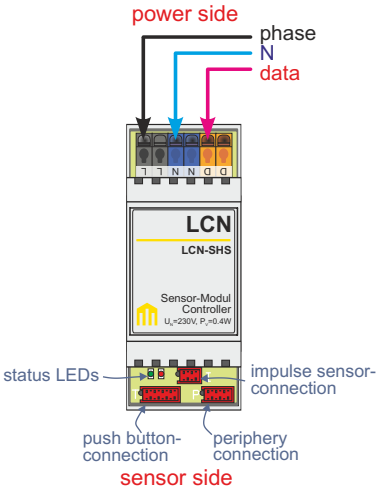
Sensor module for DIN rail mounting

The LCN-SHS is a sensor module for building installation in Bus technology. It has the same functions as the LCN-SH, however without electronic (dimming) outputs.



Application

The 2HP sized LCN-SHS module is for installing in dry rooms in main and normal distribution boxes.

It has 3 electronic outputs (see illustration), which are seperately controlled. Amongst other things, the push-button converters LCN-BT4H / LCN-BU4L, the relay contacts LCN-R8H / LCN-R2H / LCN-R4M2H and also the binary sensors LCN-BT4H/LCN-BU4L (as mentioned above) can be connected.

The operating programme from the LCN-SHS includes further functions like 2 proportional regulators, 5 thresholds, the LCN panel system etc..

The connection
The module has two connecting blocks: the power supply side with screwless terminals and the sensor side with three plug connections.

The terminals are colourfully marked as follows

Description:	Colour:	Function:
D,D	orange	data wire
N,N	blue	neutral wire
L,L	black	phase (live)

The power connections are voltage fixed up to max. 4kV(L+N) according to VDE, additional measures against overvoltage in operational conditions are not necessary. Measures for lightning protection in the building should be applied as usual (coarse protection).

Note:
As always with electronic, suppressor elements (e.g.VDR´s) are to be planned with coils from 230V~ contactors and relays, that are installed in the same distribution boxes as the LCN modules.

Sensor technology

The red sensor connecting plugs are protected only in a low extent against overvoltage. A contact with 230V will destroy the module. The sensor terminals are on the N potential, which means they are not decoupled from the electrical isolation. That´s why you must make sure, that a protection against contact for the user in every operating condition is ensured. The push-buttons from all of the approved switch panel systems ensure this protection.

The module has three sensor connections, which can be used as additional switchings, if necessary as actuator. The functions can be programmed with the setup programme LCN-P or LCN-PRO:

T-connection:

Over a LCN-T8 or push-button converter (LCN-BT4H/BU4L), max. 8 conventional push-buttons can be evaluated. Apart from that, there are a selection of sensors that can be connected here alternatively. The module has the required analogue value processing with up to 12bit accuracy.

I-connection:

Here the IR-receiver for the remote control can be connected, additionally the binary sensor LCN-B3I, the motion detector LCN-BMI, the transponder reader LCN-UT and the temperature sensor LCN-TS. These components can be operated parallel on the I-connection by using the LCN-IV.

The I-connection can alternatively be served as a counter for pulses up to 1kHz, when no further periphery is connected.

P-connection:

Here you can connect for example, the 4-way binary sensor (LCN-BT4H/-BU4L), the current sensor (LCN-BS4) and the relay blocks (LCN-R8H/-R4M2H/-R2H. The LCN-BT4H/BU4L and LCN-BS4 will be detected automatically. The LCN-R8H has to be activated first with the LCN-P or LCN-PRO .

Notes about the sensor technology:

The module monitors overloads and short circuits (T-, I-, P-port) on its sensor technology. Should the module be short circuited on its periphery, due to wiring errors, it will switch off the power supply from the sensor for 4 seconds by itself. If 2 further tests show the same error, it will switch off for 8s + 30s and a status message will be sent to the bus:

“module reports overload/short circuit periphery.”,

apart from that the red LED will flash cyclic, as long as the sensor technology is switched off.

In this case check the connected sensor technology and the wiring.
The LCN-SHS module stays accessible and operational even after these errors!

Status display of the lamps

GREEN (flashes constantly):

nr. of flashes	message
1	normal operation
2	self testing-error, module is not programmed
3	bus error: module cannot send
4	(reserved)
5	module is in programming mode

RED (flashes only when occurances are entered):

nr. of flashes	message
1	key was pressed, command was sent
2	different errors: please check with PC and the LCN-PRO
3	received telegram data was faulty
4	IR-telegram received from unauthorised sender
5	received illegal command (will be ignored)
6	error in the structure of a received command
7	parameter of a command exceeds permitted limit
8	command received cannot be carried out at the moment
cyclic (30s.)	periphery (T-,I-connection) was overloaded and/or short circuited. Both LED´s left and right side of the T-connection, show switch and dimming conditions of the outputs.

In the menus and help texts found in the programme LCN-PRO, further informations and properties of the module are available.
Without parameterization the module has no functions.
Because no access to the module is required when first programming, (no programming button, all functions are controlled over the bus), the module may be installed before being setting up. In this case the serial number of the unprogrammed module should be noted in the building plan, for better identification.

Important note:
Despite its extensive functionalities, the LCN system is simple to install and programme: It´s all in the hands of the electrician. However a **training course is necessary for every electrician,** who installs this system. The direct users support over the telephone hotline, is only free of charge and open to installers who have taken part in a training course.

Properties of the built-in control progamme::

Issued numbers:	module ID: 5..254, group nr.: 5..254 segment nr.: 5..124
group members:	12 (fixed) plus 10 (dynamic)
command tables:	A, B, C & D with each 2 * 8 targets (each 3 commands) and 32 targets at 3 commands (double operation)
links:	depending on: logic, time, sensors, output-conditions, panel and fault report-processing (4-way) according to DIN.
scene storage:	10 x 10 per light group (brightness & ramp)

Timers (amount):

outputs (2):	10ms..40 min
keys (4):	each 1s .. 45 days
key blocking (1):	each 1s .. 45 days
output blocking (2x1):	1s .. 45 days (part & full blockage)
clock (1):	0,3s .. 6500 s
relay (2):	30ms ..4 min

Properties of the built-in control progamme:

Measured value processing

triggering:	8, 10 or 12 bit
pre processing:	value correction, hum sound suppression, remote query
evaluation:	two continuous controllers input sizes can be calculated as difference values
counting/computing:	5 thresholds (=10 commands) with hysteresis 0 ... 30000, can be cascaded

Remote control

keys:	16 (with LCN-RT: 4 key levels)
amount access codes:	250 + serial number evaluation (transponder)
zentral access control:	> 16 mio codes
transponder:	16 codes evaluated direct, many over LCN-GVS

Technical data:

Connection:

power supply:	230VAC ±15%, 50/60Hz (110VAC version available)
power consumption:	0,4W
terminals/wire type (load side):	screwless, solid max. 2,5mm² oder fine wire with end sleeves max. 1,5mm² loop through current max. 16A
connection sensor side:	T-, I- und P-connection

Technical data:

Installation:

operating temperature:	-10°C..+ 40°C
air humitidy:	max. 80% rel., non condensing
environmental conditions:	use as stationary installation according to VDE632, VDE637
protection art:	IP20
dimensions (BxDxH):	38mm (2HP) x 92mm x 66,5mm
installation:	DIN rail 35 mm (DIN50022)