

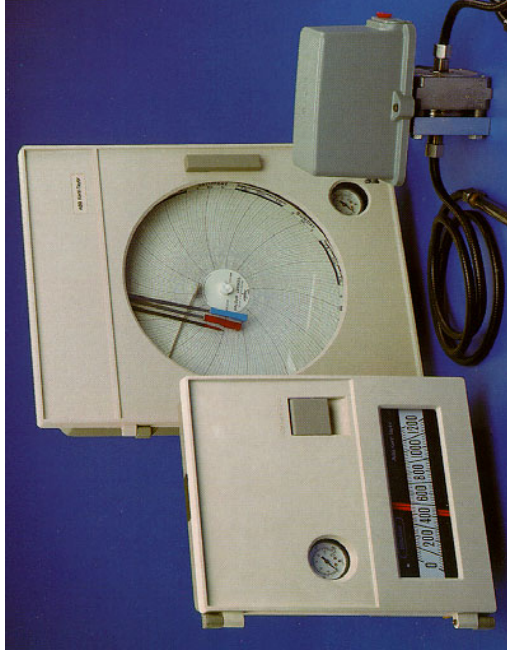
# **PNEUMATIC INSTRUMENTS**

## **A GUIDE FOR REPLACEMENT OPPORTUNITIES**



# Pneumatic Instruments

- **FOOD**
- Slaughter
- Rendering
- Meat Packing
- Grain Mills
- Grain Dryers
- Retorts
- Tomato Peelers
- Pea Graders
- Flash Freezers
- Cold Storage
- Canneries
- Extracts
- Candy



- **Beverage**
- Brewing
- Soft Drinks
- Juices
- Carbonation
- Milk
- CIP
- Syrup Blending
- Evaporators
- Fillers
- Bottle / Cap Lines
- Fermentation
- Distillation
- Heat Exchangers

## WHERE ARE THEY ?

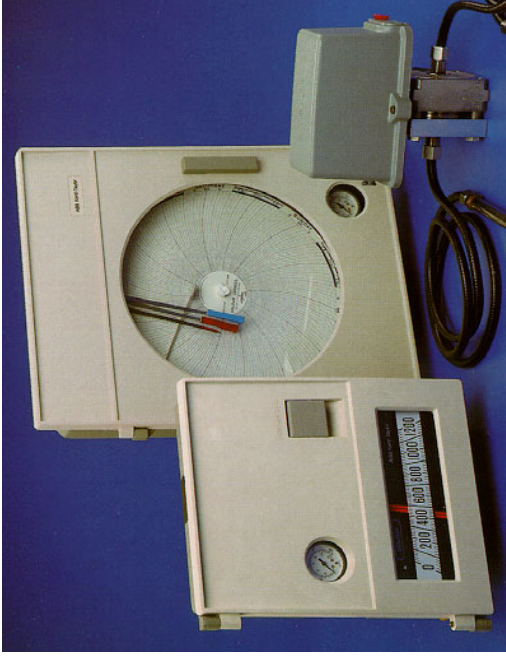
- **Metals**
- Mining
- Heat Treating
- Air Handling
- Water Management
- Drugs
- Lumber
- Paper
- Oil / Gas Production
  - Processing
  - Distribution

- **Chemicals**
- Textiles
  - Dying
  - Cloth
  - Carpet
- Power
- Air Conditioning
- Rubber
- Munitions
- Military
- Micro - Chip



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## Pneumatic Instruments



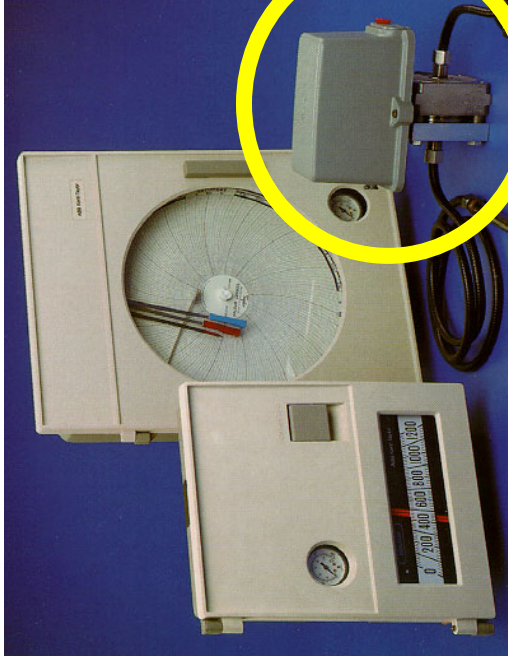
### WHERE ARE THEY ?

- **300T**, about 75 % of the units were sold to Chemical and Petroleum industries
  - Estimated unit sales 50, 000 Circa 1970 through 2000
- **Circular Chart Recorders and Recording - Controllers** , About 70% sold to Food and Beverage Industries
  - Estimated unit sales 100, 000 Circa 1940 through 2001 ( 67% were Recorders )
- **Indicating Controllers**, About 70% were sold to Chemical and Petroleum industries
  - Estimated unit sales 60, 000 Circa 1960 through 2001



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## Pneumatic Instruments



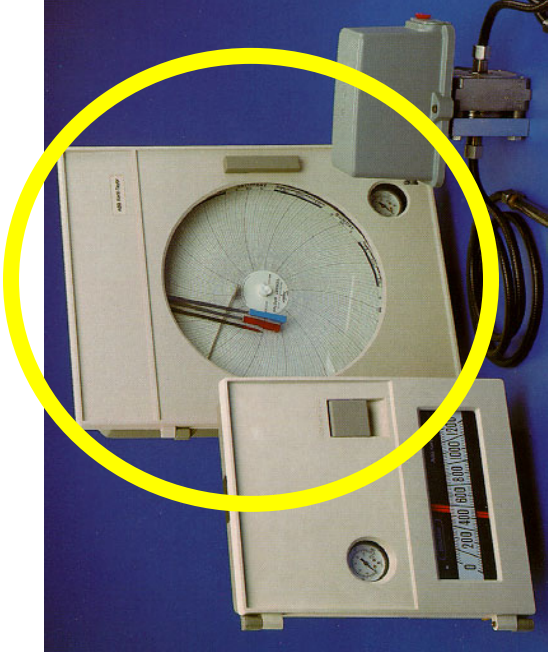
### 300T SERIES TRANSMITTERS

- The last of the 300T series was discontinued in November, 2000
- Replaced by the DELTAPI series



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## Pneumatic Instruments



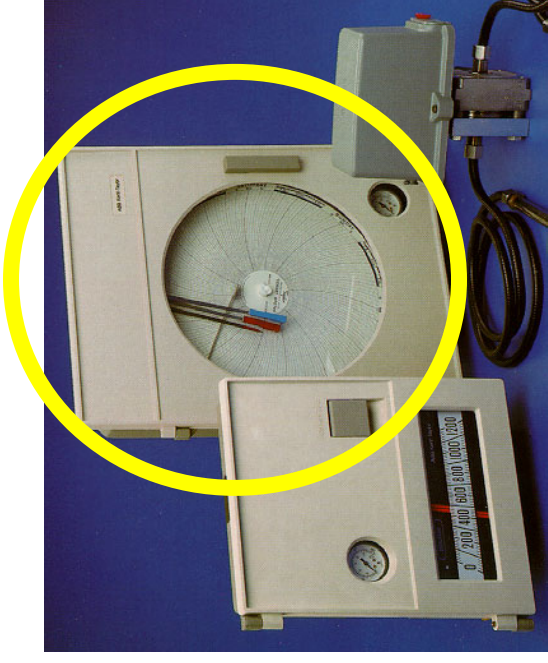
### Fulscope Circular Chart Recorders and Recording Controllers

- All are made up from and specified as of 2 separate components
  - The instrument case
  - Measurement sensor system
- Could be as many as 3 measurement devices in the instrument case
- **All forms can be replaced by COMMANDER 1900**
  - **The trick is to try and fit the C1900 between the existing equipment**
    - Have everything come out right
    - At a reasonable cost



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## Pneumatic Instrument Number Structure



### WHAT IS BEING REPLACED?

First letter in the Fulscope's base model number is the key to defining the instrument type. ( Could be as many as 4 digits before the first letter)

- J = Recorder
- K= Indicator
- R= Controller
- T = Transmitter

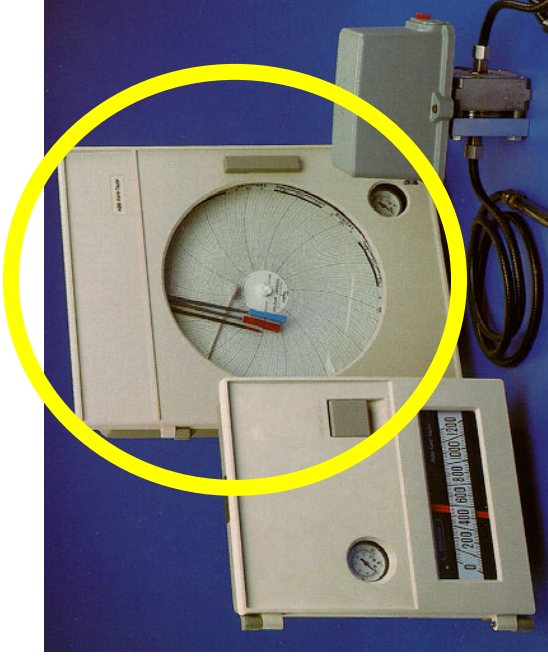
EXAMPLE = 76J

**REPLACE ALL WITH THE EQUIVALENT C1900**



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## Pneumatic Instrument Number Structure



### WHAT IS BEING REPLACED?

The second letter in the Fulscope's base model number is the key to defining the measuring element type.

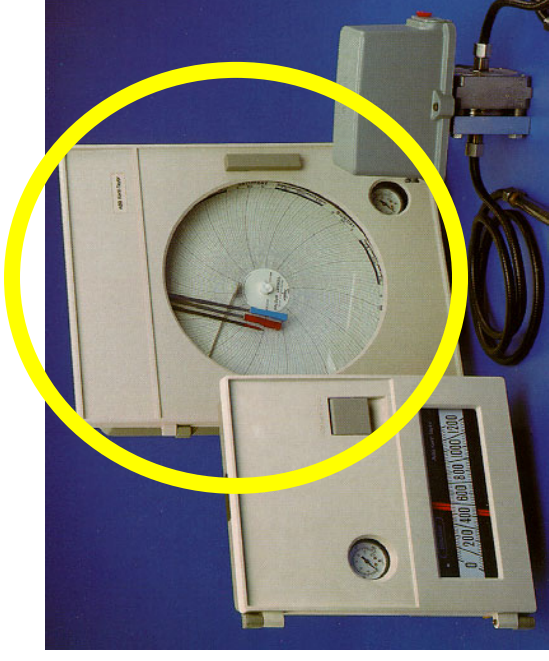
- **G, M, R, S, V**, each defines fill fluids for **TEMPERATURE MEASUREMENT**
- Replace these with an RTD or Thermocouple
- Match up insertion dimensions as closely as possible
- Match up process connection fitting exactly
  - Ask your customer

EXAMPLE = 76JV



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## Pneumatic Instrument Number Structure



### WHAT IS BEING REPLACED?

The second letter in the Fulscope's base model number is the key to defining the measuring element type.

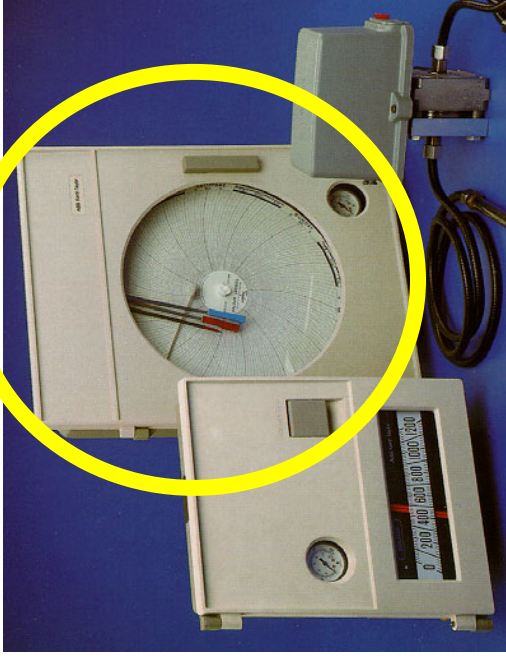
- **A, C, D, F, N, Z** all define forms of pressure elements
- Replace these with the equivalent electronic **TRANSMITTER**
- Match up the calibration ranges exactly
- Match up process connection fitting exactly
  - Ask your customer about the maximum working pressures involved.

EXAMPLE = 76JF



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## Pneumatic Instrument Number Structure



### WHAT IS BEING REPLACED?

The second letter in the Fulscope's base model number is the key to defining the measuring element type.

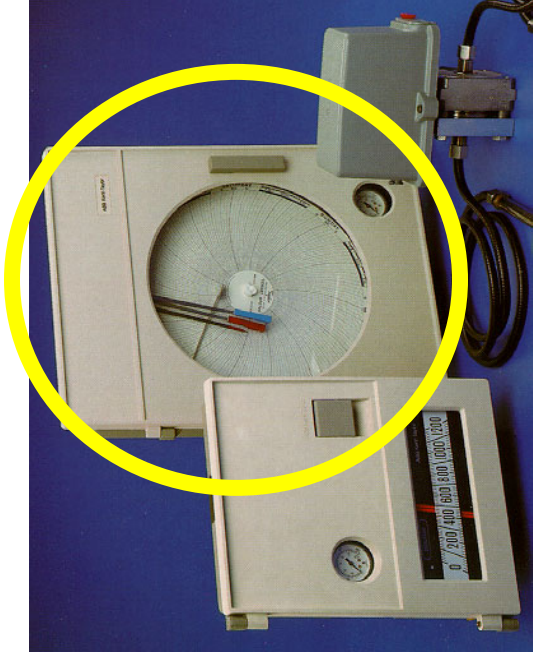
- **T**, defines all forms of electronic inputs ( RTD , current, Thermocouples )
- No need to supply interface; existing inputs can be directly connected to the C1900
- Match up the Chart ranges exactly

EXAMPLE = 76JT



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## Pneumatic Instrument Number Structure



### WHAT IS BEING REPLACED?

The second letter in the Fulscope's base model number is the key to defining the measuring element type.

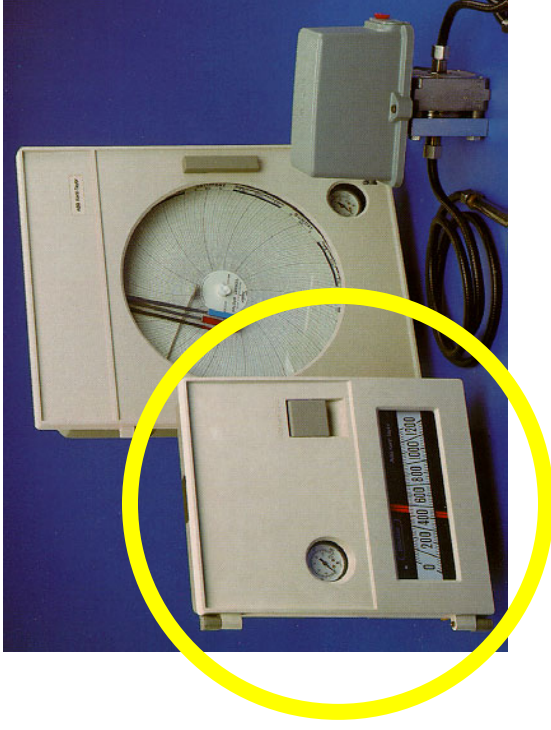
- **B, U, W, Y, H, E**, all define combinations of Temperature and Pressure elements
- These will all be 2 input instruments
- Replace the Temperature system with an RTD or Thermocouple
- Replace the Pressure system with the equivalent electronic **TRANSMITTER**
- Match up the calibration ranges exactly
- Match up process connection fittings exactly

EXAMPLE = 76JW



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## Pneumatic Instruments



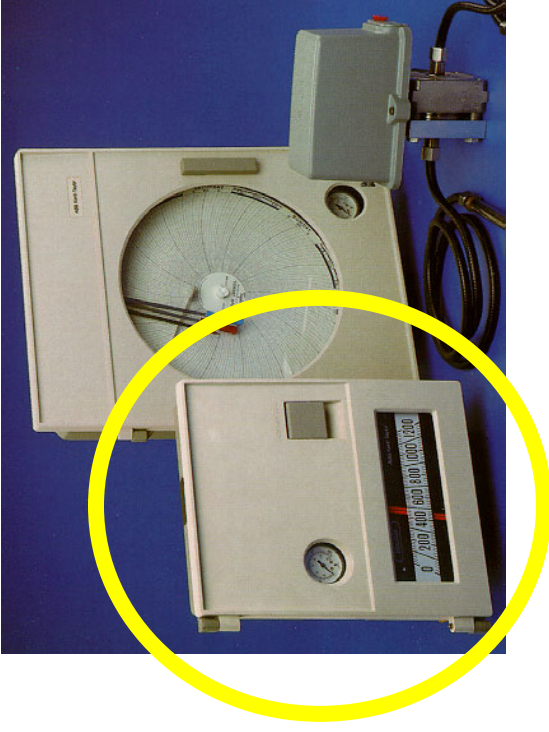
### 440R series Indicating Controllers

- All are made up from and specified as of 2 separate components
  - The instrument case
  - Measurement sensor system
- All forms are **single loop controllers** and **all can be replaced by COMMANDER 310**
- **The trick is to try and fit the C310 between the existing equipment**
  - Have everything come out right
  - At a reasonable cost



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## Pneumatic Instrument Number Structure



### WHAT IS BEING REPLACED?

instrument type.

- K= Indicator
- R= Controller
- T = Transmitter

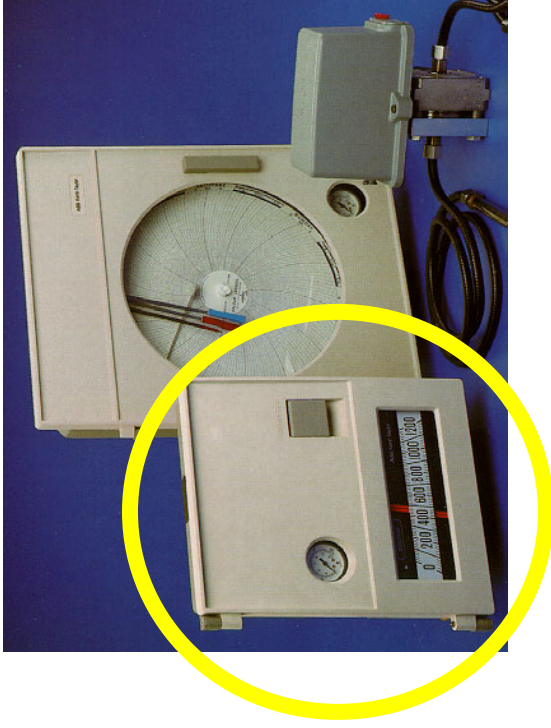
EXAMPLE = 442R

**REPLACE “R” WITH THE EQUIVALENT C310**  
**REPLACE “K or “T” WITH THE EQUIVALENT C160**



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## Pneumatic Instrument Number Structure



### WHAT IS BEING REPLACED?

The second letter in the 440 series base model number is the key to defining the measuring element type.

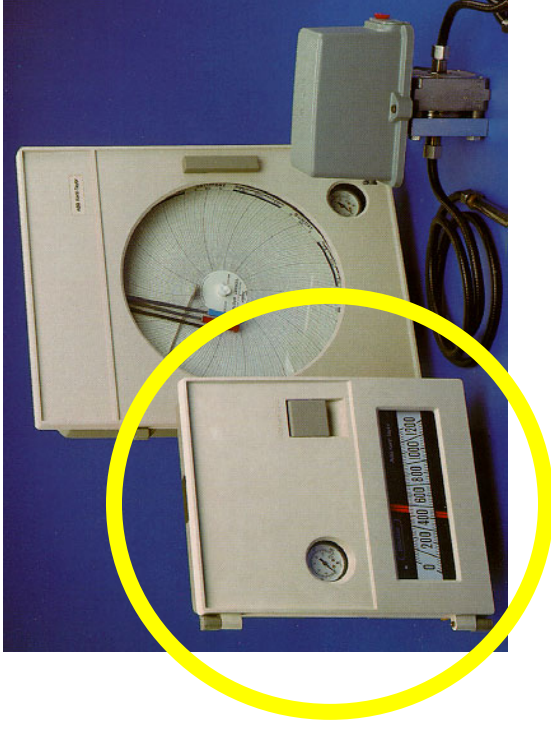
- **G, M, R, S, V**, each defines fill fluids for **TEMPERATURE MEASUREMENT**
- Replace these with an RTD or Thermocouple
- Match up insertion dimensions as closely as possible
- Match up process connection fitting exactly
  - Ask your customer

EXAMPLE = 442RV



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## Pneumatic Instrument Number Structure



### WHAT IS BEING REPLACED?

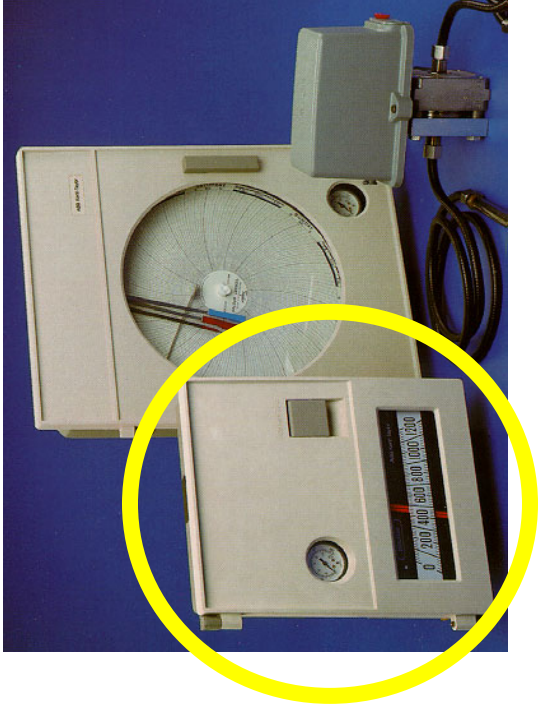
- **A, C, D, F, N, Z** all define forms of pressure elements
- Replace these with the equivalent electronic **TRANSMITTER**
- Match up the calibration ranges exactly
- Match up process connection fitting exactly
  - Ask your customer about the maximum working pressures involved.

EXAMPLE = 442RF



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## Pneumatic Instrument Number Structure



### WHAT IS BEING REPLACED?

The second letter in the 440 series model number is the key to defining the measuring element type.

- **T**, defines all forms of electronic inputs ( RTD , current, Thermocouples )
- No need to supply interface; existing inputs can be directly connected to the C1900
- Match up the Chart ranges exactly

EXAMPLE = 442RT



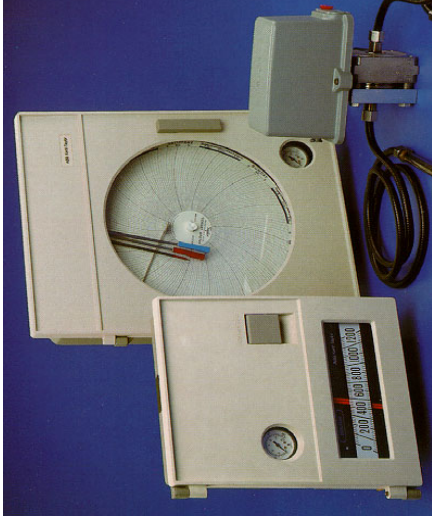
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## SUMMARY PAGE

- All Pneumatic instrument replacement business is in 2 parts
  - The base instrument.... Replace it with equivalent
  - A process measurement sensor.
- Is there an opportunity to replace the measurement sensor ?
  - If the input is 3 to 15 psi use a P/I converter
    - ABB model 18321-0-00112-0
    - if the input is any other form, replace as required
  - If Control is required , supply an I/P converter for the valve's air signal
    - ABB model 18311-0-182210170

### •CAUTION:

- Some Installations may require **Hazardous Location** electrical codes . C310 and C1900 will provide Class 1 Division 2 rating.
  - This is not explosion proof
  - This is not Intrinsically Safe.
  - May need to relocate the instrument to a safe area



For complete information on most all obsolete "TAYLOR" products visit our web site at [www8.abb.com/ustay](http://www8.abb.com/ustay) Click on obsolete products cross reference.

