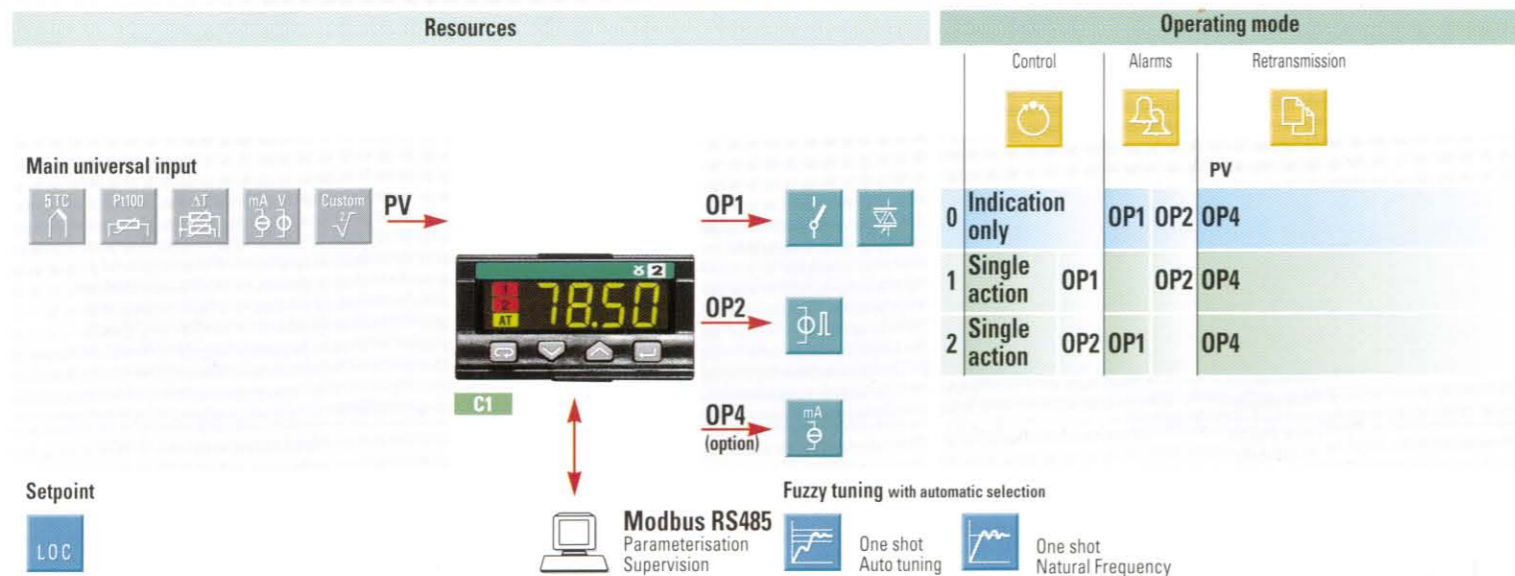




gamma2[®]

Restricted rooms and reduction of the instrumentation overall dimensions	1/32 DIN - 48 x 24 Size
Easy replacing and fast start-up	Configuration by codes
Correct tuning at any condition	Automatic selection between two different methods
Conversion and retransmission of low level signals	Transmitter with isolated and continuous output
Contactless temperature measures	Indicator with infrared input ability
Alarm signalling	Absolute and deviation alarms
Interfacing with other devices	Serial communications at 9600 baud Modbus/Jbus protocol, continuous retransmission output
Quick learning	Every model have the same operating mode
Chromatic compatibility with other devices	Two colours: a light one and a dark one
Need to wash up working environment	IP65 front panel protection
Easy to use	Ergonomic keyboard, clear and complete display
Installation in environment with electromagnetic disturbances	Electromagnetic compatibility higher then the requested one by the specifications
Various input signals, linear and not linear	Configurable input (TC, TR, mA, Volt and ΔT, infrared sensor, custom linearisation)
Reliability and safety warranty	CE compatibility, ISO 9001 certified, 3 years warranty
Technical support	Technical background and availability of sales and after sales service



Technical data

Features at env. 25°C	Description
Total configurability	From keyboard or serial communications, the user selects: <ul style="list-style-type: none"> - the type of input - the associated functions and the corresponding outputs - the type of control algorithm - the type of output and the safe conditions - the type and functionality of the alarms - the values of all the control parameters
Common characteristics	A/D converter with 50.000 points Update measurement time : 0.2 sec Sampling time : 0.5 sec Input shift : ± 60 digits Input filter : 1...30 sec (OFF= 0)
Accuracy	0.25% ± 1 digit (T/C and RTD) 0.1% ± 1 digit (mA and mV)
PV input (for signal ranges see table 1)	Resistance thermometer Pt100Ω at 0°C (IEC 751) °C /°F selectable
Thermocouple	L,J,T,K,S (IEC 548) °C /°F selectable
DC input (current)	0/4...20mA with 2.5Ω ext. Shunt Rj > 10MΩ
DC input (voltage)	0/10...50mV Rj > 10MΩ
Operating modes	Indicator with 2 alarms 1 PID loop or ON/OFF with 1 alarm
Control mode	Algorithm: P.I.D. with overshoot control or ON/OFF Proport. band (P): 0.5...999.9% Integral time (I): 0.1...100.0 min. Derivative time (D): 0.01...10.00 min. Cycle time: 1...200 sec.s Overshoot control: 0.01...1.00 High limit: 100.0...10.0% Hysteresis: 0.1...10.0%
OP1 output	SPST relay N.O., 2A/250V(for resistive load) Triac, 2A/250V~ for contactor coil
OP2 output	Logic not isolated: 5V~, ± 10%, 30mA max
AL1 alarm (indicator with 2 alarms)	Hysteresis 0.1...10.0% range Active high: Absolute threshold, whole range Active low: Hysteresis 0.1...10.0% range
AL2 alarm	Action: Active high, Active low, Special function Action type: Deviation threshold ± range, Band threshold 0...range, Absolute threshold, whole range Special function: Sensor break
Setpoint	Up and down ramps: 0.1...999.9 digit/min (OFF= 0) Low limit: from low range to high limit High limit: from low limit to high range
OP4 (option)	Galvanically isolated: 500V~/1min Resolution: 12bit (0.025%) Accuracy: 0.1%
PV retransmission output	Current output: 0/4...20mA 750Ω/15V max
One-shot Fuzzy-Tuning	Depending the process condition, the controller applies the best method Step response, Natural frequency
Ser. com.s (opt.)	RS 485 isolated, Modbus/Jbus protocol 1200, 2400, 4800, 9600 bit/sec, two wires
Aux. p. supply	+18V- ±20%, 30mA max for external transmitter supply

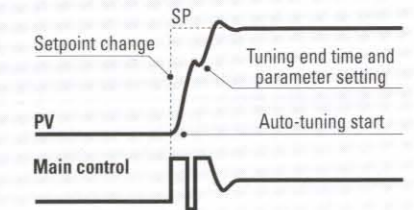
Input type	Scale range
RTD	-99.9...300.0 °C
Pt100Ω at 0°C	-99.9...572.0 °F
T/C type L	-200...600 °C
Fe-Const.	-328...1112 °F
T/C type J	0...600 °C
Fe-Cu 45% Ni	32...1112 °F
T/C type T	0...600 °C
Cu - CuNi	-200...400 °C
T/C type K	-328...752 °F
Cromel Alumel	0...1200 °C
T/C type S	32...2192 °F
Pt10%Rh-Pt	0...1600 °C
0/4...20 mA	32...2912 °F
0/10...50 mV	Configurable engineering units
mV Custom scale	mA, mV, V, bar, psi, Rh, ph
	On request

Table 1 : PV input

Fuzzy Tuning

Two methods of tuning are available:
 - **Auto-Tuning "one shot"**
 - **Natural frequency "one shot"**
 The **Fuzzy-Tuning** automatically selects one of the two methods which assure the best result for each condition.

The **Auto-Tuning** works on the step response method basis. When launched, if exist a deviation between Setpoint and process variable larger than 5% of scale range, the controller modifies the output value. Then it calculates the PID parameters in a short time. The new algorithm it is immediately operating. The main advantages of this method are fast calculation and easy launching.



The **Natural frequency** method works when the process variable is very near to the Setpoint. When launched it causes the process oscillation around the Setpoint value. The main advantage of this method is the accurate calculation of the algorithm.

