HMI LRH SERIES

HMI WITH COLOR TOUCHSCREEN DISPLAY

The HMI LRH series have a graphic TFT display with 64k colors, touchscreen, easy to program and extremely flexible.
They can be interfaced with different type of devices, from PLC to any kind of intelligent controller provided with communication port, like multimeters, drives, process controllers.
The LRHSW programming software allows the configuration of the HMI in a simple and intuitive way, thanks to the graphical interface with which you can create customized screens to show images, trends, bar graphs, analog indicators, dynamic objects and other functionalities.
The HMI LRH series are the ideal solution for the supervision and control of small and large automation scenarios that are more and more required in the world of Industry 4.0.

WIDESCREEN DISPLAY WITH HIGH VISIBILITY

- TFT display with resistive touchscreen
- High brightness thanks to the LED backlighting
- 64k colors
- Available in formats 4.3", 7" and 10.1".

SIMPLICITY AND EFFICIENCY

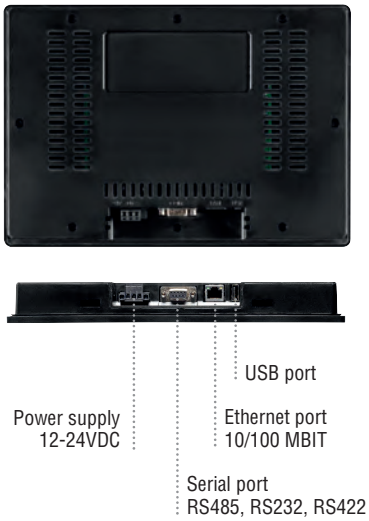
- Simple and elegant design with low energy consumption
- High robustness, thanks to the use of highly reliable industrial components
- Plastic enclosure, degree of protection IP66, Type 2 and 4X.

CONNECTIVITY FOR EASY INTEGRATION

- 3 built-in communication ports: Ethernet, USB and serial (type RS232-RS485-RS422, configurable via software LRHSW)
- Support of communication protocols Modbus-RTU Master/Slave, Modbus TPC Client/Server, OPC UA Client/Server, Simatic S7 Ethernet and MQTT.

POWERFUL AND INTUITIVE PROGRAMMATION

- High performance CPU
- Extensive gallery of widgets, objects and pre-configured scenarios for typical applications
- Data acquisition and display on numeric indicators, trends or graphical gauges
- Support of vector graphics, images, analog indicators, bar graphs
- Advanced functionalities: dynamic objects, alarms and events management, support of multilingual applications, recipes, tags editor, user and password management, script language
- Advanced properties of the objects: e-mail, events scheduler, etc
- Support of HTML5 and JavaScript
- Possibility to simulate the program by working off-line.



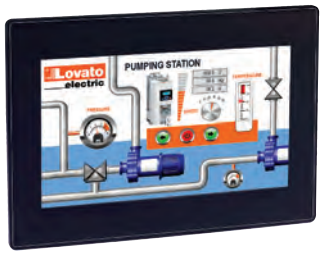
PRE-CONGIGURED SCENARIOS

Preconfigured and ready to use scenarios for typical applications managed with LOVATO Electric products (remote control of a micro PLC, supervision of a pumping station with variable speed drive, monitoring of a photovoltaic system with energy meter, soft starter monitoring, control and supervision of a power factor correction plant, monitoring of an automatic transfer switch ATS panel, command and monitoring of a mains-generator application, etc.) freely downloadable from the website www.LovatoElectric.com, download section, software & upgrades.

HMI

LRHA04

LRHA07



LRHA10

EXCCAB02

Order code	Description	Qty per pkg	Wt
		n°	[kg]
HMI.			
LRHA04	4.3" TFT LCD display	1	0.400
LRHA07	7" TFT LCD display	1	0.600
LRHA10	10.1" TFT LCD display	1	1.000
Programming software for HMI.			
LRHSW01	User licence for LRHSW software (available for download from www.LovatoElectric.com website), valid for 1 station	1	—
LRHSW01CD	CD-ROM with LRHSW programming software, including one LRHSW01 licence	1	0.057
RS485 connection cable.			
EXCCAB02	RS485 connection cable for LRH, length 3m	1	0.150

Model	LRHA04	LRHA07	LRHA10
SYSTEM RESOURCES			
Display	4.3" TFT 16:9	7" TFT 16:9	10.1" TFT 16:9
Colors	64K		
Resolution	480x272 pixel	800x480 pixel	1024x600 pixel
Brightness	200Cd/m²		
Dimming	Yes		
Touchscreen	Resistive		
CPU	ARM Cortex A8 300MHz	ARM Cortex A8 1GHz	ARM Cortex A8 1GHz
Operative system	Linux 3.12		
Flash	2GB	4GB	4GB
RAM	256MB	512MB	512MB
Application memory	60MB		
Real Time Clock, RTC backup, Buzzer	Yes		
INTERFACES			
Ethernet	1 (10/100 Mbit)		
USB	1 (Host v2.0, max 500mA)		
Serial	1 (RS232, RS485, RS422, software configurable)		
FUNCTIONALITIES			
Vector graphics	●		
Dynamic objects	●		
Font TrueType	●		
Alarms	●		
Event list	●		
Recipes	●		
User management	●		
Trends	●		
Multi-language management	●		

General characteristics
- Widescreen display with resistive touchscreen
- Available in formats 4.3", 7" and 10.1"
- LED backlight
- Ethernet, USB and serial port (type RS232-RS485-RS422, configurable via software LRHSW)
- Lightweight and low-power design
- Highly reliable industrial components
- Powerful and intuitive programming with software LRHSW (downloadable from the website www.LovatoElectric.com or purchasable on Cd-rom), with 30-days trial license included
- Support of protocols Modbus-RTU Master/Slave, Modbus-TCP Client/Server, OPC UA Client/Server, Simatic S7 Ethernet and MQTT
- Support of vector graphics
- Rich library of preconfigured and ready to use graphical objects (widgets): static or dynamic images, buttons, sliders, lights, bar graphs, gauges, meters, media widgets, etc.
- Possibility to create custom widgets
- Tags editor to create, import or export tags
- Alarm handling with management of events and actions (e.g. alerts with pop-up messages, send email, write tags, etc.)
- Data-logging with presentation of the collected data in graphical trends and tables, with possibility to save the data in a .CSV file
- Recipe data handling
- Scheduler engine to execute specific actions at set intervals, or on a time basis
- Automatic generation of customizable reports
- Multilingual projects management with texts in True Type font
- Data transfer function to exchange data between the devices connected to the HMI
- Powerful script language with JavaScript editor
- Web access: support of HTML5 technology to allow users to access HMI projects from a remote web browser running on a computer or on a mobile device (smartphone or tablet)
- Advanced user management with possibility to configure different levels of authorizations and permissions on the access to pages or to the actions on the widgets of the projects, with dedicated credentials
- Monitoring and remote control of the project running on the HMI from a PC with the software LHRSW Client, installed together with the programming software LRHSW
- On-line and off-line simulation of the applications.

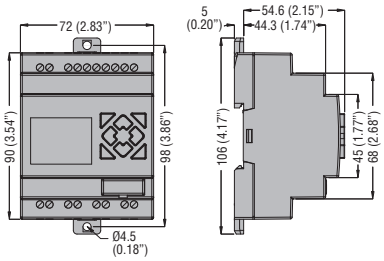
Operational characteristics
- Rated auxiliary power supply: 12-24VDC
- Operating range: 10...32VDC
- Operating temperature: 0...+50°C
- Storage temperature: -20...+70°C
- Humidity: 5-85% RH, non condensing
- Protection degree: IP66, Type 2 and 4X (front); IP20 (rear).

Preconfigured scenarios
Preconfigured and ready to use scenarios for typical applications managed with LOVATO Electric products (remote control of a micro PLC, supervision of a pumping station with variable speed drive, monitoring of a photovoltaic system with energy meter, soft starter monitoring, control and supervision of a power factor correction plant, monitoring of an automatic transfer switch ATS panel, command and monitoring of a mains-generator application, etc.) freely downloadable from the website www.LovatoElectric.com, download section software & upgrades.

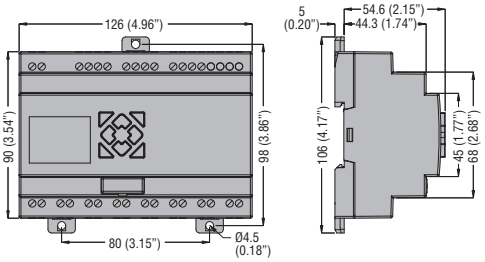
Certifications and compliance
Certifications obtained: UL Listed, for USA and Canada (cULus – File E199715), EAC, RCM.
Compliant with standards: emissions EN/BS 61000-6-4, immunity EN/BS 61000-6-2 for installation in industrial environments; emissions EN/BS 61000-6-3, immunity EN/BS 61000-6-1 for installation in residential environments; UL508.

BASE MODULES

LRD10... - LRD12...

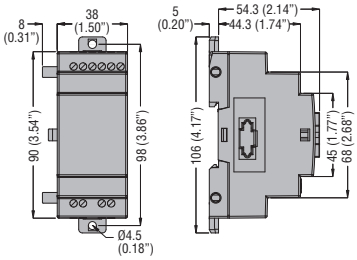


LRD20...



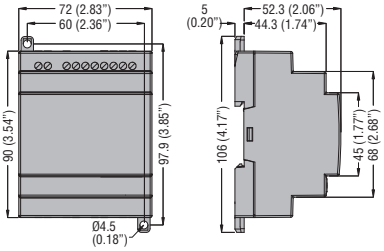
EXPANSION AND COMMUNICATION MODULES

LRE...

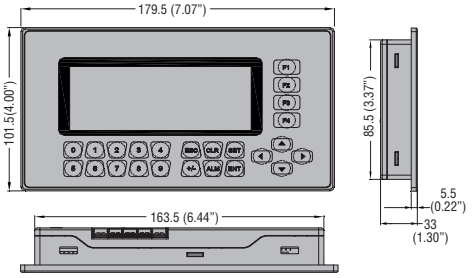


ACCESSORIES

LRX1V3D024 power supply unit



LRXP01 HMI operator panel



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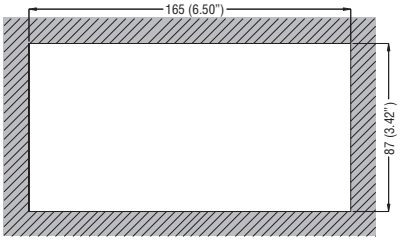
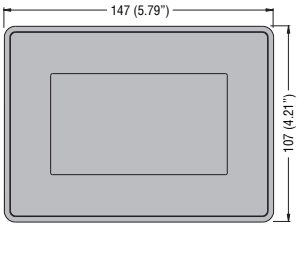


HMI

LRHA04



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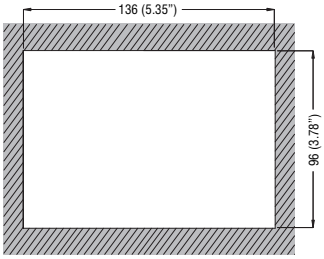
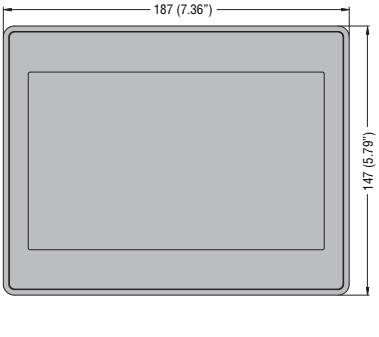


LRHA07



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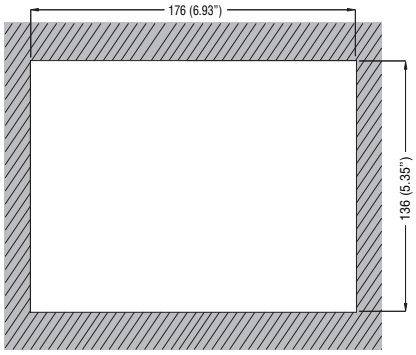
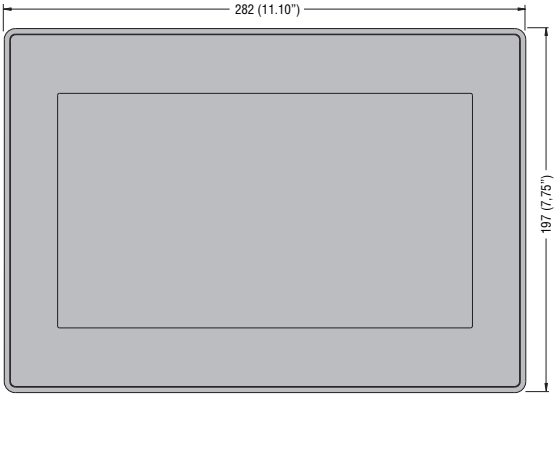


LRHA10



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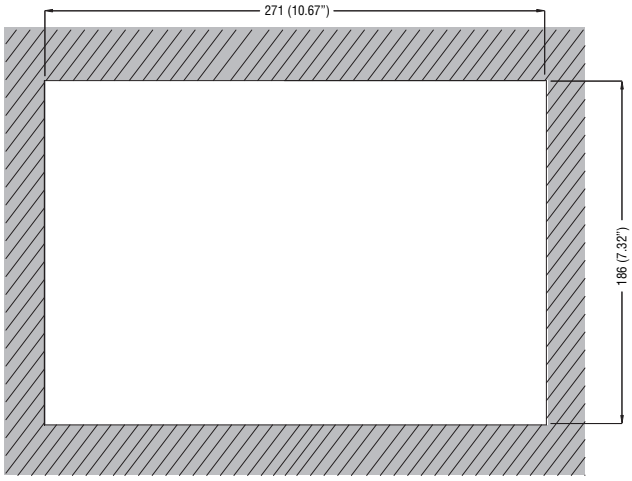
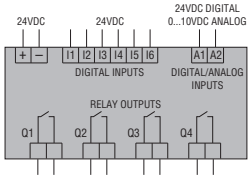
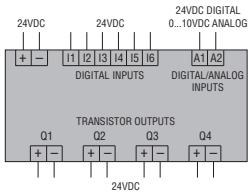


BASE MODULES

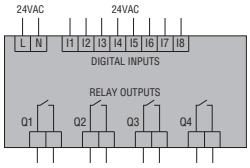
LRD12RD024



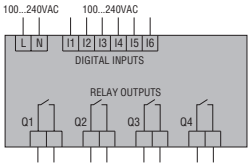
LRD12TD024



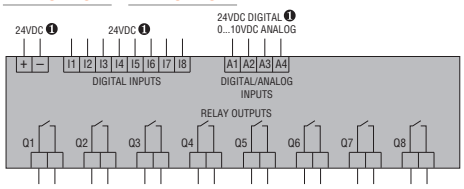
LRD12RA024



LRD10RA240

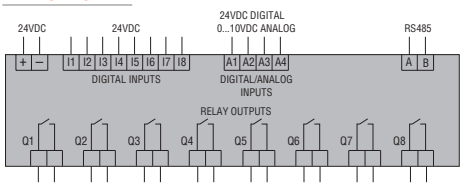


LRD20RD012 - LRD20RD024

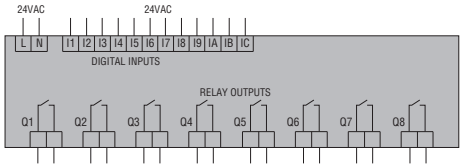


❶ 12VDC for LRD20RD012.

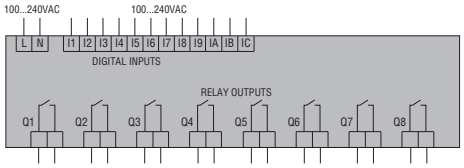
LRD20RD024P1



LRD20RA024

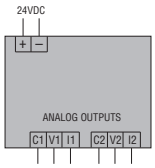


LRD20RA240

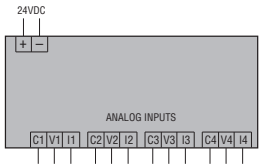


EXPANSION AND COMMUNICATION MODULES

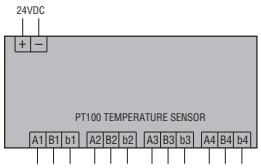
LRE02AD024



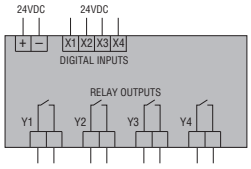
LRE04AD024



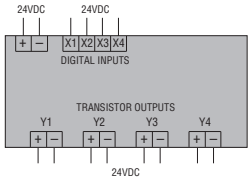
LRE04PD024



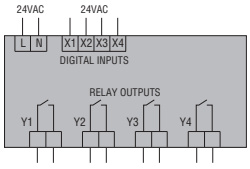
LRE08RD024



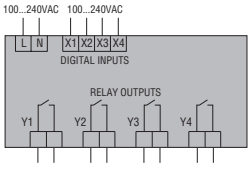
LRE08TD024



LRE08RA024

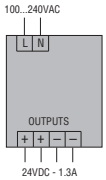


LRE08RA240



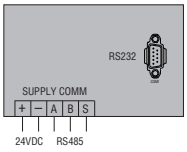
ACCESSORIES

Power supply unit
LRX1V3D024



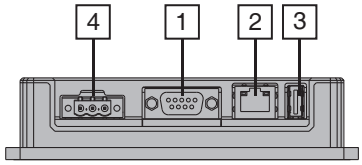
RS485 communication unit
LREP00

Operation panel
LRXP01

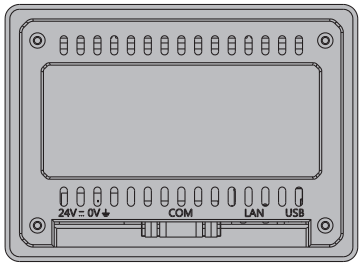


HMI

LRHA...



1 Serial port (type RS232, RS485, RS422 software configurable)
2 Ethernet port
3 USB port
4 Power supply 12-24VDC



BASE MODULES		LRD…D012	LRD…D024	LRD…A024	LRD…A240
POWER SUPPLY					
IEC rated voltage Ue (frequency range)		12VDC	24VDC	24VAC (50...60Hz)	100...240VAC (50...60Hz)
Operating limits		10.4...14.4VDC	20.4...28.8VDC	20.4...28.8VAC (47...63Hz)	85...265VAC (47...63Hz)
Average current consumption		265mA	125mA (LRD12...) 185mA (LRD20...)	290mA	100mA
DIGITAL INPUTS					
Rated voltage		12VDC	24VDC	24VAC (50...60Hz)	100...240VAC (50...60Hz)
Input voltage	State 0	<2.5VDC	<5VDC	<6VAC	<40VAC
	State 1	>7.5VDC	>15VDC	>14VAC	>79VAC
Delay time	0 to 1	4ms (0.5ms for high speed)	4ms (0.5ms for high speed)	90ms	50/45ms (Ue=120VAC) - 22/18ms (Ue=240VAC)
	1 to 0	4ms (0.3ms for high speed)	4ms (0.3ms for high speed)	90ms	50/45ms (Ue=120VAC) - 90/85ms (Ue=240VAC)
ANALOG INPUTS (FOR DC SUPPLY VERSIONS ONLY)					
Input signal range		0...10V		—	—
Display resolution		0.01V		—	—
Current consumption at 10VDC		<0.17mA		—	—
Input impedance		>40kΩ		—	—
Admissible overload		14VDC	28VDC	—	—
Sampling time		5...20ms (LADDER); 2...10ms (FBD)		—	—
Maximum cable length		≤30m/98ft of screened type		—	—
DIGITAL OUTPUTS					
Type of output / IEC rated current Ith		Relay / 8A (LDR...R... / LRE08R... only) Transistor / 0.3A 24VDC (LRD...T... / LRE08T... only)			
Applied voltage		Max 265VAC / 30VDC (LDR...R... / LRE08R... only) 10...28.8VDC (LRD...T... / LRE08T... only)			
AMBIENT CONDITIONS					
Operating temperature		-20...+55°C			
Storage temperature		-40...+70°C			
Relative humidity		20...90% without condensation			
HOUSING					
Version		Modular for mounting on 35mm DIN rail (IEC/EN/BS 60715) or M4x20mm screw fixing			
Connections	Type of terminal	Screw			
	Conductor section	0.14...2.5mm² / 26...14AWG			
	Tightening torque	0.6Nm / 0.4lbft			
	Maximum cable length	≤100m/328ft			
IEC degree of protection		IP20			

EXPANSION MODULES		LRE02AD024		LRE04AD024		LRE04PD024
POWER SUPPLY						
IEC rated voltage Ue		24VDC		24VDC		24VDC
Operating limits		20.4...28.8VDC		20.4...28.8VDC		20.4...28.8VDC
ANALOGIC INPUTS/OUTPUTS						
Type of channels		2 outputs configurable for voltage or current		4 inputs configurable for voltage or current		4 inputs for PT100 temperature sensors
Operating limits		0...10V	0...20mA	0...10V	0...20mA	-100...+600°C
Display resolution		0.00...10.00V	0.00...20.00mA	0.00...10.00V	0.00...20.00mA	-100.0...+600.0°C
Resolution		10mV	40µA	10mV	40µA	0.1°C
Accuracy		±2.5%		±2.5%		±1%
Power consumption		70mA		70mA		70mA

COMMUNICATION MODULE	LREP00
IEC rated voltage Ue	24VDC
RS485 connection	Isolated
Baud-rate	4800...57600bps
Terminator resistor	Integrated 120Ohm
Cable length	0.14...1.5mm² (26...16AWG)
Tightening torque	0.6Nm (5.4lb.in)

HMI OPERATOR PANEL	**LRXP01**
SUPPLY	
IEC rated voltage Ue	24VDC
Operating limits	20.4...26.4 VDC (-15%...+10%)
Power consumption	1.9 W
AMBIENT CONDITIONS	
Operating temperature	0...+55°C
Storage temperature	-40...+70°C
Altitude	≤2000m
Relative humidity	10...95% (non-condensing)
Maximum pollution degree	2 (IEC/EN/BS 61131-3)
Vibration resistance	15g
Shock resistance	0.5g
Conductor section	0.4...3.3 mm² (22-12 AWG)
Tightening torque	1.8 Nm / 10.4lb.in
IEC degree of protection	IP65

HMI	**LRHA04**	**LRHA07**	**LRHA10**
POWER SUPPLY			
Rated voltage Ue	12-24VDC		
Operating range	10...32VDC		
Max current consumption at 24VDC	0.25A	0.3A	0.38A
ENVIRONMENT CONDITIONS			
Operating temperature	0...+50°C		
Storage temperature	-20...+70°C		
Relative humidity	5...85% (non condensing)		
Protection degree	IP66, Type 2, 4X (front); IP20 (rear)		