustment:**

The rotary switch for fan speed adjustment is parameterizable for one, two or three steps by means of *UCPTfanSpdStages*.

**Presence key:**

The after-running time is adjusted by *SCPTbypassTime*.

**Installation:**

If the sensors should be installed by means of the learning key, each sensor object can be individually put into the learning modus by means of *nviLearnDevice*. Alternatively, the sensor ID can be put in for each object manually.

**SR-Sensor-Objects:** Twelve identical objects for detection of SR-sensors with network variables for output of temperature, setpoint (respectively -offset), fan speed and presence key. The parameter *UCPTenoceanID* allocates a special sensor to each object, whereby the sensor ID is put in manually or automatically read via the learning key at the sensor.

The different measuring ranges of SR04 (0 to +40 °C) and SR65 (-20 to +60 °C) are considered with the temperature calculation by means of device set-ups *UCPTdeviceType*.

Typ = 1 => SR04, SR04P, SR04PT, SR04PST  
Typ = 2 => SR65

## Node Object

The Node Object supervises and controls the functions of the individual objects within the device. The basic functions required by the LonMark<sup>®</sup> are supported, whereas the general network variables and configuration parameters for control and parameterization of the SR-sensor objects were integrated, accordingly.

### Input Variable Node Object:

#### nviRequest

SNVT Type: SNVT\_obj\_request, Index 92

Function: Input variable with the functions RQ\_NORMAL, RQ\_UPDATE\_STATUS and RQ\_REPORT\_MASK.

#### nviLearnDevice

SNVT Type: SNVT\_state, Index 83

Function: Upon installation of the sensors the objects can be put in the learning modus by means of nviLearnDevice whereas each bit of a network variable is allocated to a SR-sensor object.

```
nviLearnDevice.bit0    ==> SR-Sensor-Object[0]
nviLearnDevice.bit1    ==> SR-Sensor-Object[1]
                        :
                        :
nviLearnDevice.bit11   ==> SR-Sensor-Object[11]
```

Bit-value = 1 sets the respective object in the learning modus. After a correctly received SR-Sensor-message, the sensor ID is stored in the selected object and the learning modus is automatically left.

### Output Variable Node Object:

#### nvoStatus

SNVT Type: SNVT\_obj\_status, Index 93

Function: Output variable with the required status bits „invalid\_id“ and „invalid\_request“.

#### nvoAlarm

SNVT Type: SNVT\_state, Index 83

Function: If no telegram is received for a time exceeding the monitor time UCPTenocceanRcvTm, an alarm message is generated by means of nvoAlarm, whereas each sensor is allocated to a bit, accordingly. The alarm bits are cleared automatically by receiving the next associated telegram.

```
nvoAlarm.bit0 = 1      ==> Alarm for SR-Sensor-Object[0]
nvoAlarm.bit1 = 1      ==> Alarm for SR-Sensor-Object[1]
                        :
                        :
nvoAlarm.bit11 = 1     ==> Alarm for SR-Sensor-Object[11]
```

### Configuration Parameter Node Object:

#### SCPTlocation

SCPT Index: 17, SNVT\_str\_asc

Function: Additional input option to store information about location identification.

#### SCPTmaxSendTime

SCPT Index: 49, SNVT\_time\_sec

Function: Heartbeat function. Stipulates the interval time, after which all output variables of the device are sent independtly of a value change. By means of the input values = 0 the heartbeat function is deactivated (pre-adjusted value: i.e. the output variables are only sent if an output value is changed, e.g. with an alarm message or if a sensor telegram was received.).

**SCPTbypassTime**

SCPT Index: 34, SNVT\_time\_min

Function: Delay time for the output variables nvoPushButton of the presence key in minutes. After expiration of SCPTbypassTime the output variables are set back again from 100.0 1 to 0.0 0.  
(Range: < 1000, Pre-adjusted value: 0 min, i.e. the variable is immediately set back to 0.0 0)

**UCPTspMinValue, UCPTspMaxValue**

UCPT Index: 40, 41, SNVT\_temp\_p

Function: The parameter stipulates the output values with left or right stop (and the adjustment range) of the setpoint potentiometer. (Pre-adjusted value: -3 °C and +3 °C)

**UCPTfanSpdStages**

UCPT Index: 13, SNVT\_count

Function: Configuration parameter for default of fan speed steps.  
(Pre-adjusted value: 3 ==> OFF, 33,0 %, 66,5 %, 100,0 %, AUTO)

**UCPTenoceanRcvTm**

UCPT Index: 33, SNVT\_time\_min

Function: If no telegram is received for a time, exceeding the monitor time UCPTenoceanRcvTm an alarm message is generated, whereas each of the SNVT\_state bit is allocated to the variable nvoAlarm and is identified thereby. The alarm messages can be deleted by means of nviClearAlarm. (Pre-adjusted value: 60 min)

**SR-Sensor-Objects**

Twelve identical objects for detection of Thermokon radio sensors type SR04, SR04P, SR04PT, SR04PST and SR65.

**Output Variables SR-Sensor-Object:****nvoHVACTemp**

SNVT Type: SNVT\_temp\_p, Index 105

Function: Output variable for the measured temperature value (resolution 1/100 °C). Data output is made depending on the configuration parameters SCPTmaxSendTime and upon receipt of each new sensor telegram.

**nvoSetpoint**

SNVT Type: SNVT\_temp\_p, Index 105

Function: Output variable for setpoint correction respectively setpoint temperature, which can be adjusted by means of the setpoint adjuster. The standard value range amounts between -3 and +3 K and can be adjusted by means of UCPTspMinValue and UCPTspMinValue. Data output is made analog to nvoHVACTemp.

**nvoFanSpeed**

SNVT Type: SNVT\_switch, Index 95

Function: For evaluation of a rotary switch for fan speed adjustment the output variable **nvoFanSpeed** is used, whereby the number of fan speed steps can be configured by means of UCPTfanSpdStages. Data output is made analog to nvoHVACTemp.

UCPTfanSpdStages = 1

UCPTfanSpdStages = 2

UCPTfanSpdStages = 3

FAN-SPEED	nvoFanSpeed .value	nvoFanSpeed .state	FAN-SPEED	nvoFanSpeed .value	nvoFanSpeed .state	FAN-SPEED	nvoFanSpeed .value	nvoFanSpeed .state
AUTO	0 %	-1	AUTO	0 %	-1	AUTO	0 %	-1
0	0 %	1	0	0 %	1	0	0 %	1
1	100 %	1	1	50 %	1	1	33,0 %	1
			2	100 %	1	2	66,5 %	1
						3	100 %	1

### ***nvoPushButton***

SNVT Type: SNVT\_switch, Index 95

Function: Output variable for presence message in rooms with overtime function. By key actuation, the output variables receive the value **100.0 1**. After expiration of the delay time SCPTbypassTime it is set back to the value **0.0 0**. Each button actuation re-starts the timer. Data output is made upon value change, in dependence of the configuration parameter SCPTmaxSendTime and upon receipt of each new sensor telegram.

### ***Configuration Parameter SR-Sensor-Object:***

#### ***SCPTtempOffset***

SCPT Index: 227, SNVT\_temp\_p

Function: Offset for the temperature value. By means of this parameter a software calibration is possible.

#### ***UCPTdeviceType***

UCPT Index: 42, SNVT\_count

Function: The different measuring ranges of SR04 (0 to +40 °C) and SR65 (-20 to +60 °C) for temperature calculation are considered by the device adjustments by means of UCPTdeviceType.

Type = 1      => SR04, SR04P, SR04PT, SR04PST

Type = 2      => SR65

#### ***UCPTenoceanID***

UCPT Index: 39, UNVT\_str\_hex4

Function: The parameter UCPTenoceanID allocates special sensors to each object, whereas the sensor-ID can either be put in manually or automatically read via the learning key.

Display format of 32-Bit Sensor-ID in the Browser in hex:      ID-Byte3, ID-Byte2, ID-Byte1, ID-Byte0

### ***General Remarks:***

#### ***Installation of sensors via the learning key***

Contrary to the manual input, where the ID is directly written into the device and the LNS data base, the sensor ID can only be stored in the SRC-receiving module, when installing the sensors via the learning key. In order to be able to take over the IDs in the data base, the receiver must be re-commissioned by the adjustment „Current Values in Device“

#### ***Example LonMaker:***

The screenshot shows a configuration window with two main sections:

- State:** A vertical list of four radio buttons:
  - ☐ Default
  - ☐ Offline
  - ☒ Online
  - ☐ Disable
- Source of Configuration Property Values:** A vertical list of three radio buttons:
  - ☐ Current values in database
  - ☐ Default values
  - ☒ Current values in device