



Pneumatic Controllers Series 200

Series 200 pneumatic controllers are blind instruments designed for directly measuring a temperature or a pressure which is automatically controlled by a pneumatic control unit that in turns operates a control valve or any other pneumatic device.

Indicating controlling instruments with a receiving element for 3 to 15 psi (or 0.2 to 1 bar) pneumatic signal from a remote transmitter of any variable are also available.

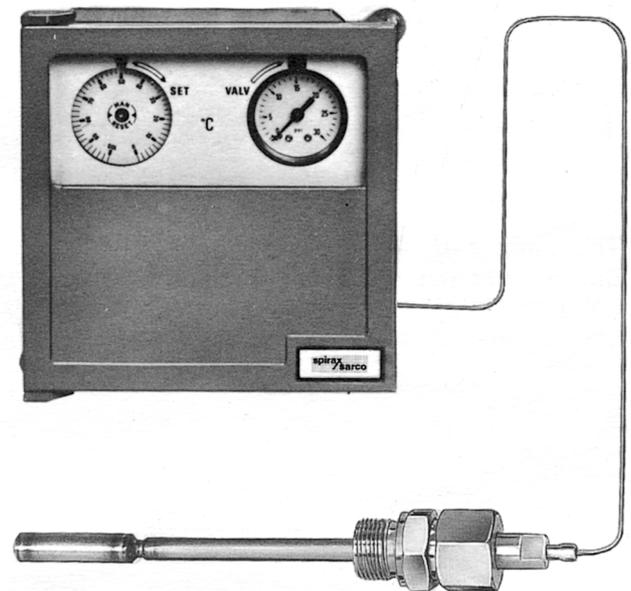
The measuring element is a bellows element for low pressure or a spiral stainless steel Bourdon tube for pressure, a **gas filled** system with bulb and capillary for temperature and tombac bellows for the pneumatic signal.

The control unit is available in three versions for **on-off** mode **proportional** mode with narrow proportional (3 to 10% of span range) and **proportional (P)** with wide range (2 to 50% of span range).

The proportional controller are equipped with a manual reset device.

Proportional band is adjustable by means of a graduate index and also the action of the control unit (direct or reverse) may be easily selected in the field by the proportional band setting index. The control unit is fitted with an amplifying relay to assure the maximum speed of response. Set point adjustment may be manually done operating the setting dial.

The instrument is provided with pressure gauge for the output air control signal indication.



Instrument case of reduced size is dust and sprayproof and fitted with accessories for wall or flush panel mounting; optionally instrument may be supplied with accessories for 2" pipe support mounting.

Case internal pressurization is possible on request. Compressed air for instrument supply must be filtered, oil free and completely dry; a pressure of 20 psig (1.4 bar) is required.

MEASURING SYSTEMS

Temperature

Nitrogen filled thermometer system for temperature ranging from -100°C to 600°C ; bulb and capillary are in AISI 316 L stainless steel; cylindrical bulb for liquids, available also in sanitary execution for food industry, pharmaceutical processes, ecc, or spiral bulb for air and gas. The standard capillary length is 2 or 5 m; the maximum length may be 10 meters.

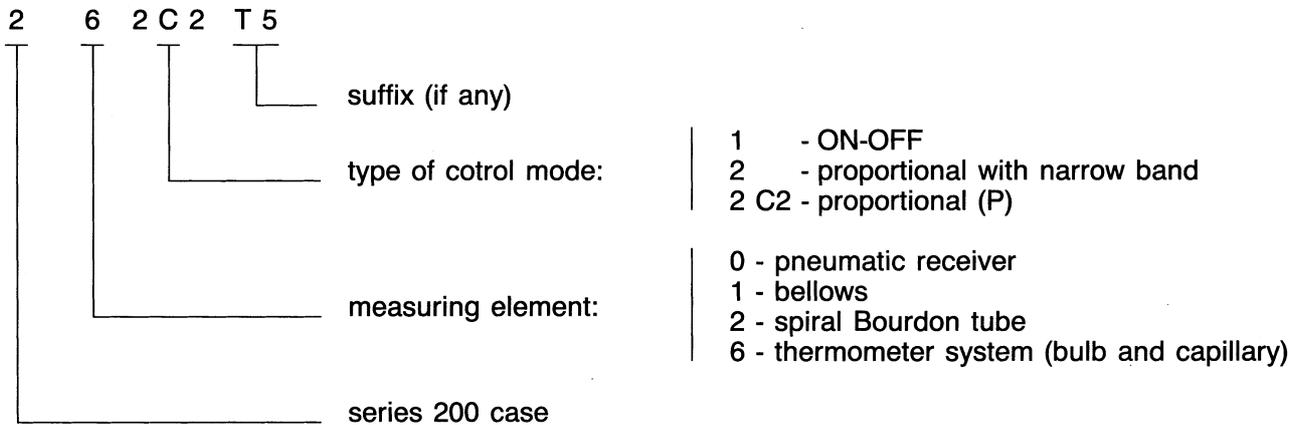
Pressure

AISI 316L stainless steel **Bourdon tube** element for pressure up to 200 bar; a diaphragm separator with capillary is available for application with very viscous or corrosive fluids. Tombak or AISI 316 L **bellows** element for low pressure measurement.

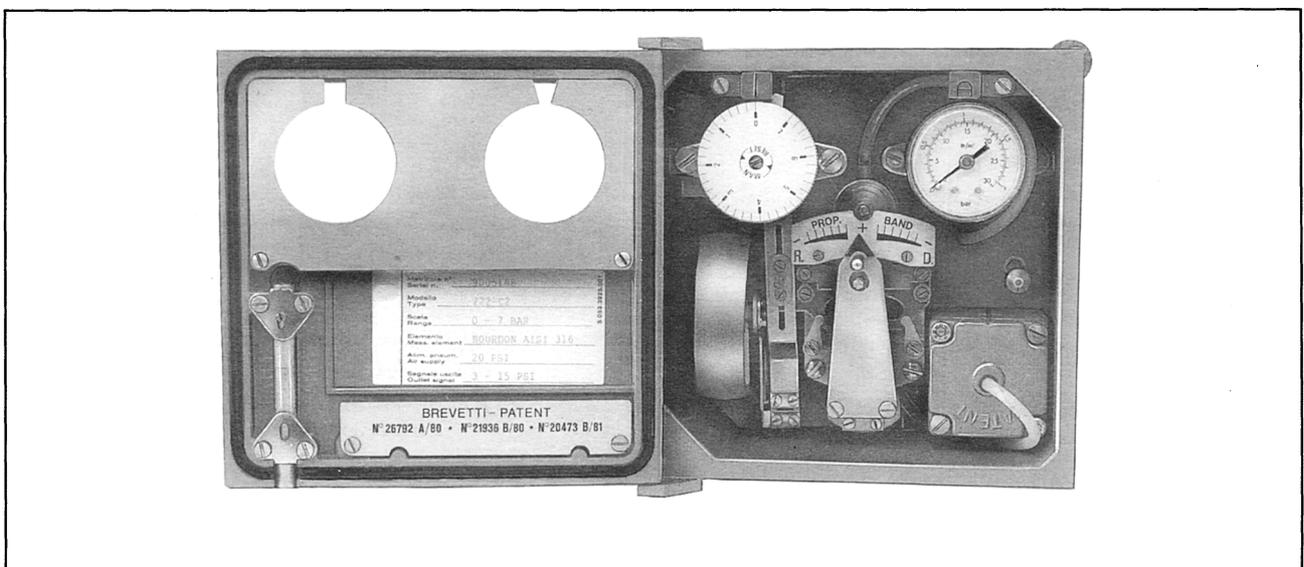
Pneumatic receiving element

Tombak bellows for 3 to 15 psi or 0.2 to 1 bar signal from pneumatic transmitter.

The model number, which identifies the general characteristics of the instrument, is composed by a number of three digits often followed by an alphanumeric suffix. The meaning of digits and letters is explained with an example.



The suffix is used in order to complete or give complementary informations about the characteristics of the instrument, for example: T5 means that the thermometric element is nitrogen filled and has a cylindrical bulb while T5 Sy means that the nitrogen filled thermometer system is fitted with a sensing bulb in sanitary execution and T6 that the system is nitrogen filled and equipped with spiral bulb for air and gas.



GENERAL SPECIFICATIONS

Type of instrument	blind pneumatic controller for temperature, pressure or 3 to 15 psi (0.2 to 1 bar) pneumatic signal
Measuring limits	<ul style="list-style-type: none"> • pressure: 0 to 200 bar with Bourdon tube 0 to 5000 mm W.G. with bellows element • temperature: —100 to 600°C
Accuracy	1% of range span
Sensitivity	0,2% of range span
Repeatability	0,5% of range span
Linearity	0,5% of range span
Action	<ul style="list-style-type: none"> • direct action: control signal increases on increasing of the variable • reverse action: control signal decreases on increasing of the variable action can be easily selected on the field
Control modes	<ul style="list-style-type: none"> • ON-OFF • proportional with manual reset (narrow band) • proportional (P) with manual reset (wide band)
Differential	1% of range span; not adjustable (ON-OFF instruments only)
Proportional band	<ul style="list-style-type: none"> • adjustable from 3% to 10% of the scale span for instruments with narrow band • adjustable from 2% to 50% of the scale span for instruments with wide band (C2 suffix)
Control signal	3 to 15 psi or 0.2 to 1 bar for modulating control mode 0-20 psi or 0-1.4 bar ON-OFF control mode
Set point	manually adjustable on instrument by graduated dial
Air supply	compressed air at 20 psi ± 1.5 psi (1.4 bar ± 0.1 bar)
Air consumption	0.2 Nm ³ /h (average)
Air connections	1/4" NPT female for air supply, control signal and signal to the receiving element if any
Process connections	<ul style="list-style-type: none"> • pressure: 1/4" NPT female threaded for Bourdon measuring element 1/8" NPT female threaded for bellows measuring element • temperature: for bulb types, dimensions and connections to process see data sheet 7B.390-E
Ambient temperature limits	maximum +65°C minimum —15°C
Case	die cast aluminium with blue RAL 5010 enamel finish, spray and dust-proof style with standard protection degree IP 54, connection for internal pressurization (optional)
Mounting	<ul style="list-style-type: none"> • wall or flush panel mounting by means of standard fittings • on 2" pipe support with clamp (optional)
Weight	approx. 2 kg
Overall dimensions	see drawings on the next page

STANDARD RANGES OF MEASUREMENT

FOR PRESSURE

With stainless steel Bourdon tube Ranges in bar	— 1 - 0 — 1 - 1 — 1 - 4	0 - 1 0 - 2 0 - 3	0 - 5 0 - 7 0 - 10	0 - 15 0 - 20 0 - 30	0 - 50 0 - 100 0 - 200
With tombak or stainless steel bellows Ranges in mm W.G.	0 - 1000		0 - 3000		0 - 5000
Permissible overpressure	25% of measuring range span				

FOR TEMPERATURE

Measuring spans	30°C*	50°C	100°C	150°C	200°C	250°C	300°C
Ranges in Centigrade degrees	0 - 30	— 25 - 25 — 10 - 40 0 - 50	0 - 100 10 - 110 50 - 150	0 - 150 50 - 200	0 - 200 50 - 250	0 - 250 50 - 300	0 - 300 50 - 350
Permissible overtemperature	25% of measuring range span						

* Available with kerosene filled thermometer system only.

FOR PNEUMATIC RECEIVER

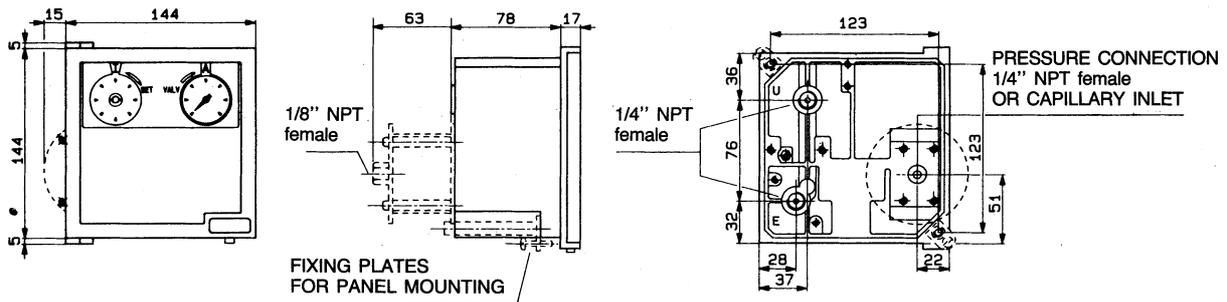
Bellows pneumatic receiver for pneumatic signal 3 to 15 psi or 0.2 to 1 bar	The available ranges are the same of instrument fitted with measuring element. Anyhow the control range must be the same of that of the pneumatic transmitter connected with. Scales for special variables and ranges available on request.
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DATA REQUIRED FOR OFFERS AND WHEN ORDERING Example

Type of instrument	pressure indicating controller
Type of control	proportional (P)
Measuring control range	0 - 10 bar
Fluid in contact with measuring element	superheated steam at 250°C
Mounting style	flush panel
Ambient temperature variations	between 5 and 30°C

DIMENSIONS (mm)

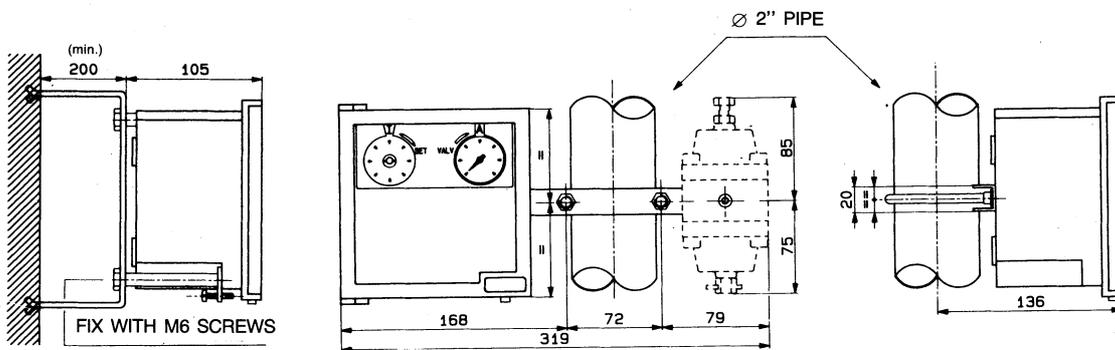
DIMENSIONS AND CONNECTIONS



The dashed part is related to model 212 instruments equipped with bellows measuring system

E = Air supply connection (air inlet)
U = Signal connection (air outlet)

WALL OR PIPE STAND MOUNTING



The mounting support can be of extended type allowing also the air regulator clamping.

PANEL MOUNTING

