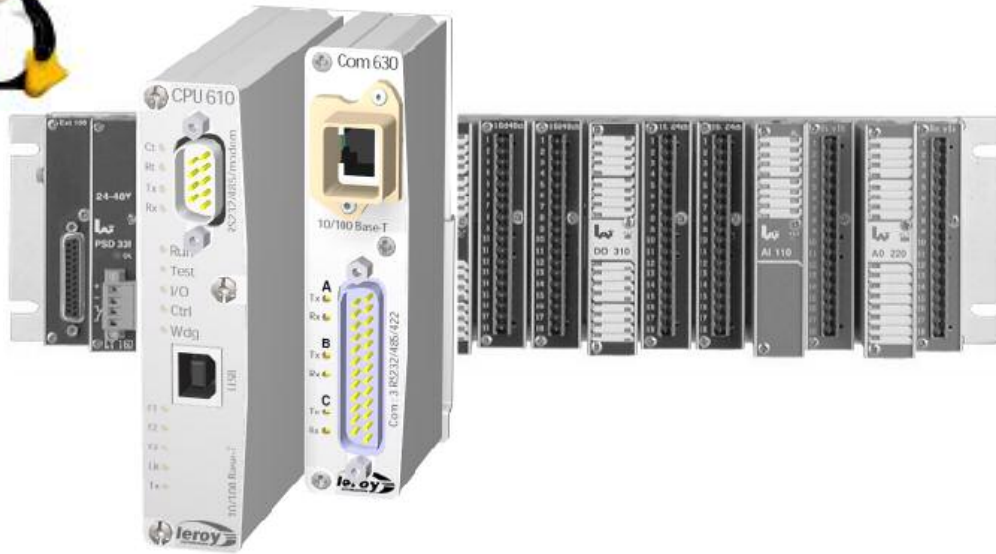




LT 200

The Harsh Linux Platform



C programmable computer (Eclipse SDK)
IEC1131 PLC (ISaGRAF V5)
Data acquisition platform (OPAL32 Quick tool)

-  **Transport**
-  **Military**
-  **Industry**
-  **Energy**
-  **Service**
-  **Environment**

- Embedded systems***
- Airborne and naval systems***
- Automatisation in harsh environments***
- Sub-station control***
- Sensitives sites monitoring***
- Water and industrial waste treatment***



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LT200 : designed for harsh environments

▪ ROBUSTNESS

- Each module is protected by in an aluminium case wich provides at the same time
 - ▶ electromagnetic interference immunity
 - ▶ high mechanical resistance
 - ▶ IP 30 protection
 - ▶ excellent thermic dissipation

- ▶ **Operating temperature [-40°C ; +70°C]**

▪ CONNECTING

- ▶ Ethernet 10/100 base T with antivibratory socket
- ▶ 4 RS232/RS485 serial links for asynchronous protocols or Modbus master/slave
- ▶ ideal for intelligent network gateways

▪ MODULARITY

- ▶ the Inputs / outputs modularity is 8,16,24,32,48 or 64 according to the ranges or connectors. The LT can command until 960 inputs.
- ▶ The connectors are pluggable screw terminals (industrial use) or SubD (embedded use).

▪ COMPACITY

- ▶ designed for a shell housing integration.
- ▶ micro platform of severals modules
- ▶ the length of the racks is customized.

with Services ...

▪ ASSEMBLY and TEST

- ▶ the LT assembly and test is factory made before expedition according to the purchase requirement.
- ▶ It's ready for use at delivery

▪ TECHNICAL SUPPORT

- ▶ the Hot line and the technical support by email are **free**
- ▶ training in our company or outside on demand

LT200 : a customizable platform

▪ For industry

- ▶ For a standard assembly, the LT has screw terminals or spring cage terminals

▪ For small configurations

- ▶ Assembly on DIN rack
- ▶ Shell housing installation

▪ For embedded systems

- ▶ For the heavy vibration constraints, the terminals are equipped of connectors SubD.

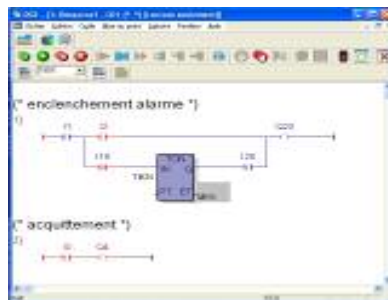
▪ For big systems

- ▶ For the 19 inches switchgear cubicle, 17 modules rack
- ▶ Extension modules allowing 3 racks.
- ▶ For the big configurations, the LT can be installed vertically

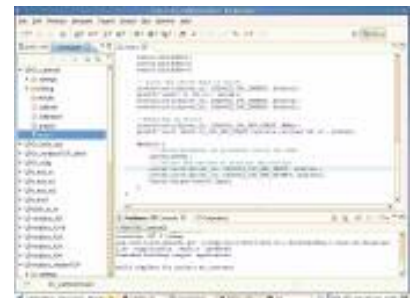
The LT200 accepts 3 embedded kernels for 3 programming standards according to the need :



**Data acquisition platform
(OPAL32 Quick tool)**



**IEC1131 PLC
(ISAaGRAF V5)**



**C programmable computer
(Eclipse SDK)**



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General specifications

MECHANICAL	
Overall dimensions	Height x length = 108 x 84 mm ; Width = 25 mm x number of the modules on demand
Fixation	Bolted on plate or grid (embedded) or on asymmetrical DIN rack
ROBUSTNESS	
Operating Temperature	-40°C at +70°C (storage until 85°C)
Humidity	5 to 95% without condensation. the LT can be tropicalized on demand.
Protection level	NF EN 60529 IP 30 Each module is protected in an aluminium shell housing
CEM level	CE mark A class heavy duty Industry
	Electrostatic discharge Immunity NF EN 61000-4-2 >8kV at contact , >15 kV in the air
	Radiated (electromagnetic field) Immunity NF EN 61000-4-3 3 level 15 V/m
	Fast transient/burst immunity NF EN 61000-4-4 > 1kV on power supplies, and I/O
Mechanical performance	Chocks demi sinus 3 axes 20m/s 30g Vibrations on the 3 axes 7.5mm 20m/s ² scanning from 5Hz to 150Hz
POWER SUPPLY	
Voltage - power	20 to 56 Vcc 20W ; 120V - 20W
Input/ Earth Insulation	1 500 Veff
Alarm Output	Dry Contact 2A / 30 Vcc
CENTRAL UNIT	
Microprocessor	Intel PXA 255 - 300 MHZ (RoHs)
Memory	SDRAM 32 Mo , FLASH 16 Mo (4 Mo for user files)
Clock	Calendar- horodate - real time clock
Operating Safety	Alarm material system, for power supply and processor activity monitoring
Diagnosis by leds	RUN, I/O, Fail, Wdg
COMMUNICATION	
Ethernet	One 10/100 Base-T channel with a RJ45 industrial connector
Asynchronous	3 RS232/RS485/RS422 links + 1 Full Modem channel
Diagnosis by leds	Link, Tx, Col (for Ethernet) , RX, TX, CTS, RTS (for serial link)
Maintenance link	USB1.1 device (also Ethernet port and the Modem port)

Inputs / Outputs for safety applications

- The threshold inputs
▶ fit the sensitives sites monitoring
 - ▶ Inputs designed to detect the 4 status of the circuit : Normally Opened sensor, Normally closed sensor, on short circuit or open Circuit (cut line) between the sensor and the input of the PLC.
 - ▶ The thresholds of detection are adjustable => the detection resistances can be chosen according to the site.
 - ▶ The distance between the sensor and the input can reach 200 meters.
- The redundant inputs
▶ fit the power station management
 - ▶ Two acquisition channels transmit the input state and its logical complement to the CPU
 - ▶ Three input voltage : 24 , 48 , 120Vcc (choice by wiring on the connector)
 - ▶ Input currents : 20mA - 24V ; 15mA - 48V ; 7.5mA - 120V
- The secured relay outputs
▶ fit the power station management
 - ▶ The block consists of 4 I/O groups. One I/O group is connected to 4 electrical actuators (isolating switchs, circuit breakers, ...) by means of
 - 1 Active/Common relay (to switch ON) + 1 Active / Inactive / Common relay (to switch OFF)
 - + 1 input (ON system acknowledge) + 1 input (OFF system acknowledge)
 - ▶ Three voltage power : 24, 48, 120Vcc (choice by wiring on the connector : same board for the 3 voltages)
 - ▶ Each relay is driven by 2 serial commands : priority at relay opening



Inputs / Outputs specifications

LOGIC INPUTS	Diagnosis	All the I/O blocks have an internal power supply status register and a local WDG (red LED) transmitted to the CPU.
	Type Modularity Norm Protection Display	24 Vcc (5 to 30Vcc), 48 Vcc (30 to 60Vcc) Blocks of 16, 32, 48, 64 inputs according to the type and the connectors. Resistive input IEC 1131 type P. 5,5 kΩ 5mA at 24V Against polarity inversions 1 LED per input
LOGIC OUTPUTS	Type Nominal current Modularity per block Protection Output/earth insulation Display	Static 24 Vcc or relay 250 Vca 100 mA, 250 mA, 500 mA, relay 3 A 16, 32 channels according to the connectors Against the overloads 1 000 to 1 500 Veff according to the connectors 1 LED per output, 1 failure LED per block
	RELAY OUTPUTS	Type Modularity per block Protection Output/earth insulation Display
ANALOG INPUTS	Range Resolution Number of inputs per block Maximum error at full scale Channel/earth insulation	-20mA +20 mA ; -10V +10 Vcc ; -5V +5 Vcc 13 bits + signe 4, 8, 12, 16 according to the type and connectors 1% at 25°C 1 000 Veff to 1 500 Veff according to the connectors
	ISOLATED ANALOG INPUTS	Range Insulation between channels
PT100 INPUTS	Scale precision	-200°C to +350 °C 0.5°C
	ANALOG OUTPUTS	Range Resolution Maximum error at full scale Insulation between output and earth
SECURED RELAY OUTPUTS	Configuration and modularity Voltage Digital inputs current Switching power / voltage / current	1 block = 4 organs : 1 organ = 1 relay W + 1 relay N/ Working + 2 digital inputs Tri tension 24, 48 or 120V (choice by wiring on the connector) 20mA - 24V, 15 mA - 48V, 10 mA - 120V 30W L/R = 40ms
	THRESHOLDS LOGIC INPUTS	Tested status Detection resistances Wiring resistance Modularity Display
REDUNDANT INPUTS	Allowed voltages Inputs currents Protection	Provide the input status and its complement to the CPU 24, 48 or 120V (Choice by wiring on the connector) 20mA - 24V , 15mA - 48V , 10mA - 120V Against the overvoltages

All Information in this document can be changed. Leroy Automation reserves the right to modify the specifications of the products without any notice. 090416

