

# Silo temperature monitoring unit for digital sensors

CML36N **LOREME**

- **46 temperature measures per module**  
2 or 3 wires digital sensors  
DS18B20 type for sensor elements  
automatic detection of the sensors in the probe

- **Power supply and communication bus**  
Incorporated into the DIN rail.  
32 modules Interconnection

- **1 Ethernet Modbus TCP link**  
for all the BUS,  
1472 measurement points.  
Embedded Web Server



- **ATEX dust zone 21 and 22 :**  
boxed, the whole is certified : II 2 D Ex tb IIIC T80°C Db

- **Open solution:**  
full compatibility with digital silo sensors: AMi and OPi (2 or 3 wires)  
Advantageously replaces these solutions: the failure of a sensor does not cause the loss of several probes (probe bus separation)  
evolving system: introduction of a new digital sensors type by product firmware update



The CML36N is a bus inter- connectable monitoring unit, allowing temperature measurement via digital silo probes. A bus can integrate up to 32 silo probes of 46 sensors points on a single Ethernet link.

**Description :** The digital temperature silo probes are using a communication bus called "one wire", data flows bidirectional on one wire, two other wires are used to power the probe. Each internal temperature sensor in the silo probe has a unique 64 bit ID and a 8 bits position register (register is initialized during the manufacturing process to define the location of the measurement point inside the silo probe).

**Operation :** At each silo probe reading, a specific search algorithm automatically determines how many temperature points are present in the probe. Once all the points are identified, the unit performs a reading of the temperature and the position of each sensor and processes these values (alarm management, display, making them available on the Ethernet, .....

**Security :** All data exchanges are controlled by a "checksum" to ensure relevance of the measures. A transmission error automatically leads to a reiteration.

Each probe is entirely reset prior each reading to ensure a perfect measurement reliability and prevent false alarms.

**Front face:**

- Measure display: Green LEDs 7 segments 3 digits, resolution 0.1 °C
- Probe absence detection (display : Abs).
- One push button on the front face for the manual selection of displayed temperature point. (automatic return to the maximum temperature display of the probe after a 30sec delay)
- One push button under the front face, for configuration ( number of measure point , address, ...)

**Features:**

- Mounting on DIN rail (symmetrical)
- Communication bus (built-in DIN rail)
- Connection on spring terminal block (max section 1 mm<sup>2</sup>)
- Conformal coating.
- Protection rating: IP20

**Configuration / update:**

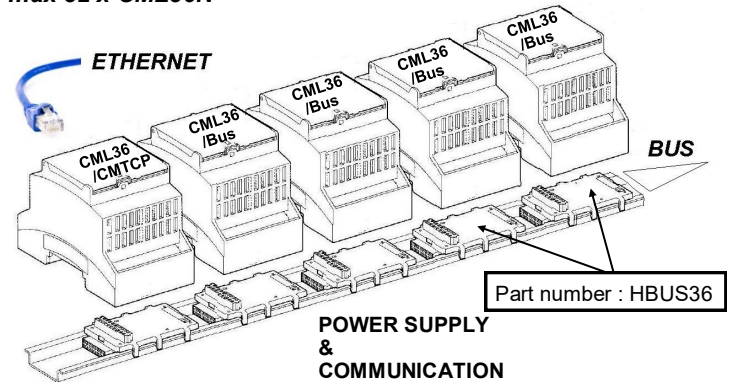
The device can be configured via the front panel.  
Firmware update is possible via serial link  
(USB cable available separately.)

**Communication:**

- Modbus TCP over Ethernet 10/100 T base (RJ45 connection)

**Bus composition on DIN rail**

max 32 x CML36N



**Version and order code:**

[Request a quote](#)

**CML36N/CMTCP**  
**CML36N/BUS**  
**HBUS36**  
**NAPPE-HBUS**

Master module with the Ethernet MODBUS TCP link  
Slave module on the internal bus  
Connecting element for the internal bus.  
Interconnection ribbon cable (length 50cm)  
(for bus continuity on another DIN rail)

**Box ATEX IP66**  
reference: 06.25 40 12

400mm x 250 mm x 121 mm polyester case, provide with  
10 cable gland M20 for sensor input  
1 cable gland M20 for power supply (5..9mm)  
and 1 cable gland M25 for communication (10..16mm)  
(certification for whole CML36N + box)  
dust zone, protection by enclosure  
the box can include up to 10 CML36N

**BZN7760ac**

- Zener barrier for use with intrinsically safe sensors ( ia or iad )

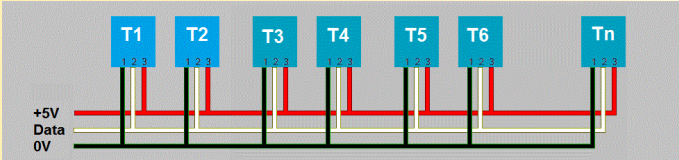
**Measures**

Type	Range	Accuracy
Digital sensor	-55.....125 °C	+/- 0.5 °C (-10°C/+85°C)
2 or 3 wires assembly (automatic detection)		
Supported sensor type : DS1820, DS18B20		
9 or 12 bits resolution according to sensor type.		
Internal bus Refresh: 6 seconds (1472 measures)		

**COMMUNICATION**

Modbus TCP over Ethernet 10 /100 T Base Port 502  
RJ45 connector. Web server embedded

**Internal detail of digital silo temperature probe**



Some digital probe have only two wires (they works in a mode called "*parasitic power*", 5V and 0V are internally connected) This type of connection reduces the allowable distance between the probe and electronics.  
The typical maximum length is 200 meter with 3 wires shielded cable.

**Auxiliary POWER SUPPLY**

12 ..... 32 Vdc		
consumption:	(CML36/CMTCP)	60 mA typical @ 24V
consumption:	(CML36/BUS)	25 mA typical @ 24V

**ENVIRONMENT**

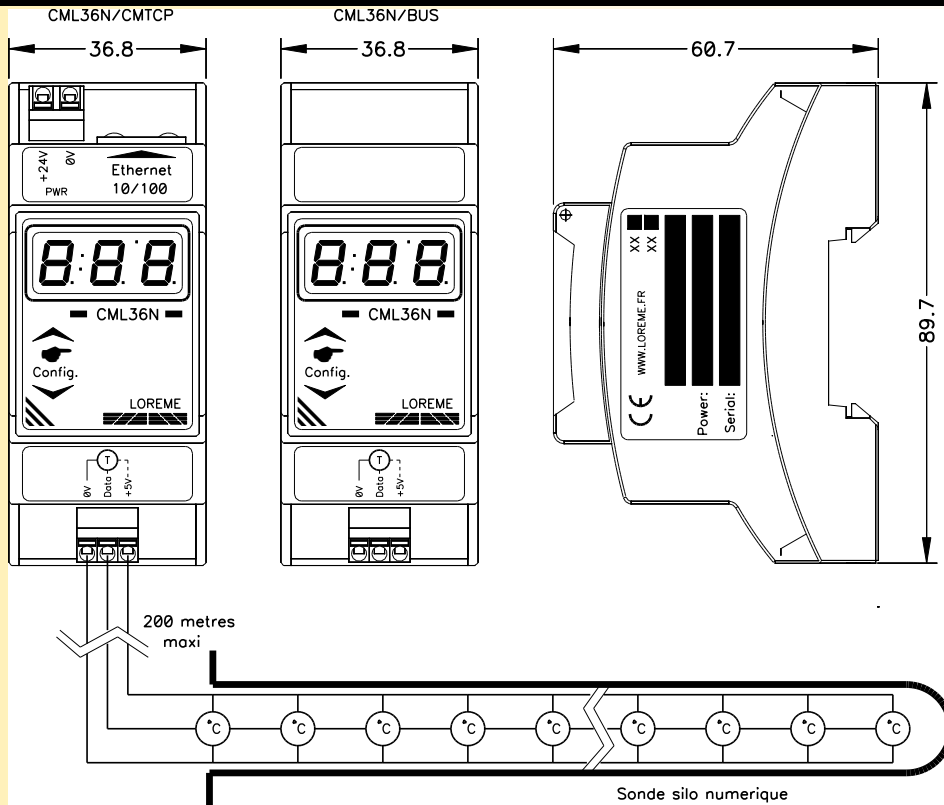
Operating temperature	-20 to 65 °C
Storage temperature	-20 to 85 °C
thermal effect	none
Relative humidity	85 % not condensed
Weight	100 g
Protection rating	IP 20
Dielectric strength:	input / power supply: no isolation
	input / Ethernet communication: 500 V
MTBF (MIL HDBK 217F)	> 500 000 Hrs @ 25°C
life time	> 130 000 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 group 1 class A
EN 61000-4-3 RF	EN 61000-4-9 pulse MF	
EN 61000-4-4 EFT	EN 61000-4-11 AC dips	
EN 61000-4-5 CWG	EN 61000-4-12 ring wave	
EN 61000-4-6 RF	EN 61000-4-29 DC dips	



**WIRING AND OUTLINE DIMENSIONS:**



**Zener barrier for use with intrinsically safe sensors: Zone 0, 1, 2 (gas or dust application)**

