

P&ID Instrumentation Symbols: Quick Reference

ISA-5.1 tag letters, bubble shapes, location bars and signal lines | intranova.com/pid-instrumentation-symbols/

Identification letters

Letter	As first letter	As succeeding letter
A	Analysis	Alarm
C	User's choice	Control
D	User's choice; mod. differential	Deviation
E	Voltage	Sensing element
F	Flow; mod. ratio	-
G	User's choice	Glass, gauge, viewing
H	Hand (manual)	High
I	Current	Indicate
K	Time, schedule	Control station
L	Level	Pilot light; low
P	Pressure, vacuum	Test point
Q	Quantity; mod. totalize	-
R	Radiation	Record
S	Speed, frequency; mod. safety	Switch
T	Temperature	Transmit
U	Multivariable	Multifunction
V	Vibration	Valve, damper, louver
W	Weight, force	Well, probe
Y	Event, state, presence	Relay, compute, convert
Z	Position, dimension	Driver, actuator

B, J, M, N, O and X omitted. "User's choice" letters are defined on the project legend sheet. mod. = modifier.

Reading a tag

FIC-101

F first letter = measured variable (flow)
I, C succeeding letters = functions (indicate, control)
101 loop number, shared by FE, FT, FIC and FV
H / L at the end = high / low alarm or trip

Bubble shapes: which system



Device



BPCS (DCS)



Computer



SIS or alternate

Location bars: where it is mounted



Field



Main panel



Local panel



Behind main



Behind local

Signal lines



Process piping



Process connection



Electrical (4-20 mA)



Pneumatic (3-15 psi)



Hydraulic



Capillary tube



Data link

Common instrument tags and what a supplier needs next

Tag	Meaning	Ask before quoting
FE, FT	Flow element, flow transmitter	Meter type, fluid, flow range
FQI	Flow totalizing indicator	Units of the total
PT, PI	Pressure transmitter, pressure gauge	Range, gauge or absolute
PDT	Differential pressure transmitter	Differential range, static pressure
LT, LG	Level transmitter, level gauge glass	Tank height, density, open or closed tank
LSHH	Level switch, high-high	Whether it belongs to the SIS
TE, TW, TT	Temperature element, thermowell, transmitter	Range, insertion length
AT	Analyzer transmitter	What is analyzed, sample conditions

The first letter is the measured variable, not the sensing principle.

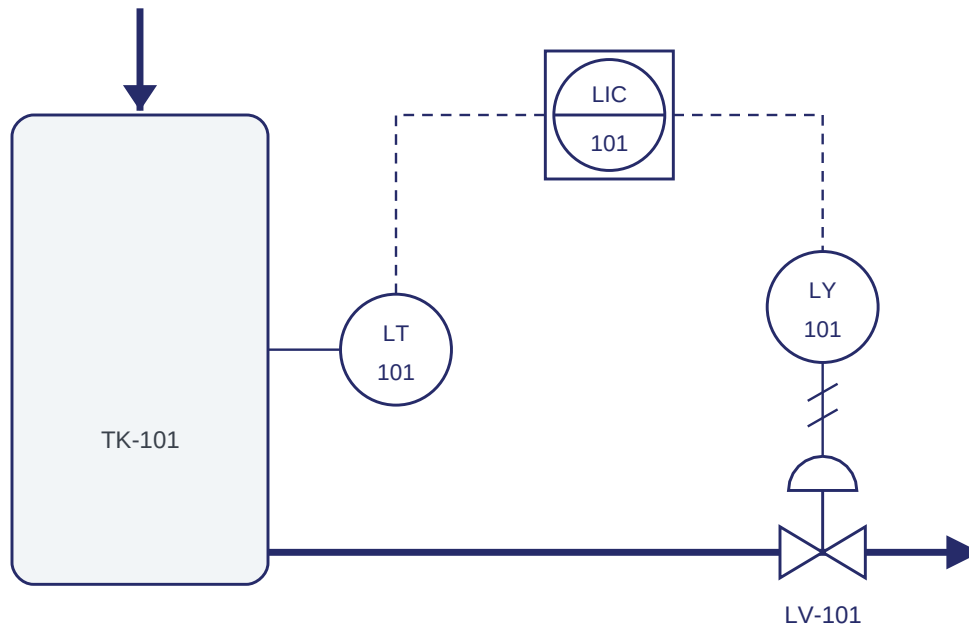
One differential pressure transmitter is FT across an orifice plate, LT on a tank and PDT across a filter.

A control valve takes the first letter of its loop: PV in a pressure loop, LV in a level loop.

Reading a Loop, and What a P&ID Does Not Tell You

Worked example and quote checklist | intranova.com/pid-instrumentation-symbols/

Example: level control loop 101



LT-101: field transmitter (no bar), on the tank through a thin process connection.

LIC-101: controller in the DCS, shown on the main console (circle in a square, one bar).

LY-101: field-mounted current-to-pneumatic (I/P) converter.

LV-101: control valve. It takes the loop letter L although it throttles flow.

Dashed line = 4-20 mA electrical signal. Double slashes = pneumatic signal.

A high-high level trip to the SIS gets its own loop, e.g. LSHH-102.

Before you send a P&ID for a quote, add these five points

1. Fluid, with operating and design pressure and temperature
2. Measuring range and engineering units
3. Line size or tank dimensions, and the process connection
4. Wetted materials and the hazardous-location rating (Class and Division, or Zone)
5. Output and power, for example 4-20 mA with HART on 24 V DC

Notes

The current edition is ANSI/ISA-5.1-2024, retitled Instrumentation and Control Symbols and Identification. Published summaries of the revision describe no change to the letter code, so drawings made to the 2009 edition read the same way.

Older drawings may use a circle in a square for a DCS and a diamond in a square for a PLC. Projects outside North America may use ISO 10628-2 symbols. A P&ID does not replace the instrument index or the datasheets (ISA-TR20.00.01 forms).

Send us the P&ID with the tags you need priced.

Tell us the application and we configure one unit, not a shelf part. intranova.com/contact-us/