LON analogue input modules

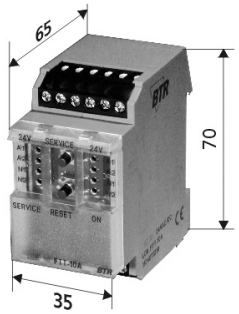
LNTC

24 V AC/DC, 4 x 0 ... 10 V DC, 4 x NTC 20K

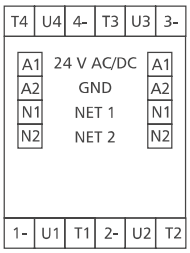
Part Number

110 406 13 32

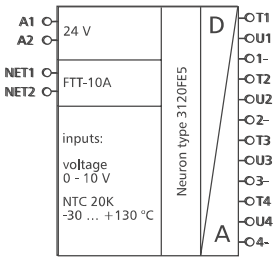
Dimensions - C12 housing



Wiring



Wiring Diagram



Use

LON module with 4 temperature and 4 voltage inputs. Suitable to collect temperature data with NTC 20K sensors and voltage values, e.g. of electrical vent and mixing valves, valve positionis etc.

Functional description

In a LON installation all 8 inputs can be scanned simultaneously by standard network variables SNVT.

LON Interface

transceiver	FTT10A free topology
neuron	3120, 3k EEPROM
data forma	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

Application software

Software updates should only be made by factory.

XIF and NXE files are available as downloads under **www.btr-electronic-systems.de.**

Technical Data

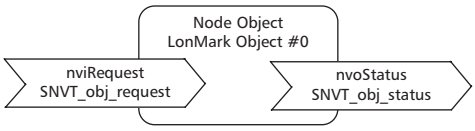
Housing	dimensions w*h*l	35 x 70 x 65 mm
	weight	84 g
	mounting position	any
	mounting	DIN rail according to EN 50022
	material	housing + terminal blocks polyamide V0 cover plate polycarbonate
	type of protection (DIN 40050)	housing IP40 terminal blocks IP20
Terminal blocks	supply and bus	1.5 mm² pluggable jumper plug (included to packing)
	analogue inputs	2.5 mm²
Supply	operating voltage range	20 ... 28 V AC/DC
	current consumption	67 mA (AC) / 24 mA (DC)
	duty cycle	100 %
	recovery time	550 ms
Input	temperature input for	NTC 20K sensor
	temperature range	-30 °C ... +130 °C
	resolution	0.2 K
	error	about ±0.2 °C between 0 ... 100 °C
	voltage input	0 ... 10 V DC
	max.	11 V DC
	resolution	10 mV (0.0 ... 100 %)
	error	about ±100 mV
	input impedance	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)

Note The modules can be mounted in series without interspace. The max. number of modules connected in series is 15, each group needs an external power supply.

LON analogue input modules

Description of the LonMark objects and network variables

LNTC



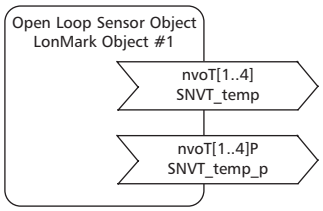
Node Object

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 (temperature)



T Object (temperature)

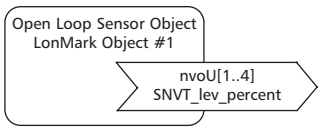
voT[1..4] (Index 2..5)

SNVT Type	SNVT_temp
Function	NTC 20K temperature values between -30 °C and +130 °C are measured at the inputs and issued to the LON bus.

nvoT[1..4]P (Index 6..9)

SNVT Type	SNVT_temp_p
Function	See nvoT[1..4] but with 0.01 K issue

U Object (voltage)

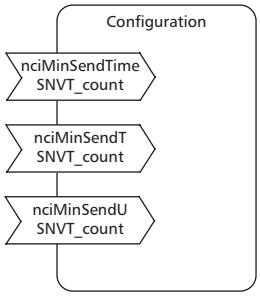


U Object (voltage)

nvoU[1..4] (Index 10..13)

SNVT Type	SNVT_lev_percent
Function	Voltages between 0 to 10.0 Volt DC are measured at the inputs and issued to the LON bus.

Configuration variables



Configuration Variables

nciMinSendTime (Index 14)

SNVT Type	SNVT_count
Function	All output variables described above are issued even without status change at the end of a preset period. Thus the device reports periodically to the system.
Time settings	0 timer function off-state 1 .. 60 timer time in seconds (factory setting 0)

nciMinSendT (Index 15)

SNVT Type	SNVT_count
Function	Guaranteed interval between two temperature values.
Time settings	0 timer function off-state 1 .. 60 timer time in seconds (factory setting 0)

nciMinSendU (Index 16)

SNVT Type	SNVT_count
Function	Guaranteed interval between two voltage values.
Time settings	0 timer function off-state 1 .. 60 timer time in seconds (factory setting 0)

Balancing variables

Note

The variables AD[0..7], m[0..7] and t[0..7] are destined to balance the inputs.

AD[0..7] (Index 17 .. 24)

SNVT Type	SNVT_count
Function	raw data of the analogue to digital converter
AD[0..3]	for temperature inputs
AD[4..7]	for voltage inputs

m[0..7] (Index 25 .. 32)

SNVT Type	SNVT_count_f
Function	coefficient for the linearization of the temperature
m[0..3]	for temperature inputs
m[4..7]	for voltage inputs (is not used)

t[0..7] (Index 33 .. 40)

SNVT Type	SNVT_count_inc
Function	offset for the analogue to digital value
t[0..3]	for temperature inputs
t[4..7]	for voltage inputs

The balance values are calculated by the factory as shown below:

Temperature inputs

A resistance of 820 Ω ±1 % is applied to each temperature input.
AD[0] Index 17 is feeded as measuring value A.
A resistance of 300 kΩ ±1 % is appalied to each temperature input.
AD[0] Index 17 is feeded as measuring value B.
The calculation 3619/(value B - value A) is written in m[0] Index 25.
The calculation 371 - (value A * m[0]) is written in t[0] Index 33.
The same applies for temperature inputs 2 to 4.
The chart “AD - Werte -- Widerstand” (AD values -- resistance) is available as download under **www.btr-electronic-systems.de**

Voltage inputs

5 Volt DC are applied to the voltage inputs.
t[4] Index 33 is increased or lessened until input U1 Index 10 shows 50 %.
The same applies for voltage inputs 2 to 4.