

Process Control Instruments

PROCESS CONTROL



NK Instruments Pvt. Ltd.

NK Instruments Pvt. Ltd. excels in the field of manufacturing & supply of **Process Control Instruments & Systems** like :

- * Pressure & Vacuum - Digital Gauges / Switches / Transmitters.
- * Differential Pressure - Gauges / Switches / Transmitters.
- * Temperature - Digital Gauges / Switches / Transmitters.
- * Flow - Sensors / Switches / Indicators / Totalizers / Batchers / Transmitters / Flow Metering Systems.
- * Level - Switches / Indicators / Transmitters.
- * Conductivity / TDS - Electrodes / Indicators / Controllers / Transmitters.
- * pH - Electrodes / Indicators / Transmitters.
- * Vibration - Switches.
- * Do2 - Electrodes / Indicators / Controllers / Transmitters.
- * Customized Process Control Instruments & Systems.



Pressure Switches & Vacuum Switches

Category	Range	Repeat Accuracy	Type of Enclosure
Fixed Differential	0 to 250mmWc Vacuum	2%	IP54, IP65, IP66, Ex-proof
	0 to 760mmHg Vacuum	2%	IP40, IP54, IP65, IP66, Ex-proof
	0 to 150 up to 0 to 2500mmWc	1%	IP40, IP54, IP65, IP66, Ex-proof
	-1 to 0.213 up to -1 to 1000 bar	1% or 1.5%	IP54, IP65, IP66, Ex-proof
Adjustable Differential	0 to 1000 bar	2%	IP65, IP66, Ex-proof
	0 to 760mmHg Vacuum	2%	IP54, IP65, IP66, Ex-proof
	0 to 150 up to 0 to 2500mmWc	1%	IP54, IP65, IP66, Ex-proof
Adjustable Differential for Compressor	-1 to 1 up to -1 to 700 bar	1% or 1.5%	IP54, IP65, IP66, Ex-proof
	2 to 12 Bar	2%	IP44
Fixed Stage Differential	0 to 1 up to 0 to 400 bar	2%	IP54, IP65, Ex-proof
Adjustable Stage Differential	0 to 1 up to 0 to 400 bar	2%	IP54, IP65, Ex-proof
Dual Pressure	1 to 400 bar	2%	IP66, Ex-proof
Electronic Pressure Switch	-1 to 2500 bar	2%	IP40, IP65, Intrinsically Safe or Ex-proof
Air Relay Switch	0 to 25 bar	2%	IP66

Pressure/Vacuum Transmitters & Gauges

Types	Accuracy	Enclosure
0.4 to 300 bar Compact Pressure Transmitter with 51 segment Bargraph indication & 0.3" 7 segment 4 digit Red LED display	0.25% FS	IP 65
0 to 1.6 up to 0 to 2000 bar relative or absolutes - Compact Transmitter (optional Sanitary versions)	0.6% FS	IP65 / IP67
100 mbar to 700 bar - Compact Transmitter with Zero & Span adjustment facility (Optional Sanitary Version)	0.25% FS	IP65
100 mbar to 40 bar - Compact Transmitter (Optional Sanitary Version)	0.4%, 0.2%, 0.1%	IP65 / IP67
-1 to 0 bar up to -1 to 25 bar - Compact Transmitter	0.5% to 1%	IP65 / IP 67
-1 up to 500 bar - Smart Transmitter with HEART (Optional Sanitary, Flanged, Remote Seal etc)	0.04% to 0.25%	IP67
0 to 200 bar, 3.6V Battery operated Digital Pressure Gauge. 8 x1 LCD display. Auto switch off facility. Unit Conversion & Tare facility	0.25% FS	IP 65
0 to 1000 bar externally powered Digital Pressure Gauge. Panel mounted or, wall mounted. Unit selection & Tare facility	0.25 to 1% FS	IP 40, IP 54, IP 65 or, Ex-proof

APPLICATIONS : The Pressure, Vacuum & Compound Transmitters / Transducers are used for various applications, where any of those parameters are to be measured, display their reading or, transfer the read data to the remote unit for control action. These instruments are very commonly used for various applications in Pharma and Food plants for sanitary applications, in Autoclaves, Water Treatment & Waste Water Treatment plants, Low pressure applications like AHU, various chemical and petrochemical processes etc.

APPROVALS : ATEX, EHEDG, FDA, MARINE, GOST, 3A, UL, CCOE, WHG(Leakage & overfill) (Dibt),HART, IP65/IP67/IP69.

APPLICATIONS : Pressure Switches are used for Safety Interlock or for pressure Control between 2 Set Points. In applications like Pressure Vessels, Plasma cutting & welding machines, Sterilizers, SPM's, Vacuum base systems, etc. These switches are used as Safety Devices. In applications like Compressors, Fire Fighting Systems, Pressure Chambers, Boilers, Water Treatment Plants, etc.

APPROVALS : CE, ATEX & IECEX by BASEEFA.





Pressure Difference Switches, Gauges, Gauge / Switches & Transmitters

Types	Ranges	Accuracy
Piston type DP Gauge / Switch	0 to 15 mmWc up to 0 to 70 bar	2%
Diaphragm type DP Gauge / Switch	0 to 0.6 mmWc up to 0 to 25 bar	1.6%
Diaphragm type DP Switch	0 to 2 mmWc up to 0 to 25 bar	1%
Compact DP Transmitter	0 to 4 mbar up to 0 to 20 bar	0.5%
Hand Held Pressure & DP Measurement for dry & non aggressive gases	Various ranges from 0 up to 5000 hpa	1%
Digital Differential Pressure Gauge 0 to 200 bar, 3.6V Battery operated Gauge. 8x1 LCD display auto shut off facility. Unit Conversion & Tare facility	0.25% FS	IP 65
Digital Differential Pressure Gauge 0 to 1000 bar externally powered Gauge. Panel mounted or, wall mounted. Unit selection & Tare facility	0.25 to 1% FS	IP 40, IP 54, IP 65 or, Ex-proof
0 to 200 bar, 3.6V Battery operated Gauge. 8x1 LCD display auto shut off facility. Unit Conversion & Tare facility	0.25% FS	IP 65
0 to 1000 bar externally powered Gauge. Panel mounted or, wall mounted. Unit selection & Tare facility	0.25 to 1% FS	IP 40, IP 54, IP 65 or, Ex-proof

APPLICATIONS : These DP Instruments are used for various applications, where the pressure difference between two points are to be measured for the purpose of safety, control action, Indication or, to communicate with another device. These instruments are used for various applications at Filtration Plants, Self Cleaning Filters, AHU's, Dispensing Booths, Across Blowers / Valves / Pumps / Bag Filters / Collector Filters / Pre-Filters / Strainers / Heat Exchangers, orifice for DP Indications or, Control Level Measurement in pressurized tanks, Reverse flow condition monitoring etc.,

APPROVALS : Flameproof to Group IIA, IIB or, IIC CE, ATEX & IECEX by BASEEFA

Temperature Instruments

Temperature Sensors Type	Specifications	Enclosure
RTD's Thermocouples, Leaf-type Thermocouples, Portable Temperature Indicators	Range : -50 to 2000C	IP 65, Ex-proof
Head Mounted Transmitter	I/p : RTD, RTD, T/C, mV and R O/p : 4 to 20 mA, Option : HART Accuracy : 0.1C	IP 65, Ex-proof
Temperature Switch	Range : -10 to 150C Repeat Accuracy : 1%	IP 66, IP 67
Digital Temperature Switch	Range : 200 to 400C Accuracy : 0.2%	IP 65
Temperature, Relative Humidity & Calculated Dew Point	-40 to 80C temperature 0 to 100 RF Humidity	1.5%
Hand Held temperature Thermometer For Mechanical & Electrical moving assemblies & Transformers	-64 to 1400C	1.5%
Digital Temperature Gauge 0 to 400C, 5 V Battery operated Gauge. 8x1 LCD display auto shut off facility. Integral or, Remote Sensor Probe.	0.5% FS	IP 65
Digital Temperature Gauge 0 to 400C externally powered Gauge. Panel mounted or, wall mounted.	0.25 to 1% FS	IP 40, IP 54, IP 65 or, Ex-proof
0 to 400°C, 5 V Battery operated Gauge. 8x1 LCD display auto shut off facility. Integral or, Remote Sensor Probe.	0.5% FS	IP 65
0 to 400C externally powered Gauge. Panel mounted or, wall mounted.	0.25 to 1% FS	IP 40, IP 54, IP 65 or, Ex-proof

APPLICATIONS : Temperature Measuring & Control Instruments are used to measure Temperature in the Process, to indicate the same in Digital Form or to transfer the same data in 4 to 20mA or, RS485, Temperature Switches are used as safety devices in heat process. Commonly used in Food & Pharmaceuticals Plants.

APPROVALS : ATEX, EHEDG, FDA, MARINE, GOST, 3A, HART, IP65/IP67/IP69





Flow Sensors, Meters and Transmitters			
Types	Range	Options	Accuracy
Insertion Paddle Wheel (Analogue Output)	0.06 to 14130 M3/Hr for clear liquids only (Size from 15 up to 450 mm)	Flow Rate Flow Rate + Total Flow Rate + Total + Relay/Batcher Flow Rate + Total + Transmitter	1 to 2% FSR
Insertion Paddle Wheel Battery version (Analogue Output)	0.06 to 14130 M3/Hr for clear liquids only (Size from 15 up to 450 mm)	Flow Rate + Total	2.5% FSR
Electromagnetic Full Bore (Analogue Output)	0.8 to 346 M3/Hr	Flow Rate Flow Rate + Total Flow Rate + Total + Transmitter	0.5% FSR
Electromagnetic Insertion Rod type (Analogue Output)	113 to 11308 M3/Hr	Flow Rate + Total Flow Rate + Total + Transmitter	1% FSR
Mini Turbine (Analogue Output)	0.15 to 60 LPM	Flow Rate Flow Rate + Total Flow Rate + Total + Relay/Batcher Flow Rate + Total + Transmitter	1 to 2% FSR
Ultrasonic Flow Meter Insertion type (Analogue Output)	0.71 up to M3/Hr 50 NB to 4500 NB	Flow Rate + Total Flow Rate + Total + Transmitter (Battery power or, external power)	1% FSR
Ultrasonic Flow Meter Non-Contact type (Analogue Output)	40 up to 4500 mm pipe sizes	Flow Rate + Total Flow Rate + Total + Transmitter	1% FSR
Wheel Flow Indicator (Mechanical Readout)	0.5 to 190 LPM for clear liquids (Size from 6mm up to 40mm)	Only ensure availability of flow of fluid	—
Pelton Wheel Flow Indicator (Mechanical Readout)	0.5 to 190 LPM for clear liquids (Size from 6mm up to 40mm)	Only ensure availability of flow of fluid	—
Ultrasonic Mini Water Flow Meter (Analogue Output)	0.2 to 4.5 M3/Hr (15 to 40 NB) AMR & cellular network ready (5 years Battery life)	RF Communication Increased Meter Reading efficiency through High Performance AMR	3 to 5% FSR

APPLICATION : Insertion Paddle type & Turbine type Flow Meters are used for various common and non-critical applications where liquids are clear like Water, soft chemicals etc. Electromagnetic Flow Meters are suitable only for conductive liquids & slurries like sewage & non treated effluent liquids, paper pulp etc. For checking of liquid flows through various pipe line sizes, without drilling any hole or, cutting the pipe, a Portable Ultrasonic type Flow meters is used. For a permeant use in pipe line, Insertion type Ultrasonic Flow meter is suitable. In both the types, there are no any moving parts, so no pressure drop and no any wear & tear is there in these type of meters. These meters are available with RF communication with data encryption facility. Positive Displacement type flow meters are very high in accuracy, so normally used for expensive fuels like Petrol, Diesel, Solvents, Kerosene, Furnace Oil etc. For the same reason we use them in our flow metering systems like fuel consumption Monitors, Fuel Dispensers, Preset Batchers, Liquid Filling Machines, Tanker Unloading Systems etc., so best accuracies are achieved in the systems. Orifice and Venturi Meters are best for Gases, Vapors and also for liquids. But those are long delivery instruments. Mechanical Flow Gauges can be used to check availability of flow through pipe lines in applications like Coolants, Lubricants, Fuel line on compressors, Turbine Engines & heavy duty machines. Flow gauges also can be used to check flow Direction.

APPROVALS : Flameproof to group IIA, IIB or, IIC.

Flow Switches

Types	Ranges	Options
Blind type	0.4 to 4 ...8 to 80 LPM	With Terminal Strip, with DIN plug (Adjustable set point or, Fixed set point).
Indicating type	0.5 to 1 ...75 to 100 LPM	With 1 or 2 Reed Switches (Adjustable set point or, Fixed set point)
Paddle type : Bellow Or, Magnetic operated	3 to 1000 LPM	With 1 or 2 Reed Switches (Adjustable set point or, Fixed set point)
Paddle type : Bellow or, Magnetic operated	5 to 8000 LPM (adjustable ranges 20 to 1500 LPM)	With 1 or 2 Reed Switches (Adjustable set point or, Fixed set point)
Indicating Pointer type	2 to 60 LPM	With 1 Reed Switch (Adjustable set point or, Fixed set point)

APPLICATIONS : The flow switches are used as safety devices for flowing mediums like liquids or gases. If the flow rate of medium crosses set limit, flow switch will operate. These are commonly used for critical application where flow of Coolants, Lubricants, Fuels is ensured in Burners, Turbines, Engines, Compressors, Cooling Towers, Lubrication Systems, Heating Systems, Heat Exchangers & heavy duty machineries. Air / Gas Flow switches are used for the similar application like Air cooling systems to ensure the availability of sufficient flow of Air

APPROVALS : Flameproof to group IIA, IIB or, IIC





Level Switches

Types	Range	Suitability
SS/PP Magnetic Float	40 mm up to 3000 mm	For Clear & non sticky Liquids only
Displacer	No change	For all types of Clear Waters
PP Cable Float	1000 mm up to 20000 mm	For Clear liquids only
Conductivity	100 mm up to 3000 mm	For Conductive Liquids only
Vibrating Fork for Liquids	Interchange	For Dry Powders, Granules, Grains, Pallets, Steel Balls etc.
Vibrating Fork for Solids	Interchange	For Clear Liquids only
Vibrating Rod	250 mm up to 10000 mm	For Dry Powders, Granules, Grains, Pallets, Steel Balls etc.
Rotating Paddle	115 mm up to 10000 mm	For Dry Powders, Granules, Grains, Pallets, Steel Balls etc.
RF Admittance	250 mm up to 10000 mm	For Fly Ash, Dry Powders, Granules, Grains, Pallets, Steel Balls, Construction Material, Slurries, Sewages, Slug, Paper Pulp etc.
Hydrostatic / Diaphragm type	No change	Suitable for any Non Sticky, Conductive or, Non Conductive Liquids or, Solids
Electromagnetic for Non-Hygenic	40 mm	Suitable for Conductive / Non Conductive Liquids, Paste & Slurries
Electromagnetic for Hygenic	40 mm, 100 mm, or 250 mm	Suitable for Conductive / Non Conductive Liquids, Paste & Slurries with teaching facility. Can be hung or, can be mounted on the threaded or TC connection

APPLICATIONS : Level has to be interlocked or, controlled in various industrial applications. The medium can be Liquids, Solids or, Slurries and it also can be Conductive or, Non-conductive. E.g. Conducting Liquids like water, Treated & Non Treated Effluent, Corrosive Chemicals, Acids, Brines, Solvents, Sewage, Beverages, Juices, Syrups, Paints etc. Non-conducting Liquids like various type of oils. Solids like Powders, Plastic Granules, Grains, Pallets, Steel Balls, Construction Materials like Cement, Sand, Fly Ash & Lime. Pastes & Slurries like Effluent, Paper Pulp etc.

APPROVALS : ATEX, EHEDG, FDA, MARINE, GOST, 3A, UL, CCOE, WHG(Leakage & overfill) (Dibt), IP65/IP67.





Level Gauges, Indicators and Transmitter

Types	Range	Accuracy	Specification
Tubular Glass	0-300 mm up to 0-1500 mm	—	Side Mounted Transparent Glass Tube for liquids
Reflex	150mm up to 1500 mm	—	Side Mounted Transparent Glass Tube for high pressure application
Pointer type Mechanical Level Gauge	0 to 1.5 meters & 0 to 2.5 meter	—	Top Mounted Mechanical Level Indication with ease in mounting (in PP construction)
Follower Float	0 to 500mm up to 0- 1500 mm	Approx. 2%	Side or, Top mounted Mechanical Indicator having Magnetic Float
Bi-color Magnets	0 to 500mm up to 0- 1500 mm	Approx. 4 mm	Side or, top mounted Mechanical Level Indication for liquids using Rolling Magnets & Magnetic Float
Float & Board	0-2 meters up to 0-25 meters	Approx. 5%	Float operated Mechanical Level Indicator for liquid storage tank
Float Type (Analogue Output)	0-300 mm up to 0-3000 mm	Approx. 3 mm	Magnetic Float Operated Liquid Level Indicator- Using Bypass assembly or, Top Mounting Type in Tanks
Capacitance Type (Analogue Output)	0-150 mm up to 0-15 meters	Approx. 1%	Rod type, or Rope type Sensor for Conductive or non-conductive liquids only.
Potentiometric (Analogue Output)	0-200mm up to 0-3000 mm	Approx 0.5%	Perfectly suitable & acceptable for food and pharma applications
Diaphragm type / Submersible Type (Analogue Output)	Gravity pressure from 0 to 100 mbar up to 0 to 20 bar	Approx. 1%	SS Sensors and PP Cable - suitable for clear Liquids only.
Ultrasonic (analogueOutput)	100-27400 mm	Approx. 1%	Non Contact Level Sensor is not suitable for tanks having Vacuum, Foam, High Temperature & high pressure configurable Measuring Range. Compact instrument & available with Hygienic design & Configurable Measuring range.
Radar / Micro Wave (analogueOutput)	300-1000 mm up to 300-3000 mm	Approx. 0.5%	Non Contact Level Sensor is suitable for almost all applications. Compact instrument & available with Hygienic Design & Configurable Measuring Range

APPLICATIONS : There are 4 typical applications for the Level Measuring Instruments
 1) For Level Indication Mechanically, where any Electrical or, battery supply won't be required.
 2) For Level Sensing & Digital Indication of available Level in the tank
 3) For Level Indication & Transmitter for Remote Indication or, Control application.
 Level Measuring Instruments are used very commonly in industries like Chemical & Petrochemical, Paper & Pulp, Food & Drugs , Water Transport & Beverage Construction Industries, Cement Plants etc.

APPROVALS : IP67, ATEX, 3A, Ex, WHG, UL applicant for FDA & EHEDG





Vibration Switches

Types	Type of Switch	Enclosure
Vibration switch with Manual reset	SPCO, DPCO, DPDT Silver or, Gold Contact	IP 67 or, Exproof
Vibration switch with Remote reset	DPST Silver Contacts	IP 67

APPLICATIONS : Vibration Switches are used for protection of rotating plants reciprocating machinery. It can be set in such a way that it will operate above the normal running level of vibration, by activating alarm or shutting down machine / circuits. Once the switch is operated internal micro-switch remains latched until re-set. It is used at various applications like forced Drought Cooling Tower Fans, Heat Exchanger Fans, Axial-flow Booster Fans, Industrial Extractor Fans, Ventilation Systems, Deep-well pump sets, Vibrating conveyors, Industrial Grinding Machines, Centrifuges or, Rock Grinding Machines.

APPROVALS : CE, ATEX, RoHS



Online Conductivity / TDS Meters & Sensors

Types	Ranges	Accuracy
Conductivity / TDS Indicator	1 to 10000 micro S/cm	2%
Conductivity / TDS Indicator with relay	1 to 10000 micro S/cm	2%
Conductivity / TDS Indicator / Transmitter with relay	1 to 20000 micro S/cm 0 to 500 micro S/cm	1%
Conductivity Sensor	Cell constant 0.1 or 1.0	1% to 2%

APPLICATIONS : Conductivity / TDS Meters sense conductivity of flowing liquid through the pipe line. The meter indicates conductivity as well as TDS. Very commonly used in Water Treatment Plants, Conductivity Transmitters are temperature compensated, compact, food compatible with hygienic design. It is insensitive to polarizations, adhesion and solids. These are best suitable for food & pharma applications.

APPROVALS : ATEX, EHEDG, FDA, 3A, IP65/IP67/IP69



Online pH Electrode & Meters

Types	Ranges	Accuracy
pH Electrode with Indicator, pH Electrode with Indicator & 2 Relays, pH Electrode with Indicator & Transmitter, pH Electrode with Indicator & RS 485/RS232	0 to 14 pH	0.25% or, 1% FSD

APPLICATION : In many of the Pharma and beverages industries, DM or, WFI water is used where pH has to be monitored as well as controlled. In Effluent and Sewage treatment also pH has to be maintained after its processing, where pH Meters are essential.





Tailor made Instruments & Systems

There are real needs of various instruments for very specific applications in industries, where customization is required in the instruments or, control systems. Those requirements may not be in a volume. In such a case those type of instruments are not readily available in the market or, with any manufacturers. NK Instruments undertake such jobs also. Few of them are as listed below :

Programmable Process Indicators & Controllers as per specific requirements, RF communication systems with data encryption facility, Remote Walk By automated reading systems, P1/P2 & DP Indicators, Level Controllers, Level Control systems for number of tanks at a time, Water distribution systems, Square Root Extractors, Multi-Channel Indicators / Controllers, Earth Open Controllers, Loop Powered Indicators, Large Sized Digital Indicators, Scrolling Displays, Data Logger, Data Scanners, Data Acquisition Systems, Programmable Timers, Sequential Timers, Batch Controllers, Dosing Controllers, Bar Graph Indicators, RS 232, to RS 485 Convertors, RS 422 to RS 232 Converters, Temperature Humidity Controllers etc.



OUR MISSION

Become a Buddy of all our clients to enhance their business by providing them Reliable & Cost effective solutions.

CORE VALUES

- Reliable** (Follow your commitments)
Resourceful (Supreme importance for acquiring knowledge & eagerness to apply the same)
Respect (Find the jewel in everybody)
Elegance (Graceful presence)
Happy Environment

NK Instruments Pvt. Ltd. do not only provide Process Control Instruments but, the best and reliable technology also to customers, for their industrial process equipment's & systems. NK Instruments Pvt. Ltd., is a resourceful and cost effective Process Instruments providing company, to fulfill and satisfy the clients, within India & countries throughout world. Company covers products for Indication to control process parameters like Pressure, Differential Pressure, Vacuum, Temperature, Level, Flow, Velocity, Vibration, Conductivity, TDS, pH etc. NK Instruments cater solutions to various type of industries like Pharmaceutical / Chemical / Petrochemical / Fertilizers Industries, Defense Areas, Dairy / Refineries & Power Plants, Food / Beverage Industries, Oil / Soap / Detergent Industries, Cement Industries, Paper & Pulp Industries, Glass Industries, Automobile Industries, Foundries, Engineering / Process Industries, various R & D Laboratories, Water Treatment & Reverse Osmosis Plants, Chilling Plants, Gas Mixing Systems, Gas Separations systems, Hydraulic & Pneumatic operating systems,

Fire Fighting systems, Filtrations systems, Heating / Cooling / Lubrication Systems, Centrifuges / Boilers / Reactors / Dryers manufacturers, Medical & Hospital Equipment's, Argon & Spot Welding Machines etc. Our Company has emerged as a formidable force in the market through sheer hard work & ethical business practice. We believe in team work & strictly adhere to high standard of quality. We also like to maintain long lasting healthy business relationship with all. The repeat orders from our clients is the real proof for the satisfaction of our services & quality of our products. Apart from the standard range of instruments we provide variety of customized electronic Indicators & Controllers, Control Panels & Automation Solutions, to match clients specific requirements.

**Lots of combination are possible in our existing product range,
So please be in touch with us to get the correct product for your specific process application.**



NK Instruments Pvt. Ltd.

501-504, 5th Floor, Raunak Arcade, Near THC Hospital,
Gokhale Road, Naupada, Thane (West) - 400 602 India.

* Telefax :- 91-22-25301330/31/32

* Email :- sales@nkinstruments.com

* Website : www.nkinstruments.com

