Measurement unit, remote acquisition unit
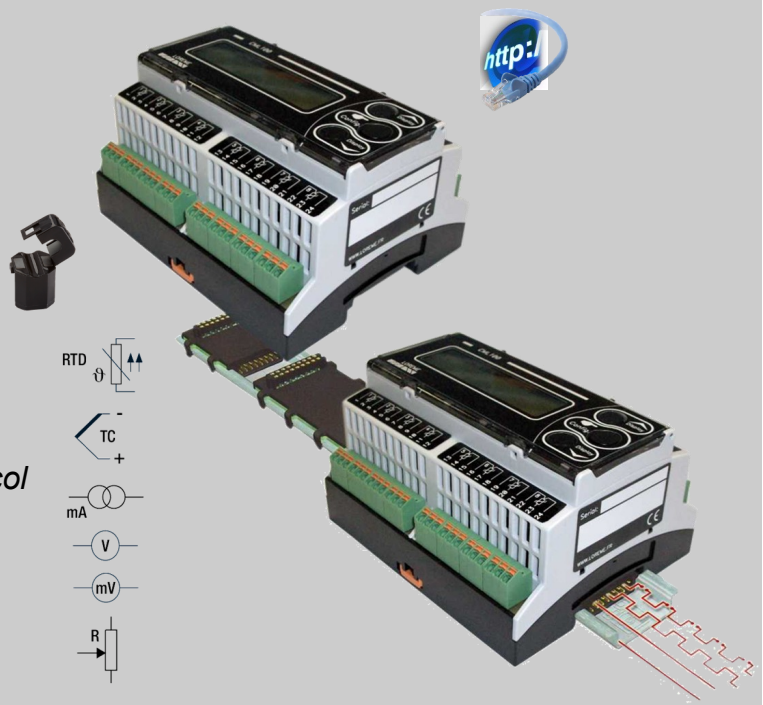## Temperature, current, process

LOREME

CML100

- **Up to 16 measure inputs per module**

  Rtd sensor inputs (PT100 , PT1000)
  Thermocouples inputs (J ,K ,S ,T)
  Thermistor CTN , CTP inputs
  0..1….5....10Volts ; 0...4…..20mA
  Strain gauges
  Current : 0...5A…...100Aac
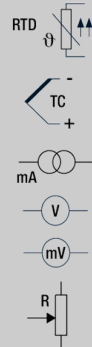 with small split core transformer (Tio Dc)

- **Ethernet Modbus TCP / SNMP link**

  6 Modbus TCP concurrent connections
  Bus connection onto the DIN rail
  Embedded Web Server and SNMP protocol

- **RS485 Modbus RTU link**

- **2 threshold relays**

  Local alarm

RTD

TC

mA

V

mV

R

CML100 is a multi channel analog signals measurement unit, allowing the acquisition of temperature, process signals or alternative current (via Tio transformer). Measurements are available over Ethernet (Modbus TCP) or over RS485 (Modbus RTU). The internal Bus (embeddable in DIN rail) allows up to 8 modules aggregated on one Ethernet link.

Description :
Inputs (dedicated models available) :
* 6 Pt100 sensors in 4 wires connexion
* 8 Pt100 sensors in 3 wires connexion
* 16 Pt100 or Pt1000 sensors in 2 wires connexion
* 16 CTN sensors (R0 and Beta parameters are user configurable)
* 16 Thermocouples (configurable : J,K,S,T)
* 16 0...500mV inputs for small split core CT: Tio-Dc (up to 100A)
* 16 voltage inputs 0..1..5..10 Volts
* 16 current inputs 0..4….20 mA
Other available inputs : Ni100 , Baco500 , Cu10 , …….
- All inputs are with common ground (isolated from communication)

Front face :
- LCD display with 2 lines of 16 characters (back-lighted).
- Three push buttons for display and configuration.

Alarms : (option)
- 2 alarms per measure channel configurable:
  Threshold, direction, hysteresis and delay, breaking detection
- These alarms respectively control two relays, common to all channels.
  Each relay can be configured for positive or negative security (NO / NC)
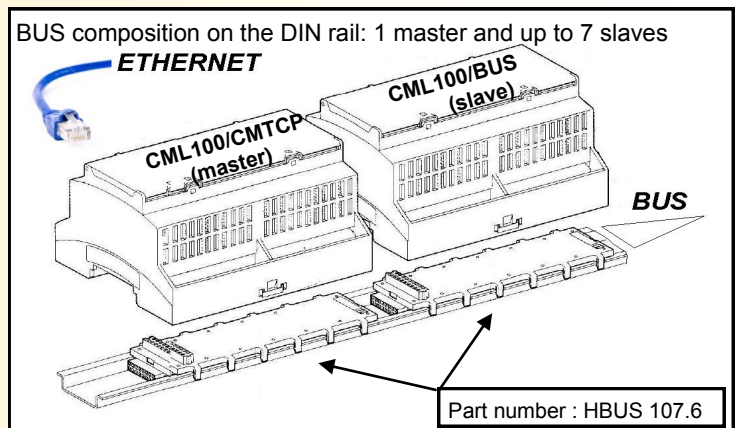
Feature:
- symmetrical DIN rail mounting
- Connection on spring terminal block (max section 1.5 mm ²)
- Conformal coating.
- Protection rating: IP20

Configuration:
The device can be configured via the front panel or with the serial RS232.
USB - RS232 cable supplied separately .
Firmware update is possible via this serial link

Communication (option):
- Ethernet : Modbus TCP 10/100 T base (RJ45 connection)
- Modbus RS485 (connection on screw terminal)

BUS composition on the DIN rail: 1 master and up to 7 slaves

ETHERNET

CML100/BUS (slave)

CML100/CMTCP (master)

BUS

Part number : HBUS 107.6

Version and order code:

Request a quote ✉

CML100t-6-4f	: 6 Pt100 sensors in 4 wires connexion
CML100t-4-3f	: 4 Pt 100 sensor in 3 wires connexion
CML100t-8-3f	: 8 Pt100 sensors in 3 wires connexion
CML100t-16-2f	: 16 Pt100 or Pt1000 sensors in 2 wires connexion
CML100ctn-16-2f	: 16 CTN sensors in 2 wires connexion
CML100tc-16	: 16 thermocouples J,K,S,T
CML100tiodc	: 16 split core current transformer Tio-dc
	http://www.loreme.fr/fichtech/Tio_eng.pdf
CML100mA-8	: 8 current inputs : 0..4….20 mA
CML100mA-16	: 16 current inputs : 0..4….20 mA
CML100V-16	: 16 voltage inputs : 0..1..5..10 V
CML100j-6-4f	: 6 strain gauge in 4 wires connexion

Options /R	: 2 alarm relays

Communication :

CML100xxxx/CMTCP	Ethernet MODBUS TCP link
CML100xxxx/BUS	Slave version on internal Bus (MODBUS TCP)
	(up to 8 modules on the bus : 1 /CMTCP + 7 /BUS)
CML100xxxx/SNMP	Ethernet link with SNMP protocol
CML100xxxx/CM	RS485 MODBUS 9600 bps link
	(no BUS on the DIN rail in MODBUS or SNMP)

User handbook -> 📄 **PDF** **E 1**

TECHNICAL SPECIFICATIONS

INPUT (16 bits resolution)

Type	Range	Accuracy
Voltage	- 12 Vdc to 12 Vdc	+/- 0.01 V
Input impedance	500 kOhms	
Current (DC)	- 30 mA to 30 mA	+/- 0.01 mA
Input impedance	50 Ohms	
Current (AC) :	up to 100 Aac	+/- 0.8%
	(from 3% to 110% of input range)	

With small split core CTs, Hole diameter 12 mm.
Reference: Tio dc http://www.loreme.fr/fichtech/Tio_eng.pdf

Pt100 / Pt1000 2, 3 wires	-200.....800 °C	+/- 0.3 °C
influence of cable resistance: 0.02 ° C / ohms (20 ohms max)		
Pt100 4 wires	-200.....800 °C	+/- 0.1 °C
influence of cable resistance: 0.003 ° C / ohms (20 ohms max)		
Measure current	< 700 uA	

The accuracy on 2 wires connection depends on the resistance
of the probe wires (offset adjustment is possible).

CTN (R0 and Beta configurable) 0ohms...3Mohms   +/- 0.2%

Thermocouples : (configurable) other type on request

Tc J	-200.....600 °C	+/- 0.4 °C
Tc K	-200.....1350 °C	+/- 0.5 °C
Tc S	0.......1600 °C	+/- 1.5 °C
Tc T	-250.....400 °C	+/- 0.5 °C
Compensation T°	*-10 / 60 °C*	*+/- 0.6 °C*

thermocouple sensor break detection current = 0.5 uA.
Measure cycle   6 per second

COMMUNICATION
Ethernet 10 /100 T Base, RJ45 connectors
Web server, Modbus TCP Port 502, SNMP

RELAY
Switching power: 250VAC   1A

POWER SUPPLY (to be define on order)
11 to 30 Vdc, 20 to 70 Vac-dc, 80 to 265 Vac-dc (3 VA)

ENVIRONMENT

Operating temperature	-20 to 60 °C
Storage temperature	-20 to 85 °C
Thermal drift	< 0.01 % / °C
Humidity	85 % not condensed
Weight	250 g
Protection rating	IP 20
Dielectric strength:	
Input/power supply/relay/communication:	1500 Vrms continuously
input/input :	no isolation, common ground
MTBF (MIL HDBK 217F)	> 3 000 000 Hrs @ 25°C
life time	> 200 000 Hrs @ 30°C

Electromagnetic compatibility 2014/30/UE / Low Voltage Directive 2014/35/UE		
Immunity standard for industrial environments EN 61000-6-2		**Emission standard for industrial environments EN 61000-6-4**
EN 61000-4-2 ESD	*EN 61000-4-8* AC MF	*EN 55011*
EN 61000-4-3 RF	*EN 61000-4-9* pulse MF	
EN 61000-4-4 EFT	*EN 61000-4-11* AC dips	*group 1*
EN 61000-4-5 CWG	*EN 61000-4-12* ring wave	*class A*
EN 61000-4-6 RF	*EN 61000-4-29* DC dips	

WIRING AND OUTLINE DIMENSIONS:

Synoptic:

On account of the constant technologies and standards evolution, LOREME keeps the possibility to modify the specifications of the included products without notice.