

Excerpts from ISA-5.1

	FIRST-LETTER (4)		SUCCEEDING-LETTERS (3)		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	Analysis (5,19)		Alarm		
B	Burner, Combustion		User's Choice (1)	User's Choice (1)	User's Choice (1)
C	User's Choice (1)			Control (13)	
D	User's Choice (1)	Differential (4)			
E	Voltage		Sensor (Primary Element)		
F	Flow Rate	Ratio (Fraction) (4)			
G	User's Choice (1)		Glass, Viewing Device (9)		
H	Hand				High (7, 15, 16)
I	Current (Electrical)		Indicate (10)		
J	Power	Scan (7)			
K	Time, Time Schedule	Time Rate of Change (4, 21)		Control Station (22)	
L	Level		Light (11)		Low (7, 15, 16)
M	User's Choice (1)	Momentary (4)			Middle, Intermediate (7,15)
N	User's Choice (1)		User's Choice (1)	User's Choice (1)	User's Choice (1)
O	User's Choice (1)		Orifice, Restriction		
P	Pressure, Vacuum		Point (Test) Connection		
Q	Quantity	Integrate, Totalize (4)			
R	Radiation		Record (17)		
S	Speed, Frequency	Safety (8)		Switch (13)	
T	Temperature			Transmit (18)	
U	Multivariable (6)		Multifunction (12)	Multifunction (12)	Multifunction (12)
V	Vibration, Mechanical Analysis (19)			Valve, Damper, Louver (13)	
W	Weight, Force		Well		
X	Unclassified (2)	X Axis	Unclassified (2)	Unclassified (2)	Unclassified (2)
Y	Event, State or Presence (20)	Y Axis		Relay, Compute, Convert (13, 14, 18)	
Z	Position, Dimension	Z Axis		Driver, Actuator, Unclassified Final Control Element	

- 1) B27A "user's choice" letter is intended to cover unlisted meanings that will be used repetitively in a particular project. If used, the letter may have one meaning as a firstletter and another meaning as a succeeding-letter. The meanings need to be defined only once in a legend, or other place, for that project. For example, the letter N may be defined as "modulus of elasticity" as a first-letter and "oscilloscope" as a succeeding-letter.
- 2) The unclassified letter X is intended to cover unlisted meanings that will be used only once or used to a limited extent. If used, the letter may have any number of meanings as a first-letter and any number of meanings as a succeeding-letter. Except for its use with distinctive symbols, it is expected that the meanings will be defined outside a tagging bubble on a flow diagram. For example, XR-2 may be a stress recorder and XX-4 may be a stress oscilloscope.
- 3) The grammatical form of the succeeding-letter meanings may be modified as required. For example, "indicate" may be applied as "indicator" or "indicating," "transmit" as transmitter or "transmitting," etc.

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- 4) Any first-letter, if used in combination with modifying letters D (differential), F (ratio), M (momentary), K (time rate of change), Q (integrate or totalize), or any combination of these is intended to represent a new and separate measured variable, and the combination is treated as a first-letter entity. Thus, instruments TDI and TI indicate two different variables, namely, differential-temperature and temperature. Modifying letters are used when applicable.
- 5) First-letter A (analysis) covers all analyses not described by a "user's choice" letter. It is expected that the type of analysis will be defined outside a tagging bubble.
- 6) Use of first-letter U for "multivariable" in lieu of a combination of first-letters is optional. It is recommended that nonspecific variable designators such as U be used sparingly.
- 7) The use of modifying terms "high," "low," "middle" or "intermediate," and "scan" is optional.
- 8) The term "safety" applies to emergency protective primary elements and emergency protective final control elements only. Thus, a self-actuated valve that prevents operation of a fluid system at a higher-than-desired pressure by bleeding fluid from the system is a back-pressure-type PCV, even if the valve is not intended to be used normally. However, this valve is designated as a PSV if it is intended to protect against emergency conditions, i.e., conditions that are hazardous to personnel and/or equipment and that are not expected to arise normally. The designation PSV applies to all valves intended to protect against emergency pressure conditions regardless of whether the valve construction and mode of operation place them in the category of the safety valve, relief valve, or safety relief valve. A rupture disc is designated PSE.
- 9) The passive function G applies to instruments or devices that provide an uncalibrated view, such as sight glasses and television monitors.
- 10) "Indicate" normally applies to the readout—analogue or digital—of an actual measurement. In the case of a manual loader, it may be used for the dial or setting indication, i.e., for the value of the initiating variable.
- 11) A pilot light that is part of an instrument loop should be designated by a first-letter followed by the succeeding-letter L. For example, a pilot light that indicates an expired time period should be tagged KQL. If it is desired to tag a pilot light that is not part of an instrument loop, the light is designated in the same way. For example, a running light for an electric motor may be tagged EL, assuming voltage to be the appropriate measured variable, or YL, assuming the operating status is being monitored. The unclassified variable X should be used only for applications which are limited in extent. The designation XL should not be used for motor running lights, as these are commonly numerous. It is permissible to use the user's choice letters M, N or O for a motor running light when the meaning is previously defined. If M is used, it must be clear that the letter does not stand for the word "motor," but for a monitored state.
- 12) Use of a succeeding-letter U for "multifunction" instead of a combination of other functional letters is optional. This non-specific function designator should be used sparingly.
- 13) A device that connects, disconnects, or transfers one or more circuits may be either a switch, a relay, an ON-OFF controller, or a control valve, depending on the application. If the device manipulates a fluid process stream and is not a hand-actuated ON-OFF block valve, it is designated as a control valve. It is incorrect to use the succeeding-letters CV for anything other than a self-actuated control valve. For all applications other than fluid process streams, the device is designated as follows:
 - A switch, if it is actuated by hand.
 - A switch or an ON-OFF controller, if it is automatic and is the first such device in a loop. The term "switch" is generally used if the device is used for alarm, pilot light, selection, interlock, or safety.
 - The term "controller" is generally used if the device is used for normal operating control.
 - A relay, if it is automatic and is not the first such device in a loop, i.e., it is actuated by a switch or an ON-OFF controller.
- 14) It is expected that the functions associated with the use of succeeding-letter Y will be defined outside a bubble on a diagram when further definition is considered necessary. This definition need not be made when the function is self-evident, as for a solenoid valve in a fluid signal line.
- 15) The modifying terms "high," and "low," and "middle" or "intermediate" correspond to values of the measured variable, not to values of the signal, unless otherwise noted. For example, a high-level alarm derived from a reverse-acting level transmitter signal should be an LAH, even though the alarm is actuated when the signal falls to a low value. The terms may be used in combinations as appropriate. (See Section 6.9A.)
- 16) The terms "high" and "low," when applied to positions of valves and other open-close devices, are defined as follows: "high" denotes that the valve is in or approaching the fully open position, and "low" denotes that it is in or approaching the fully closed position.
- 17) The word "record" applies to any form of permanent storage of information that permits retrieval by any means.
- 18) For use of the term "transmitter" versus "converter," see the definitions in Section 3.

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- 19) First-letter V, vibration or mechanical analysis, is intended to perform the duties in machinery monitoring that the letter A performs in more general analyses. Except for vibration, it is expected that the variable of interest will be defined outside the tagging bubble.
- 20) First-letter Y is intended for use when control or monitoring responses are event-driven as opposed to time- or time schedule-driven. The letter Y, in this position, can also signify presence or state.
- 21) Modifying-letter K, in combination with a first-letter such as L, T, or W, signifies a time rate of change of the measured or initiating variable. The variable WKIC, for instance, may represent a rate-of-weight-loss controller.
- 22) Succeeding-letter K is a user's option for designating a control station, while the succeeding-letter C is used for describing automatic or manual controllers. (See Section 3, Definitions.)