



Programmable logic relays Kinco



moduLo

Lovato
electric
100% electricity

Programmable logic relays

Kinco



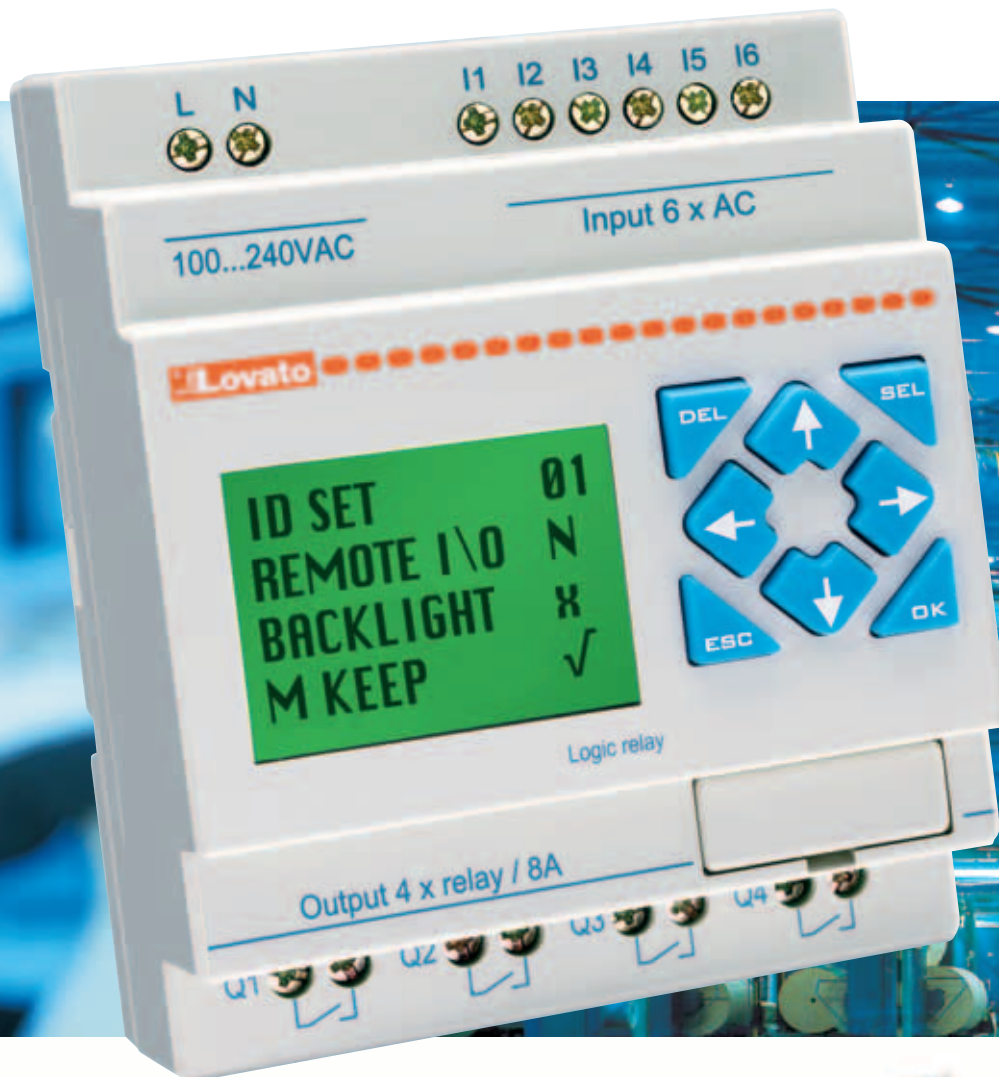
moduLo, LOVATO Electric system of modular components, has been still more enhanced with the introduction of **Kinco**: a programmable logic relay, compact in size yet with excellent performance, suitable for the control and supervision of low and medium complexity automatisms.

Due to the multiplicity of functions, **Kinco** can efficiently be used in diverse fields of industrial, service and residential applications.

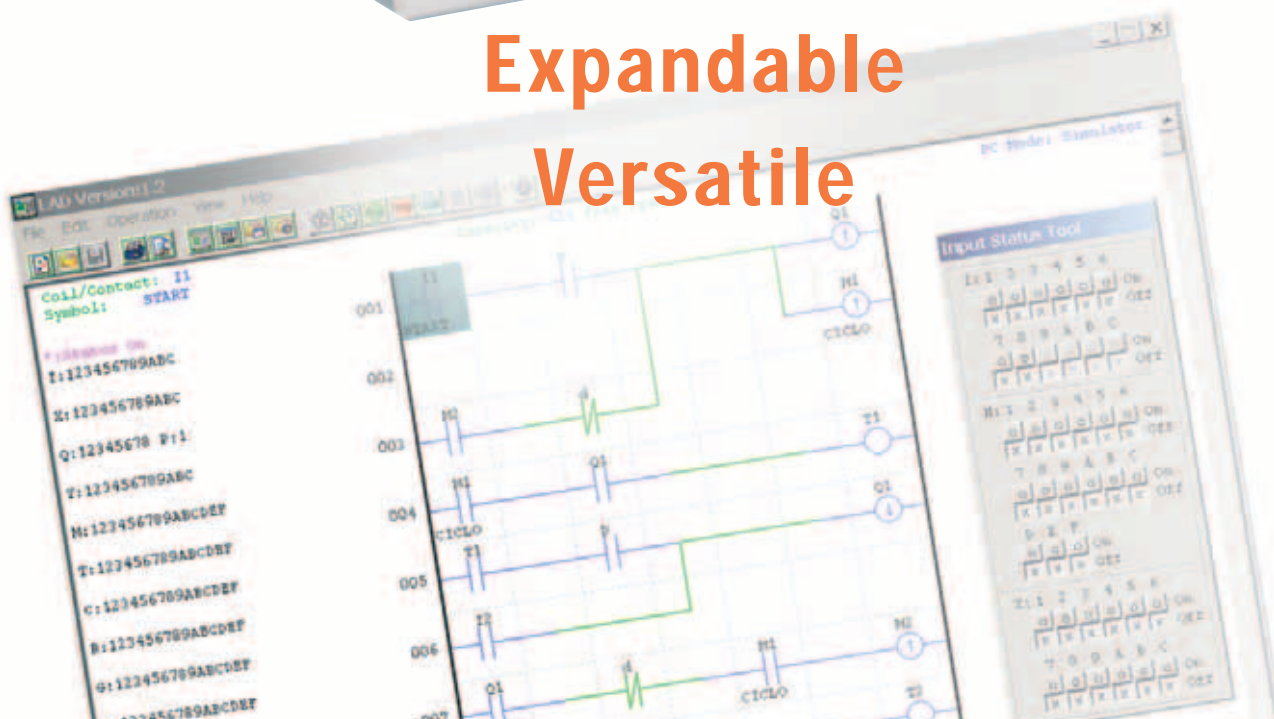
Packaging machines, industrial dishwashers, lighting installations, irrigation systems, garbage disposal machinery, door and gate controls are just a few examples of where **Kinco** can be used.



Small
Smart
Simple



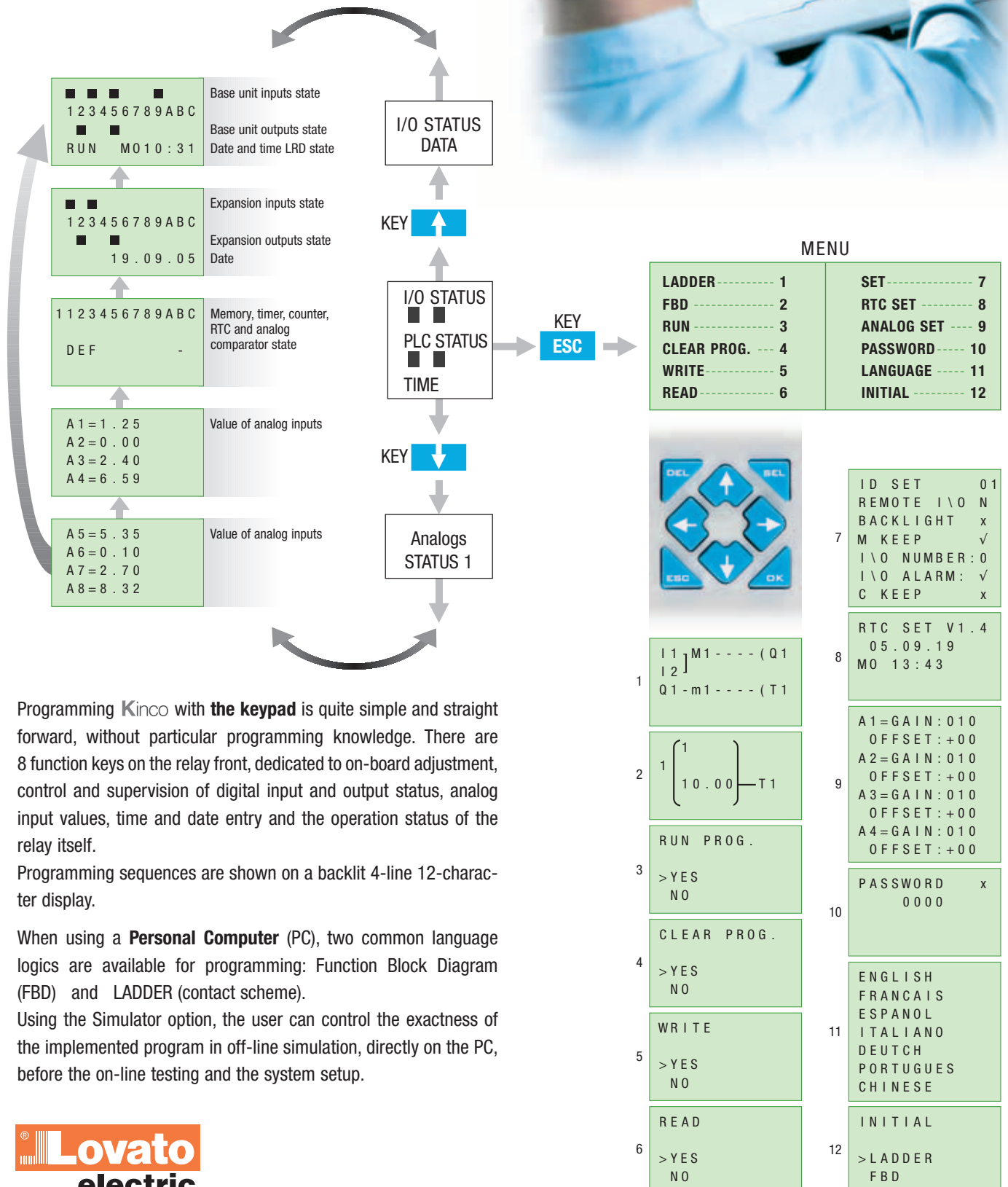
Expandable
Versatile



Programming

At any time and with extreme simplicity, **Kinco** can be set up and reprogrammed to satisfy new requirements and improve the operation of a system.

Programming is simple and intuitive and can be done directly on the relay keypad or by personal computer, connected by LRX C00 interface and using the relative LRX SW software.



Programming **Kinco** with **the keypad** is quite simple and straight forward, without particular programming knowledge. There are 8 function keys on the relay front, dedicated to on-board adjustment, control and supervision of digital input and output status, analog input values, time and date entry and the operation status of the relay itself.

Programming sequences are shown on a backlit 4-line 12-character display.

When using a **Personal Computer (PC)**, two common language logics are available for programming: Function Block Diagram (FBD) and LADDER (contact scheme).

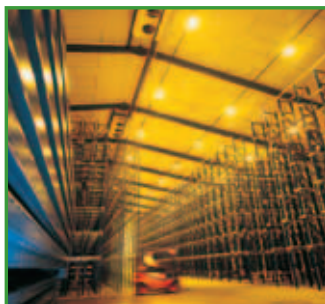
Using the Simulator option, the user can control the exactness of the implemented program in off-line simulation, directly on the PC, before the on-line testing and the system setup.

Applications



Residential and home automation

- Lighting
- Alarm and fire systems
- Garden irrigation and pool filling systems
- Heating and air-conditioning control
- Shutter and roller shutter control.



Industrial buildings

- Automatic door, gate or window opening and closing
- Boiler and heating control
- Ventilation and air conditioning
- Alarm and fire systems
- Lighting.



Industrial machinery

- Compressor, motor, pump control
- Industrial washing machines
- Mixers and blenders
- Garbage shredders and compactors
- Car washing systems
- Bending machines
- Welding machines.



Cold storage and refrigeration

- Timers
- Temperature control
- Humidity and ventilation control
- Compressor control.

Main features

- Available power supply: 24VDC or 100-240VAC units
- 10, 12 and 20 input-output base units
- Expansion models with 4 inputs and 4 outputs
- Maximum configuration: 44 inputs/outputs
- 8A lth current relay outputs for AC and DC versions
- 0.3A 24VDC transistor outputs for DC version
- 0-10V analog inputs for DC version
- Standard-supplied Real Time Clock (RTC)
- RS232 serial interface port for PC or program back-up memory connection
- 4-line 12-character display with backlight
- Programming language logics: Ladder (200 rungs maximum) or FBD (99 blocks maximum)
- On-board programming languages: Italian, English, Spanish, French, German, Portuguese and Chinese
- PC programming languages: Italian, English and Spanish
- Modular housing with 35mm DIN rail mount or screw fixing on mounting plate.



Accessories and communication module

- The LRX...D024 power supplies produce a direct-current voltage needed to supply the Kinco base and expansions modules in circumstances when 24VDC is not available in the application. The power supplies can also be used to power eventual 24VDC auxiliary circuits.

Kinco combines the facility of numerous traditional devices, such as controls relays, timers, counters, hour meters and so on. The advantages are many: cost reduc-

tion of materials and installation time, space reduction, easy reprogramming when needed, and function adjustment of the system for relay adaptation to new installation requirements.

Kinco is available for 24VDC or 100-240VAC power supply and with 10 to 44 inputs and outputs.

Applications



Conveying and transfer systems

- Conveyor belts
- Stop and go controls
- Automatic programmed stopping
- Luggage belts
- Storage and car silos.



Level and pressure control

- Automatic valve opening and closing control
- Level controls
- Pressure controls
- Pump change
- Storage silo and tank filling and draining.



Greenhouses

- Lighting
- Temperature control
- Humidity control
- Irrigation
- Sprinkling systems.



Lifting mechanisms

- Bridge crane control
- Roadway barriers and gates
- Automatic car garages
- Platforms
- Hoists and lifts.



Expansion modules

Kinco can be easily adapted to every type of need. The number of inputs and outputs of the base relay unit can be directly increased by using the expansion modules. Supplied in three base units with 10, 12 or 20 inputs/outputs, Kinco can be expanded mounting up to 3 expansion modules, to obtain a maximum configuration of 44 inputs/outputs.



Kinco	Expansions	Inputs/Outputs
LRD10...		10 (6 Inputs + 4 Outputs)
	+ LRE08	18 (10 Inputs + 8 Outputs)
	+ LRE08 + LRE08	26 (14 Inputs + 12 Outputs)
	+ LRE08 + LRE08 + LRE08	34 (18 Inputs + 16 Outputs)
LRD12...		12 (8 Inputs + 4 Outputs)
	+ LRE08	20 (12 Inputs + 8 Outputs)
	+ LRE08 + LRE08	28 (16 Inputs + 12 Outputs)
	+ LRE08 + LRE08 + LRE08	36 (20 Inputs + 16 Outputs)
LRD20...		20 (12 Inputs + 8 Outputs)
	+ LRE08	28 (16 Inputs + 12 Outputs)
	+ LRE08 + LRE08	36 (20 Inputs + 16 Outputs)
	+ LRE08 + LRE08 + LRE08	44 (24 Inputs + 20 Outputs)

- The LRX M00 backup memory consents to save the user's program and to simply and quickly transfer it to other Kinco base modules.
- The LRE P00 expansion implements communications using Modbus® protocol.

How to order

Order code	Power supply	INPUTS		Digital OUTPUTS		RTC
		Digital	Digital/Analog (0-10VDC)*			
		n°	n°	n°	Type	
Base relay unit						
LRD12R D024	24VDC	6	2	4	Relay	Yes
LRD12T D024	24VDC	6	2	4	Transistor	Yes
LRD20R D024	24VDC	8	4	8	Relay	Yes
LRD20T D024	24VDC	8	4	8	Transistor	Yes
LRD10R A240	100-240VAC	6	0	4	Relay	Yes
LRD20R A240	100-240VAC	12	0	8	Relay	Yes
Expansion and communication modules						
LRE08R D024	24VDC	4	0	4	Relay	No
LRE08T D024	24VDC	4	0	4	Transistor	No
LRE08R A240	100-240VAC	4	0	4	Relay	No
LRE P00	Modbus® protocol communication unit					
Accessories						
LRX M00	Program backup memory					
LRX C00	PC-LRD connecting cable, 1.5m long					
LRX SW	Programming and supervision software (cd-rom)					
LRX 1V3 D024	Power supply unit, 100-240VAC/24VDC, 1.3A					
LRX 2V5 D024	Power supply unit, 100-240VAC/24VDC, 2.5A					
LRX D00	User's manual Italian edition (paper)					
LRX D01	User's manual English edition (paper)					
LRX D02	User's manual Spanish edition (paper)					
Kit						
LRDKIT 12R D024	LRD programming kit complete with LRD12R D024 relay, LRX SW software and LRX C00 cable					
LRDKIT 10R A240	LRD programming kit complete with LRD10R A240 relay, LRX SW software and LRX C00 cable					

* Digital inputs can be used as analog inputs.

Technical characteristics

Power supply		LRD...D024	LRD...A240
Rated utilisation voltage Ue (Frequency range)		24VDC	100-240VAC (47-63Hz)
Operating limits		21.6-26.4VDC	85-264VAC
Digital inputs		LRD...D024	LRD...A240
Rated voltage		24VDC	110-220VAC
Input voltage	State 0	< 5VDC / < 0.625mA	< 40VAC / < 0.28mA (LRD10A240) < 0.15mA (LRD20A240)
	State 1	> 15VDC / > 1.875mA	> 79VAC / > 0.41mA
Delay time	0 to 1	3-5ms	45-50ms (Ue=110VAC) – 18-22ms (Ue=220VAC)
	1 to 0	3-5ms	45-50ms (Ue=110VAC) – 85-90ms (Ue=220VAC)
Analog inputs for 24VDC version only		LRD...D024	
Input signal range		0-10V	-
Display resolution		0.01V	-
Conversion		10bit	-
Current consumption at 10VDC		< 0.17mA	-
Input impedance		< 1kΩ	-
Admissible overload		28VDC	-
Sampling time		5-20ms for LADDER; 2-10ms for FBD	-
Maximum cable length		≤ 30m of screened type	-
Digital outputs		LRD...R... / LRE08R...	LRD...T... / LRE08T...
Type of output / Rated current Ith		Relay / 8A	Transistor / 0.3A 24VDC
Applied voltage		24VDC / 110VAC / 240VAC	21.6-26.4VDC
Ambient conditions			
Operating / Storage temperature		-20...+55°C / -40...+70°C	
Relative humidity		20-90%, without condensation	
Maximum pollution degree		2	
Housing			
Version		Modular for mounting on 35mm DIN rail (IEC/EN 60715) or M4x15mm screw fixing	
Connections	Type of terminal	Screw	
	Conductor section	0.75-3.5mm²/ 12 AWG	
	Tightening torque	0.4-0.6Nm/0.3-0.4lbf	
	Maximum cable length	≤ 100m	
Dimensions (wxhxd)	LRD10... / LRD12...	72x106x57.3mm	
	LRD20...	126x106x57.3mm	
	Expansions LRE...	38x106x57.3mm	
Degree of protection		IP20	

Certifications and compliance

Certifications obtained: cULus. Compliant with standards: IEC/EN 61131-2.





Prewired limit switches type KP...



Micro switches type KS...



TM series modular time relays



LVM series level relays



Digital ammeter and voltmeter
type DMK7... and DMK8...



Digital multimeters
DMK21, DMK22, DMK51 and DMK52



Soft starters type ADX...BP

Planet-SWITCH

- Motor protection circuit breakers
- Switch disconnectors
- Contactors
- Motor protection relays
- Electromechanical starters
- Push buttons and selectors
- Limit and foot switches
- Rotary cam switches

Planet-DIN

- Modular contactors
- Time relays
- Protection relays
- Level control relays
- Earth leakage relays

Planet-LOGIC

- Digital metering instruments and current transformers
- Soft starters
- AC motor drives
- Automatic power factor controllers
- Automatic battery chargers
- Automatic transfer switches
- Programmable logic relays

The products described in this documentation are subject to be revised or improved at any moment. Catalogue descriptions and details, such as technical and operational data, drawings, diagrams and instructions, etc., do not have any contractual value. In addition, products should be installed and used by qualified personnel and in compliance with the regulations in force for electrical systems in order to avoid damages and safety hazards.

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