

### Overview

The Karno® FCC and SRC are HVAC controllers communicating on the LONWORKS® network (**LONWORKS 2.0, latest Neuron microprocessor**).

Terminal controllers allow for the HVAC room parameters management to optimize occupants comfort. They allow for the control of HVAC devices such as radiators, fan coils, chilled beam, chilled ceilings.

For more flexibility, SRC inputs and outputs can be freely configured depending on your installation. The SRC-427-DL can also handle two independent control loops.

All infrared or radio accessories are fully compatible with these controllers (RJ9 digital link).

### Applications

*All controllers :*

- Temperature control by regulating heating and cooling (using a valve and an electric heater)
- Limiting electric heater (load shedding)

*For SRC controllers:*

- Control of ventilation by two configurable modes: 3 speed and variable fan
- 3-pin valves management
- Air quality management by controlling an air damper
- Pulse counting
- Presence detection management
- Limiting high and low blow temperatures

*For SRC and SRC-427-DL controllers:*

- Inputs and outputs are freely configurable
- Security management through dew point control
- Variable speed fan control

*For SRC-427-DL controllers:*

- On / Off lighting management + window and corridor sides management

### Features and Benefits

- Quick and easy installation: a secure plug-in system makes the connection easier and faster (RJ9).
- They work in 'stand alone' mode or connected to a Building Management System (with an open and interoperable network : LON® 2.0).
- Latest generation processor LON FT5000 eliminating LNS costs.
- Optimize occupant comfort: FCC and SRC Series allow for all HVAC parameters control.
- Integration into a global HVAC management solution (controllers + accessories) and energy savings enhancement: 25% to 45% saving can be achieved.
- They can be integrated into a multi-discipline solution (communication with lighting and sunblind controllers through the LONWORKS® network).
- **Eu.bac certified solutions\***: the eu.bac certification mark ensures users an optimal energy efficiency and quality in buildings, certifying solutions meeting the strictest guidelines of European Directives and Standards.

\* *Eu.bac certified solutions: a SRC-327 (certification n°211135) or SRC-427 (certification n°210128) controller, used with a 10kΩ NTC probe and a thermal actuator, in a 2 pipes + electric heater or 4 pipes fan coil unit application.*



## Product Warranty & Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company.

## HVAC Modules

### Fan coil controllers

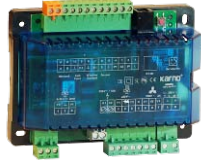


FCC-327-PLT	230VAC controller communicating on the <b>LON<sup>®</sup> power line</b> , electric heater 2 kW 5 inputs (window contacts / auxiliary for dew point detector or change-over / room or return air temperature sensor) 1 RJ9 digital input 6 outputs (electric heater relay 230VAC / 2 TRIAC outputs 230VAC / 3 variable speed fan outputs)
FCC-427*	230VAC fan coil controller power supply, electric heater 2 kW, <b>230VAC valves</b> Operating on the <b>LON<sup>®</sup> 2.0 network</b> 5 inputs (window contacts / auxiliary for dew point detector or change-over / room or return air temperature sensor) 1 RJ9 digital input 6 outputs (electric heater relay 230VAC / 2 TRIAC outputs 230VAC / 3 variable speed fan outputs)
FCC-428*	230VAC fan coil controller power supply, electric heater 2 kW, <b>24VAC valves</b> Operating on the <b>LON<sup>®</sup> 2.0 network</b> 5 inputs (window contacts / auxiliary for dew point detector or change-over / room or return air temperature sensor) 1 RJ9 digital input 6 outputs (electric heater relay 230VAC / 2 TRIAC outputs 24VAC / 3 variable speed fan outputs)

*\* New FT5000 microprocessor.*

*The FCC-327 and FCC-328 (FT3120 microprocessor) controllers are available as After Sales products.*

## Configurable HVAC controllers



SRC-427\*

Configurable controller, 230VAC power supply, electric heater 2 kW, **230VAC valves**. Operates on the **LON<sup>®</sup> 2.0 network**

5 configurable inputs (window contact / presence contact / auxiliary contact for dew point detector or change-over / room, air return or blow temperature sensor / flow controller / impulse counter / air quality sensor)

1 0-10V input air quality sensor

1 RJ9 digital input

8 configurable outputs (electric battery relay 230VAC / 2 analog outputs 0-10 VDC / 2 TRIAC outputs 230 VAC / 3 fan speed outputs)

SRC-428\*

Configurable controller, 230VAC power supply, electric heater 2 kW, **24VAC valves**. Operates on the **LON<sup>®</sup> 2.0 network**

5 configurable inputs (window contact / presence contact / auxiliary contact for dew point detector or change-over / room, air return or blow temperature sensor / flow controller / impulse counter / air quality sensor)

1 0-10V input air quality sensor

1 RJ9 digital input

8 configurable outputs (electric battery relay 230VAC / 2 analog outputs 0-10 VDC / 2 TRIAC outputs 24VAC / 3 fan speed outputs)

SRC-429\*

Configurable controller, 230VAC power supply, electric heater 2 kW, **230VAC valves**. Operates on the **LON<sup>®</sup> 2.0 network**

5 configurable inputs (window contact / presence contact / auxiliary contact for dew point detector or change-over / room, air return or blow temperature sensor / flow controller / impulse counter / air quality sensor)

1 0-10V input air quality sensor

1 RJ9 digital input

8 configurable outputs (electric battery relay 230VAC / 4 analog outputs 0-10 VDC / 3 fan speed outputs)

**\* New FT5000 microprocessor.**

*The SRC-327, -328 and -329 (microprocessor FT3150) controllers are available as After Sales products.*

## Double loop configurable controller



SRC-427-DL\*

230VAC controller power supply, **double loop configurable controller**

Operates on the **LON<sup>®</sup> 2.0 network**

6 configurable inputs (window contact / presence contact / auxiliary contact for dew point detector or change-over / room, air return or blow temperature sensor / flow controller / impulse counter)

2 RJ9 digital inputs

10 configurable outputs (2 electric heater relays 230VAC / 2 analog outputs 0-10 VDC / 4 TRIAC outputs 230 VAC / 2 relays 230 VAC)

ON/OFF lighting management connecting an IRC-B2L lighting extension module through RJ9 inputs\*\* or through relay outputs (*relay outputs required in this case*).

**\* New FT5000 microprocessor.**

*The SRC-327-DL (FT3150 microprocessor) controller is available as After Sales product.*

**\*\*Note:** in case of a chilled beam regulated by a SRC-427-DL, an IRC-B2L extension module can be added to manage lighting.

## Additional Products

### Remote controls

Available in white RAL 9010 or grey (-G) RAL 7016

#### Infrared technology



TCND-I

Infrared multi discipline remote control: lighting, sunblind, temperature and fan speed control

TCND-IT-PM

White infrared multi discipline remote control with wall-mounted support for irremovable TCND: lighting, sunblind, temperature and fan speed control + temperature probe

TCND-I-PR

Bicolor infrared remote control: programming tool

#### Radio technology



TCND-R

White radio multi discipline remote control: lighting, sunblind, temperature and fan speed control

TCND-RT-PM

White radio multi discipline remote control with wall-mounted support for irremovable TCND: lighting, sunblind, temperature and fan speed control + temperature probe

#### EnOcean technology



TCND-ENOCEAN

White EnOcean multi discipline remote control with wall-mounted support for irremovable TCND: lighting, sunblind, temperature and fan speed control + temperature probe

*Note : lighting (On / Off / dimming) and sunblind (up / down / tilting) control are not covered by the FCC.*

### Room sensor devices

Available in white (RAL 9010)

#### Hard-wired room sensor device



RS-DL2

Digital room sensor device: temperature measure (integrated NTC probe) and setting

RS-DL3

Digital room sensor device: temperature measure (integrated NTC probe) and setting + occupancy mode selection

RS-DL4

Digital room sensor device: temperature measure (integrated NTC probe) and setting + occupancy mode selection + fan speed control

RS-LCD

Digital room sensor device with a LCD screen: HVAC, lighting and sunblind management



RS-ANA1

Analog room sensor device: temperature measure (integrated NTC probe)

RS-ANA2\*

Analog room sensor device: temperature measure (integrated NTC probe) and setting

*\* Only available with a FCC controller.*

## Mini multi-sensor

Available in white (RAL 9010)

### Infrared technology



MS2-I-P	Infrared mini multi sensor: presence detection
MS2-I-PL	Infrared mini multi sensor: presence detection and Lux level measure
MS2-I-PLT	Infrared mini multi sensor: presence detection, Lux level and temperature measure

### Radio technology



MS2-R-PL	Radio mini multi sensor: presence detection and Lux level measure
MS2-R-PLT	Radio mini multi sensor: presence detection, Lux level and temperature measure

*Note: presence detection and Lux-level measure not addressed by FCC.*

## Infrared and radio receivers

Available in white (RAL 9010)

### Infrared technology



RIR-I	Transparent infrared receiver
RIR-B	White infrared receiver
RIR-L	White infrared receiver and Lux-level sensor

### Radio technology



RFR-K*	1-channel radio receiver
RFR-D**	4-channel radio receiver

*\* Only compatible with FCC and SRC controllers*

*\*\* For applications with a SRC-427-DL, one 4-channel receiver must be connected (1 receiver per controller)*

## EnOcean technology



RFR-K-ENOCEAN*	1-channel EnOcean radio receiver
RFR-D-ENOCEAN**	4-channel EnOcean radio receiver

*\* Only compatible with FCC and SRC controllers*

*\*\* For applications with a SRC-427-DL, one 4-channel receiver must be connected (1 receiver per controller)*

## Probes

Controllers are compatible with a wide range of probes (dew point detectors, type II 10kΩ NTC probes) and valves & actuators. The SRC-427-DL can also be used with an ON/OFF lighting extension modules (IRC-B2L).

## Valves and Actuators

Controllers are compatible with Distech Controls valve and actuator ranges. The following table shows valves and actuators from other manufacturers, that are supported by controllers (TRIAC 230 VAC valve outputs).

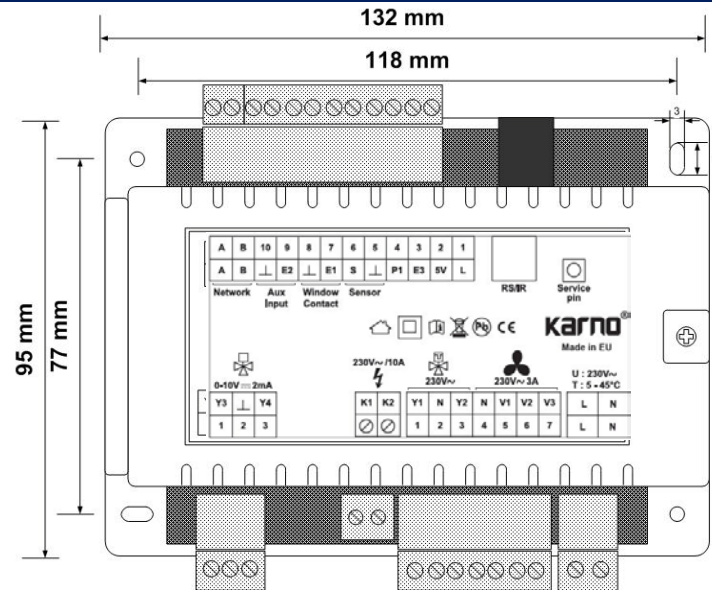
### Thermal valves

Brands	Actuator references	Voltage
BELPARTS	BA2001	230 VAC
	BA2004	230 VAC
	HTM2	230 VAC
SIEMENS	STE22	230 VAC
	STA21	230 VAC
	STP21	230 VAC
JCI	VA-7040-V3	230 VAC
FDC	AT220	230 VAC
HONEYWELL	M100-BQ-CI	230 VAC
	MT4-230	230 VAC
DANFOS	193B2001	230 VAC
	193B2104	24 VAC
SAUTER	AXR111F500	230 VAC

### 3-pin valves (only compatible with SRC)

Brands	3-pin valve references	Voltage
INDUSTRIE TECHNIK	DB-SMF230	230 VAC
SIEMENS	SSA31	230 VAC
	SSB31	230 VAC

## Product Specifications



### Physical Specifications

Material	UL94V0 polycarbonate
Colour	Black plate and blue cover
Protection	IP20 (IEC 529)
Installation	On DIN rail or screwed
Product dimensions	132 x 95 x 43.6 mm
Shipping box dimensions	144 x 136 x 50 mm
Shipping Weights	
SRC-427, SRC-427-DL, SRC-429 & FCC-427	0.4 kg
SRC-428, FCC-327-PLT & FCC-428	0.5 kg

### Input Specifications

On-Off inputs	Max cable length 100 meters Impedance < 660 Ohms Closed contact threshold < 1 V Opened contact threshold > 3 V
Sensor inputs (AS-NTC020 type)	NTC 10KΩ type II + / - 0.2°C precision at 20°C Max. sensor cable length: 3 m
Pulse input	Pulse time > 100 ms Maximum frequency: 5Hz

### Output Specifications

Valve output 230VAC	$I_{\text{permanent}}$ : 1 A max. $I_{\text{start}}$ < 3 A.
Valve output 24VAC	$I_{\text{total}}$ on all outputs: 300mA max.
Digital Relay Output (Typically Heater)	230V
Output 0-10VDC	2mA max.
Relay output 230 VAC 3-speed fan	3 A total max for all ventilation outputs

### Network

LonWorks®	Free topology network: TP/FT-10; 78 kbps
LonMark® Certification	SRC

### Electrical Specifications

Power supply	230 VAC +10/-15 % 50/60Hz
Typical consumption	20 mA
Protection	
FCC	Circuit breaker or fuse 5 A
SRC & SRC-427-DL	Circuit breaker or fuse 5 A
Overvoltage category	3
Status indicator	Power LED Network traffic LED Pin service LED

### Environment

Operating temperature	+5°C to +45°C
Storage temperature	-20°C to +70°C
Humidity	+20% to +90% without condensation
EMC	EN61000-6-x and EN61000-4-x
Security	EN60730-1
Degree of pollution	2
Installation max altitude	< 2000 Meters

### Certified Performance

Cooling Control Accuracy (CA)	0.1°C (4 pipes) 0.2°C (2 pipes + electric heater)
Heating Control Accuracy (CA)	0.2°C (4 pipes) 0.2°C (2 pipes + electric heater)

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FCC and SRC Series

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