

Modular solution for HVAC, lighting and sunblind management
Karno® Range



Overview

The Integrated Room Controller (IRC) is a complete modular solution for the cross-management of air conditioning, ventilation, lighting and sunblinds.

An all-in-one product, forming a single device on the network, suitable for office construction and repartitioning.

The IRC system is composed of a main office HVAC controller with extension modules to manage additional lights and sunblinds.

The IRC system operates on standard networks :

- LONWORKS® - microprocessor FT5000, LON 2.0
- BACnet® (WSPLab certified)

Features and Benefits

- Installation is fast and simple: a secure plug-in system makes the connection easier and faster (plug standards: RJ9 or RJ11).
- IRC modules can be installed in ceilings, near lighting and sunblind devices, or directly on heating* / air conditioning devices to reduce wiring costs (maximum length between the Dalilon® modules: 12 m).
 - * In this configuration, the system must not be installed near the electric heater or near a hot surface.
- **Electric consumptions segmentation:** each module has its own power supply to monitor and allocate electric expenditures by category (HVAC, lighting, sunblind)
- **Energy savings with a multi-discipline regulation:** the IRC enables increased comfort management and reduction in energy costs:
 - 50% to 60% saving on energy can be achieved by controlling lighting (dimming and presence detection)
 - 25% to 45% saving on energy can be achieved by controlling HVAC (time schedules, window contact and occupancy management)
- **Easy BMS integration:** the IRC solution is a single equipment for the BMS. It sends back occupancy, Lux level measure, temperature, fans speed, window contact status information, etc.
When integrated into a BMS, the IRC office settings can be easily duplicated with a consistent application.

Applications

Karno® HVAC controllers are dedicated to hot and cold groups control (radiators, fan coils, chilled beams, chilled ceilings...) by driving valves and fans. They can also control either warm or cold water devices, 2 or 4 pipes, with or without electric heater, air damper...

Main functions:


- Temperature management hot / cold valves & electrical heater control
- Fan speed control with 2 configurable modes: 3-speed (V1, V2, V3) or variable speed (IRC-SRC only)
- Air quality management through air damper or variable speed fan control
- High and low limitation of the blow temperature
- Electric heater limitation (load shedding)
- Freely configurable inputs and outputs
- Lighting and sunblind management with Dalilon® add-on modules

The IRC system is specially designed for hot / cold groups management:


- 2 heating pipes
- 2 change-over pipes
- 2 pipes with electric heater
- 2 pipes with electric heater with changeover (daisy-chained on heating)
- 4 pipes
- 4 pipes with electric heater (daisy-chained on heating)
- 4 pipes with electric heater
- 2 heating pipes without ventilation
- 2 cooling pipes
- Electric heater (electric heater control only)

HVAC Modules

Fan coil controllers

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- IRC-FCC-427*
230VAC modular office controller operating on the LON 2.0 network: 230VAC valves + possibility to connect extension modules for lighting and sunblind management.
- 5 configurable inputs: 1 digital / analog (NTC), 3 digital, 1 analog (NTC).
- 1 RJ9 input (for connecting extension modules or accessories).
- 6 230VAC outputs (2 TRIAC 230VAC, 3 relays 230VAC and 1 electric heater relay).
- IRC-FCC-427 MS/TP**
230VAC modular office controller operating on the BACnet network: 230VAC valves + possibility to connect extension modules "lighting and sunblind".
- 5 configurable inputs: 1 digital / analog (NTC), 3 digital, 1 analog (NTC).
- 1 RJ9 input (for connecting extension modules or accessories).
- 6 230VAC outputs (2 TRIAC 230VAC, 3 relays 230VAC and 1 electric heater relay).
- IRC-FCC-428*
230VAC modular office controller operating on the LON 2.0 network: 24VAC valves + possibility to connect extension modules.
- 5 configurable inputs: 1 digital / analog (NTC), 3 digital, 1 analog (NTC).
- 1 RJ9 input (for connecting extension modules or accessories).
- 6 outputs (2 TRIAC 24VAC, 3 relay 230VAC and 1 electric heater relay)
- IRC-FCC-428 MS/TP**
230VAC modular office controller operating on the BACnet network: 24VAC valves + possibility to connect extension modules.
- 5 configurable inputs: 1 digital / analog (NTC), 3 digital, 1 analog (NTC).
- 1 RJ9 input (for connecting extension modules or accessories).
- 6 outputs (2 TRIAC 24VAC, 3 relay 230VAC and 1 electric heater relay)

SRC modular office controllers

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- IRC-SRC-427*
230VAC modular office controller operating on the LON 2.0 network: 230VAC valves + 0-10VDC inputs & outputs + possibility to connect extension modules.
- 5 configurable inputs: 1 digital / analog (NTC), 3 digital, 1 analog NTC and 1 analog 0-10VDC.
- 1 RJ9 input (for connecting extension modules or accessories).
- 8 configurable outputs: 2 analog (0-10VDC), 6 digital (2 TRIAC 230VAC, 3 relay 230VAC, 1 electric battery relay).
- IRC-SRC-427 MS/TP**
230VAC modular office controller operating on the BACnet network: 230VAC valves + inputs & outputs 0-10VDC + possibility to connect extension modules.
- 5 configurable inputs: 1 digital / analog (NTC), 3 digital, 1 analog NTC and 1 analog 0-10VDC.
- 1 RJ9 input (for connecting extension modules or accessories).
- 8 configurable outputs: 2 analog (0-10VDC), 6 digital (2 TRIAC 230VAC, 3 relay 230VAC, 1 electric battery relay).
- IRC-SRC-428*
230VAC modular office controller operating on the LON 2.0 network: 230VAC valves + 0-10VDC inputs & outputs + possibility to connect extension modules.
- 5 configurable inputs: 1 digital / analog (NTC), 3 digital, 1 analog NTC and 1 analog 0-10VDC.
- 1 RJ9 input (for connecting extension modules or accessories).
- 8 configurable outputs: 2 analog (0-10VDC), 6 digital (2 TRIAC 230VAC, 3 relay 230VAC, 1 electric battery relay).
- IRC-SRC-428 MS/TP**
230VAC modular office controller operating on the BACnet network: 230VAC valves + 0-10VDC inputs & outputs + possibility to connect extension modules.
- 5 configurable inputs: 1 digital / analog (NTC), 3 digital, 1 analog NTC and 1 analog 0-10VDC.
- 1 RJ9 input (for connecting extension modules or accessories).
- 8 configurable outputs: 2 analog (0-10VDC), 6 digital (2 TRIAC 230VAC, 3 relay 230VAC, 1 electric battery relay).

* New FT5000 microprocessor. The IRC-FCC-327 /-328 and the IRC-SRC-327 /-328 controllers are available in After Sales.

** New: products operating on the BACnet MS/TP network are WSPLab certified.

Add-on Modules



IRC-B2L

Extension module, 2 On-Off 'lighting' outputs



IRC-B2LG

Extension module, 2 1-10VDC dimming 'lighting' outputs



IRC-B3L

Extension module, 3 On-Off 'lighting' outputs



IRC-B2S

Extension module, 2 230VDC 'sunblind' outputs



IRC-B3S

Extension module, 3 230VDC 'sunblind' outputs



IRC-B2S24

Extension module, 2 24VDC 'sunblind' outputs



IRC-B2L1S

Extension module, 2 On-Off 'lighting' outputs + 1 230VAC 'sunblind' output



IRC-BDALI*

Extension module, 4 'lighting' groups, DALI bus

Complementary 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, fan speed, occupancy)
TCND-IT-PM	Infrared remote control with integrated temperature sensor (wall-mounted support provided)
TCND-I-PR	Infrared remote control, bi-color

Radio technology



TCND-R	Radio multi-discipline remote control (lighting, sunblind, temperature, fan speed, occupancy)
TCND-RT-PM	Radio remote control with integrated temperature sensor (wall-mounted support provided)

EnOcean technology



TCND-ENOCEAN	Radio remote control with integrated EnOcean technology, and with integrated temperature sensor (wall-mounted support provided)
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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

Mini multi-sensor (slotted into ceilings)

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)*

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.

Sensor and probes

The IRC solution is fully compatible with all our sensors and probes (dew point detector, temperature probe, air return probe...) and with a broad range of valves and servo-motors.

Compatibility with Valves and Actuators

The IRC is compatible with Distech Controls valves and actuators range. The following table shows valves and actuators from other manufacturers supported by the IRC (230VAC TRIAC valves outputs).

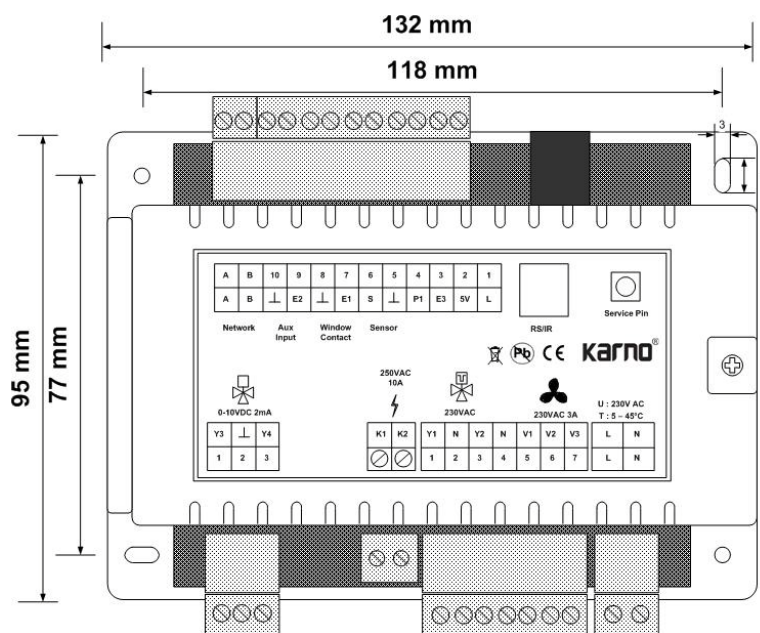
Thermal Valves

Brand	Actuator Reference	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-pins valves

Brand	3-pins valve reference	Voltage
INDUSTRIE TECHNIK	DB-SMF230	230 VAC
SIEMENS	SSA31	230 VAC
	SSB31	230 VAC

Product Specifications



Physical Characteristics

Material	UL94V0 polycarbonate
Colour	Transparent blue cover
Product dimensions	132 x 95 x 42 mm
Protection	IP20 (IEC 529)
Installation	With a DIN rail or screwed
Shipping box size	144 x 136 x 44 mm
Shipping box weights	
IRC-SRC-427	0,360 kg
IRC-SRC-428	0,520 kg
IRC-FCC-427	0,350 kg
IRC-FCC-428	0,530 kg

Input Specifications

On-Off inputs	Max cable length 100 m Impedance < 660 Ohms Open contact threshold < 2V Open contact threshold > 3V
Sensor input CTN 10KOhms (AS-NTC020 type)	± 0.2°C precision at 20°C (controller only) Max cable length of sensor: 3 m

Output Specifications

Valve output 230VAC	I permanent: 1 A max. I start < 3 A.
Valve output 24VAC	I total on all outputs: 300mA max.
Relay outputs 230VAC (3-speed fan)	3 A total max.
Electric heater output	230VAC, 10 A

Electrical Specifications

Power supply	230 VAC 50/60 Hz +10/15 %
Protection	Circuit breaker 10A / Transformer Auto-Protect
Overvoltage category	3

Network

BACnet [®] MS/TP (RS-485) transmission speed	9600, 19200, 38400, 76800 bps
BACnet Certification	Products are WSPLab certified
LonWorks [®]	Free topology network: TP/FT-10 ; 78kbps
Certification LonMark [®]	Q4-08

Environment

Operating temperature	+5°C à +45°C
Storage temperature	-20°C à +70°C
Humidity	+20% à +90% sans condensation
EMC	EN61000-6-x et EN61000-4-x
Security	EN60730-1
Degree of pollution	2
Installation max altitude	< 2000 Meters

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O5DI-DSIRCXX-11

IRC Series

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