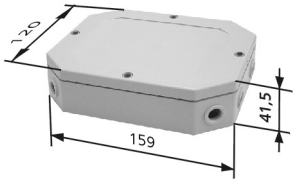
LON analogue input modules

LAF 4 IP65

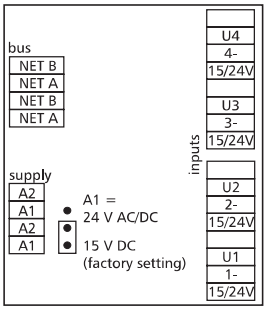
24 V AC/DC, 4 voltage inputs 0... 10 V
4 temperature inputs

Part Number
110 441 13 32-IP

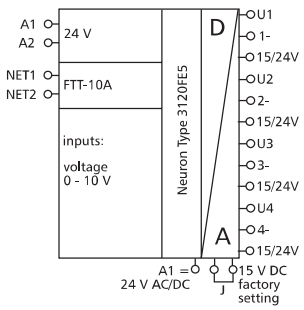
Dimensions - IP65 housing



Wiring



Wiring Diagram



Use

LON module with 4 temperature and 4 voltage inputs to record voltages of e.g. active temperature sensors, electrical ventilation and mixing valves, valve positions etc.

Functional description

In a LON installation all 8 inputs can be scanned simultaneously by standard network variables SNVT. The voltage to feed active temperature sensors is set to 15 V DC or 24 V AC/DC (A1) by a jumper.

LON interface

	transceiver	FTT10A free topology
	neuron	3120, 3k EEPROM
	data format	standard network variables (SNVT)
	transmission rate	78 kBit/s
	max. length (see page 7)	
	line topology	2700 m / 64 nodes
	free topology	500 m / 64 nodes
	cabling	twisted pair

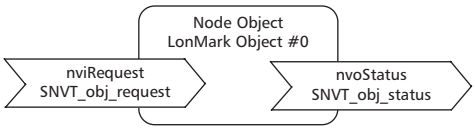
Technical data

Housing	dimensions w*h*l	159 x 41.5 x 120 mm
	weight	300 g
	mounting position	any
	mounting	directly to a smooth surface 8 cable entries for M12 and M16 fittings
	material	housing ASA+ polycarbonate terminal blocks polyamide cover polycarbonate
	type of protection (DIN 40050)	IP65
Terminal blocks	supply and bus	1.5 mm² pluggable
	analog inputs	1.5 mm² pluggable
Supply	operating voltage range	20 ... 28 V AC/DC
	power consumption	67 mA (AC) / 24 mA (DC)
	duty cycle	100 %
	recovery time	550 ms
Input	voltage input	0 ... 10 V DC
	maximum	11 V DC
	resolution	10 mV (0.0 ... 100 %)
	error	about ±100 mV
	input resistance	10 kΩ
Temperature range	operation	-5 °C ... +55 °C
	storage	-20 °C ... +70 °C
Protective circuitry	operating voltage	polarity reversal protection
Display	operation	green LED
	function	yellow LED for status (service)

LON analogue input modules

Description of the LonMark objects and network variables

LAF IP65



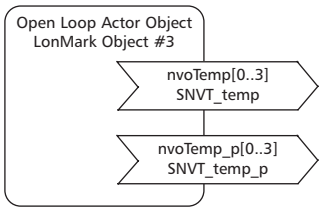
Node Object

The Node Object monitors and controls the functions of the different objects in the device. It supports the basic functions Object-Status and Object-Request required by LonMark.

Application Objects

These objects contain the functions status record of the analogue inputs and data exchange.

T Object



T Object (temperature)

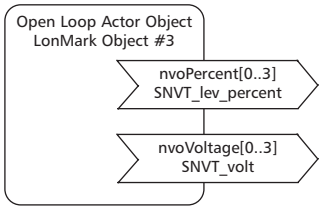
nvoTemp[0...3] (Index 2..5)

SNVT Type	SNVT_temp
Function	The output variable provides a value with format °C in accordance to the input signal between 0 to 10.0 Volt and the settings in nciTempMin and nciTempMax.

nvoTemp_p[0...3] (Index 6..9)

SNVT Type	SNVT_temp_p
Function	See nvoTemp[0...3] but issue 0.01 K.

U Object



U Object (voltage)

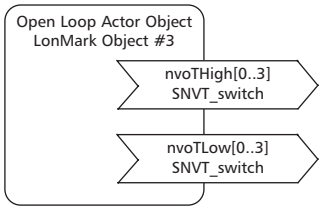
nvoPercent[0...3] (Index 10..13)

SNVT Type	SNVT_lev_percent
Function	The output variable provides a value with format 0 to 100.0 % in accordance to the input signal between 0 to 10.0 Volt.

nvoVoltage[0...3] (Index 14..17)

SNVT Type	SNVT_volt
Function	The output variable provides a value with format 0 to 10.0 Volt in accordance to the input signal.

Meldung Object



Meldung Object

nvoTHigh[0...3] (Index 18..21)

SNVT Type	SNVT_switch
Function	When the temperature exceeds the value set in nciHighT the output variable changes from 0,0 0 to 100,0 1. When underrunning the temperature value set in nciHighT and the hysterese value set in nciHyst the output variable changes from 100,0 1 to 0,0 0.

nvoTLow[0...3] (Index 22..25)

SNVT Type	SNVT_switch
Function	When the temperature value set in nciLowT is underrun the output variable changes from 0,0 0 to 100,0 1. When exceeding the temperature preset in nciLowT and the hysteresis preset in nciHyst the output variable changes from 100,0 1 to 0,0 0.

LON analogue input modules

Description of the LonMark objects and network variables

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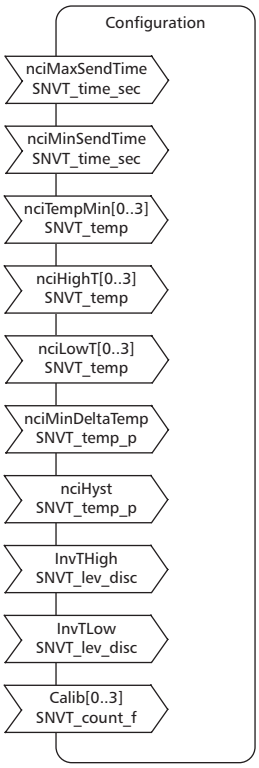
Configuration variables



Configuration variables

nciMaxSendTime (Index 26)

SNVT Type	SNVT_time_sec
Function	All output variables described below are issued even without status change at the end of a preset period of time.
Time settings	0 timer function off-state 6553,4 s (factory setting 0 s)

nciMinSendTime (Index 27)

SNVT Type	SNVT_time_sec
Function	Bei Zustandsänderung werden die Eingangszustände erst nach Ablauf der eingestellten Zeit ausgegeben.
Time settings	0 timer function off-state 6553,4 s (factory setting 1 s)

nciTempMin[0..3] (Index 28..31)

SNVT Type	SNVT_temp factory setting: 0 °C

nciTempMax (Index 32..35)

SNVT Type	SNVT_temp factory setting: +100 °C
Function	The temperature output variables are calculated according to the input signal and the preset range.

nciHighT (Index 36..39)

SNVT Type	SNVT_temp factory setting: +100°C

nciLowT (Index 40..43)

SNVT Type	SNVT_temp factory setting: - 10°C
Function	Setting of the tresholds to reverse the switch variables.

nciMinDeltaTemp (Index 44)

SNVT Type	SNVT_temp_p
Function	The output variables are only issued when the preset temperature difference is met (factory setting 1 Kelvin).

nciHyst (Index 45)

SNVT Type	SNVT_temp_p
Function	Setting of the hysteresis that releases switching of the output variables nvoAHigh and nvoALow as well as nvoPHigh and nvoPLow.

InvTHigh (Index 46)
InvTLow (Index 47)

SNVT Type	SNVT_lev_disc
Function	Inversion of the values at nvoTHigh and nvoTLow.

Calib[0..3] (Index 48..51)

SNVT Type	SNVT_count_f
Function	Coefficient for the readjustment of the inputs.