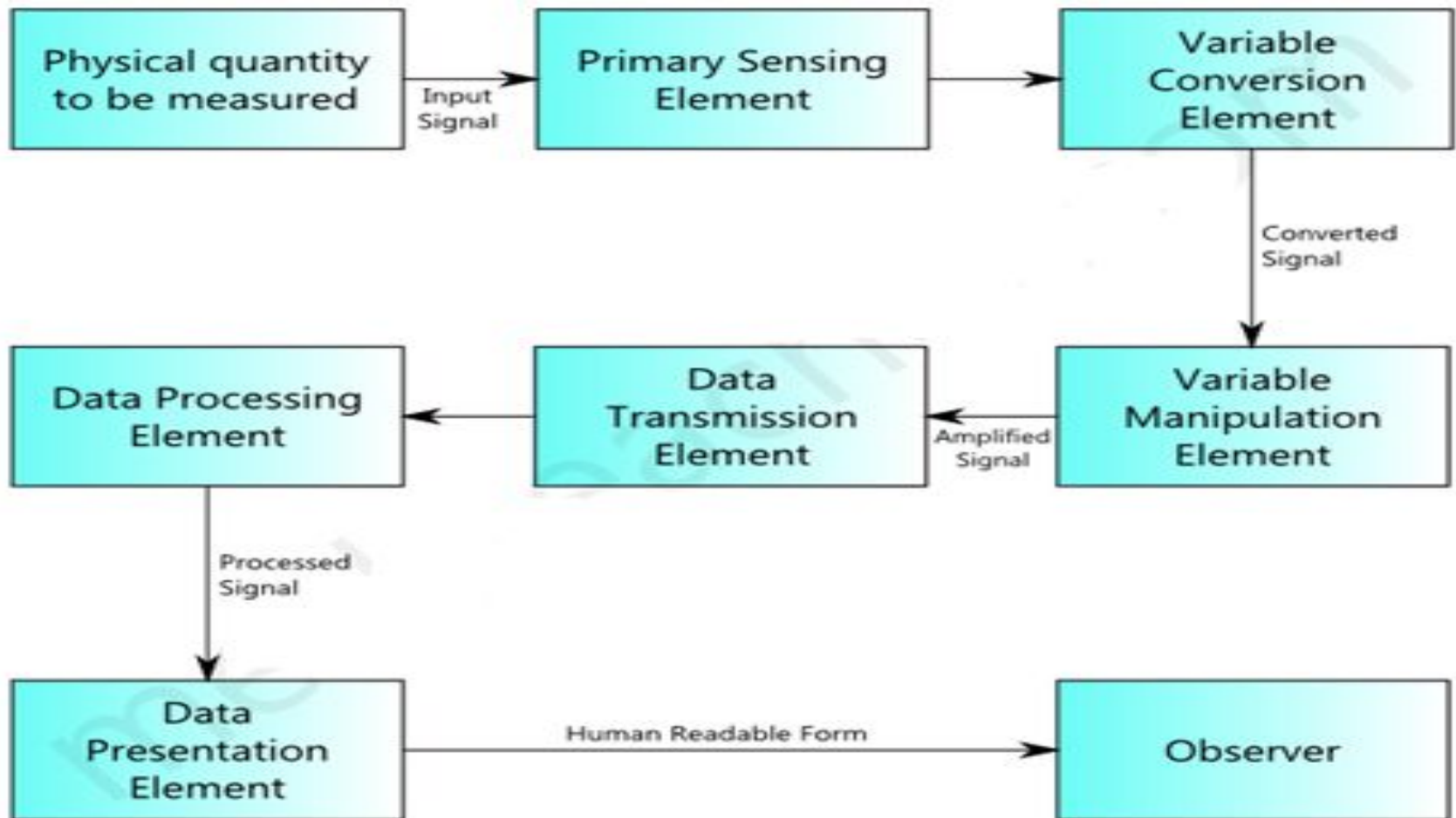


# Generalized measurement system

1. **Primary sensing element**, which senses the quantity under measurement
2. **Variable conversion element**, which modifies suitably the output of the primary sensing element,
3. **Data presentation element** that renders the indication on a calibrated scale

# Generalized measurement system



# Generalized measurement system

- Primary Sensing Element - The measurement first comes into contact with primary sensing element where the conversion takes place. This is done by a transducer which converts the measured quantity into a usable electrical output.
- Variable Conversion Element - The output of the primary sensing element is in the electrical form suitable for control, recording and display. For the instrument to perform the desired function, it may be necessary to convert this output to some other suitable for preserving the original information. This function is performed by the variable conversion element. A system may require one or more variable conversion suitable to it.

# Generalized measurement system

- Variable Manipulation Element - The signal gets manipulated here preserving the original nature of it. For example, an amplifier accepts a small voltage signal as input and produces a voltage, of greater magnitude. The output is the same voltage but of higher value, acting as a voltage amplifier. Here the voltage amplifier acts as a variable manipulation element since it amplifies the voltage. The element that follows the primary sensing element in a measurement system is called signal conditioning element. Here the variable conversion element and variable manipulation element are collectively called as Data Conditioning Element or Signal Conditioning Element.
- Data Transmission Element - The transmission of data from one another is done by the data transmission element. In case of spacecraft, the control signals are sent from the control stations by using radio signals.  
The stage that follows the signal conditioning element and data transmission element collectively is called the intermediate stage.

# Generalized measurement system

- Data Presentation Element - The display or readout devices which display the required information about the measurement, forms the data presentation element. Here the information of the measured has to be conveyed for monitoring , control or analysis purposes.

In case of data to be monitored, visual display devices are needed like ammeters and voltmeters. In case of data to be recorded, recorders like magnetic tapes, T.V equipment, and storage type CRT, printers, and so on are used.