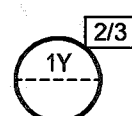


INSTRUMENT SYMBOL IDENTIFICATION LETTERS TABLE

FIRST-LETTER		SUCCEEDING-LETTERS			
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION			CLOSE, STOP, DECREASE	
C	CONTROL			CONTROL	
D		DIFFERENTIAL		OPEN, START, INCREASE	
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)			FAIL
G			GLASS, VIEWING DEVICE		
H	HAND				HIGH OR OPEN
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW OR CLOSE
M	MOTOR, MOTION	MOMENTARY		MOTOR	MIDDLE INTERMEDIATE
N					STATUS (ON-OFF)
O			ORIFICE, RESTRICTION		OVERLOAD
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION	PUMP	
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		RELAY
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS	VELOCITY		VALVE, DAMPER LOUVER	
W	WEIGHT, FORCE		WELL		
X		X AXIS			
Y	EVENT, STATE OR PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR FINAL CONTROL ELEMENT	

EXPLANATORY NOTATIONS

SIGNAL CONVERTERS



NOTE:

1: PROCESS OR INITIATING VARIABLE

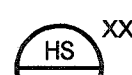
2/3: A = ANALOG
D = DIGITAL
E = VOLTAGE
F = FREQUENCY
H = HYDRAULIC
I = CURRENT

M = MOTOR
O = ELECTROMAGNETIC, SONIC
P = PNEUMATIC
PF = PULSE FREQUENCY
PD = PULSE DURATION
R = RESISTANCE



SMALL CIRCLE SIGNIFIES SIGNAL INVERSION

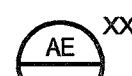
HAND SWITCHES



SELECTOR SWITCH (MAINTAINED CONTACT)



SPRING RETURN SWITCH OR PUSHBUTTONS (MOMENTARY CONTACT)



EXPOSED PROBE OR GAS DETECTOR



TAPPED OR SAMPLED



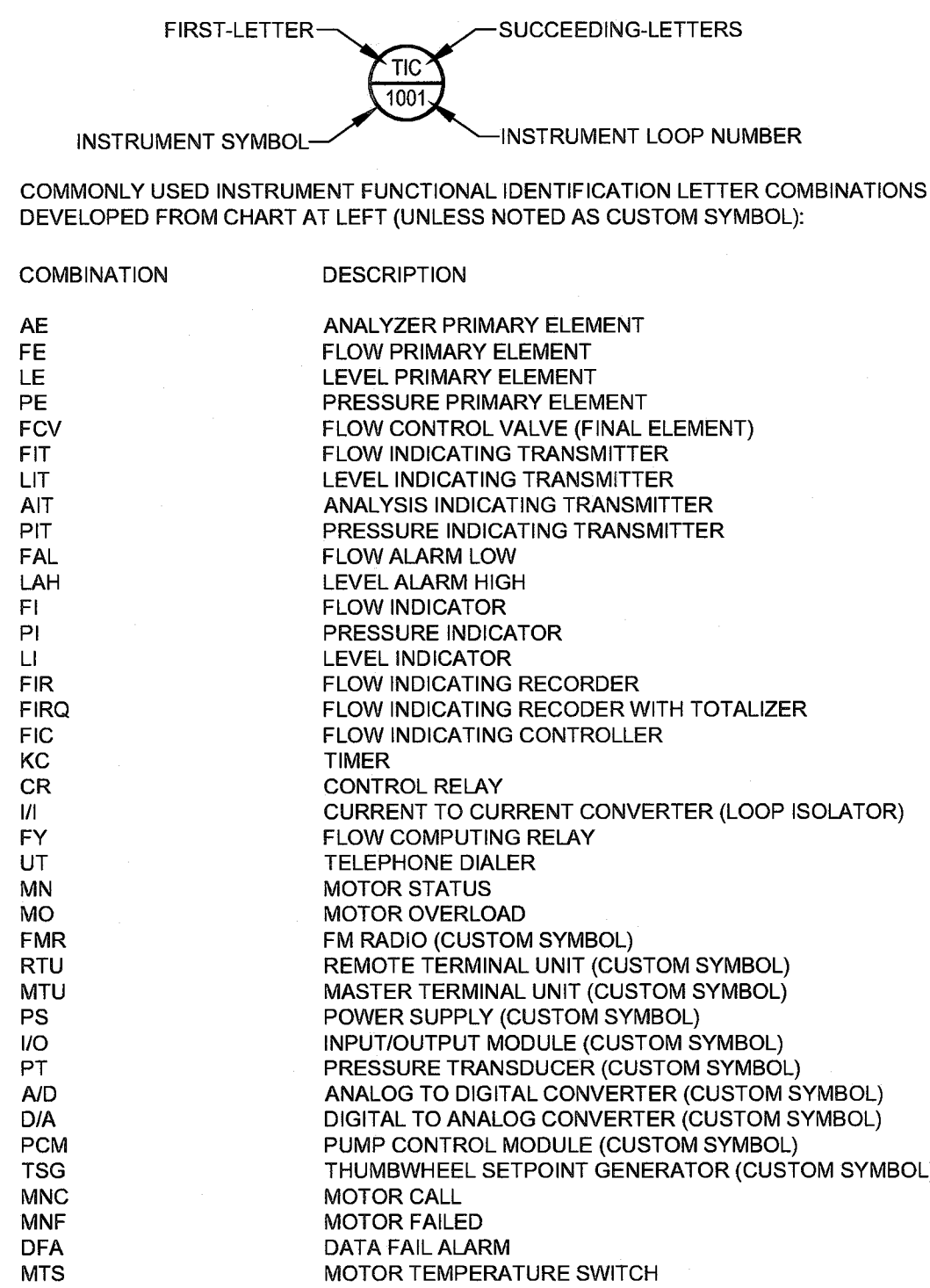
IN-LINE (FLOW THROUGH)

ANALYSIS INSTRUMENTS

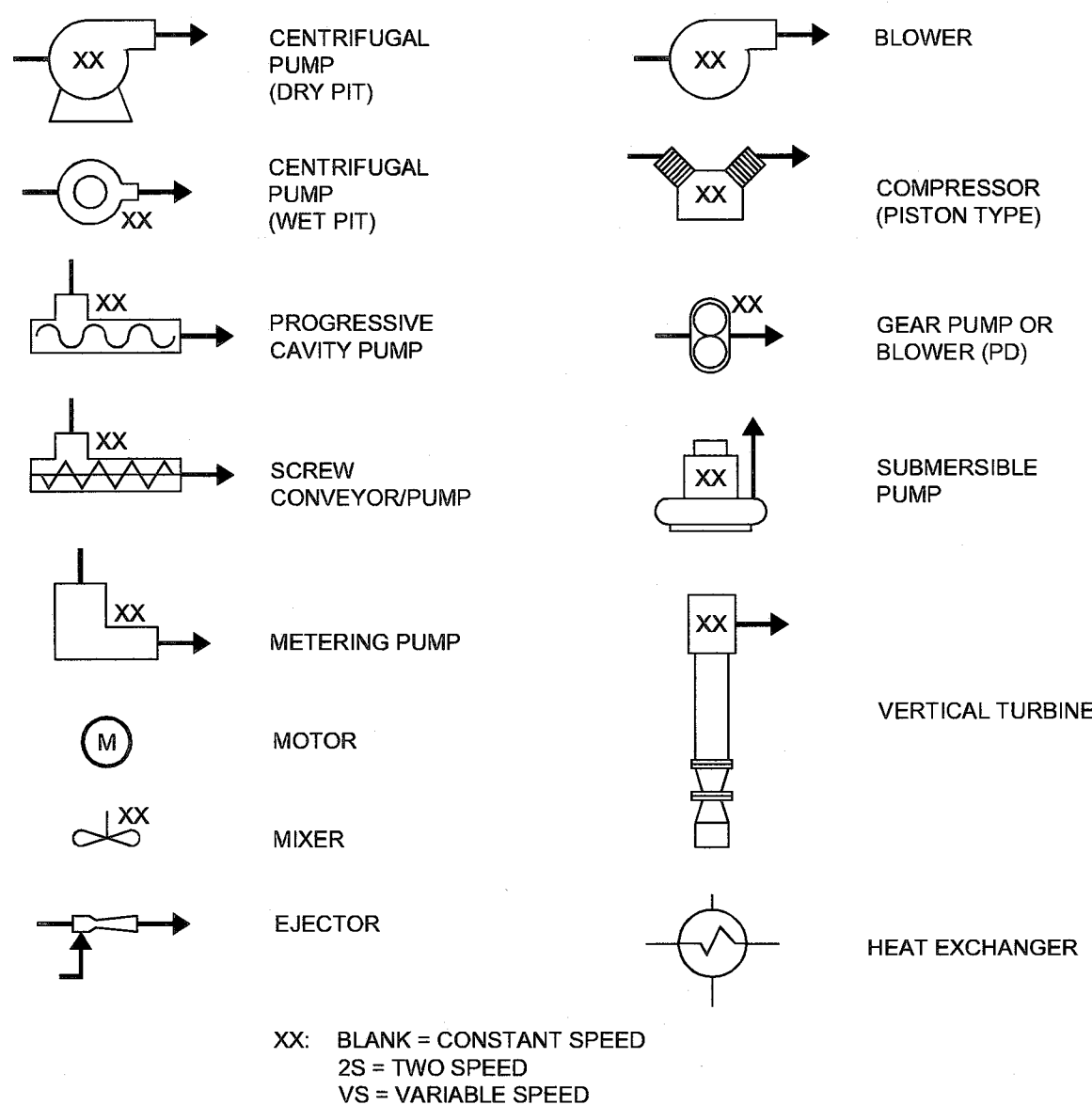
XXX: COL = COLOR
CG = COMBUSTIBLE GAS
CLG = CHLORINE GAS
COG = CARBON MONOXIDE GAS
HC = HYDROCARBONS
H2S = HYDROGEN SULFIDE
NH4 = AMMONIA
OG = OXYGEN GAS
PH = PH
SO2 = SULPHUR DIOXIDE GAS
TOC = TOTAL ORGANIC CARBON

CDG = CARBON DIOXIDE GAS
CH4 = METHANE
CLR = CHLORINE RESIDUAL
DO = DISSOLVED OXYGEN
HUM = HUMIDITY
MHO = CONDUCTIVITY
N2G = NITROGEN GAS
OZG = OZONE GAS
SD = SOLIDS DENSITY
SS = SUSPENDED SOLIDS
TRB = TURBIDITY

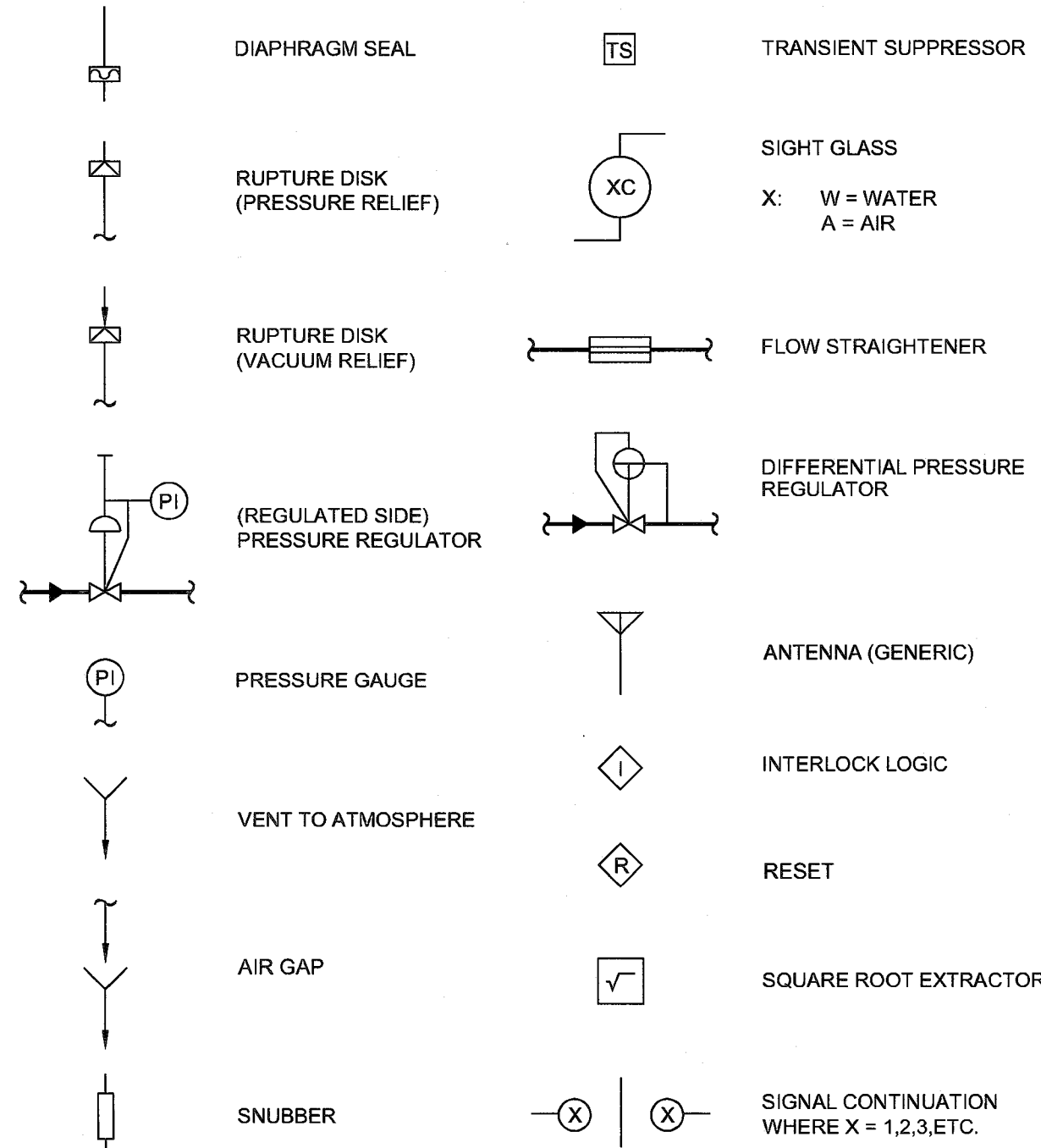
INSTRUMENT TAG NUMBER



EQUIPMENT SYMBOLS



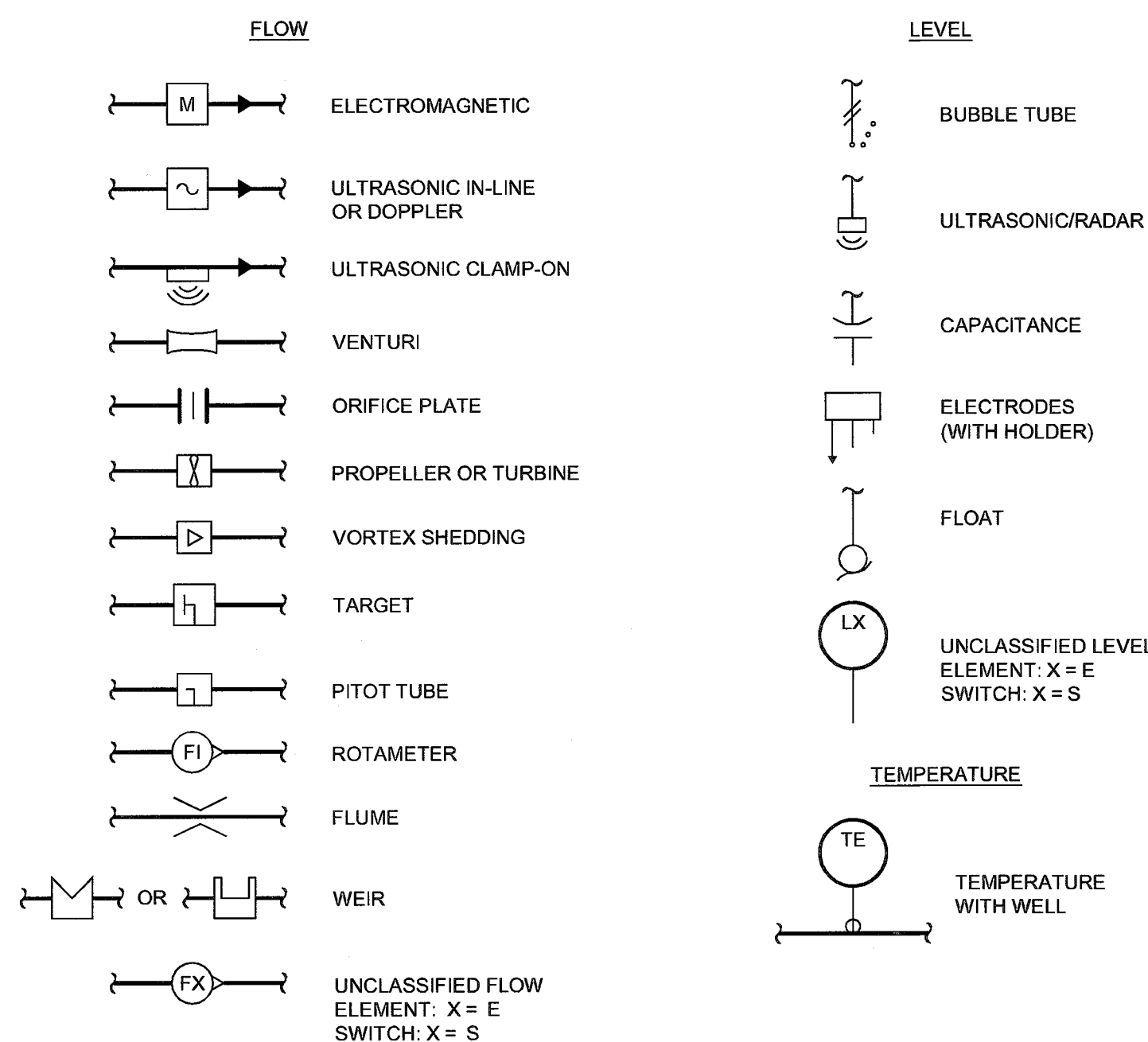
MISCELLANEOUS SYMBOLS



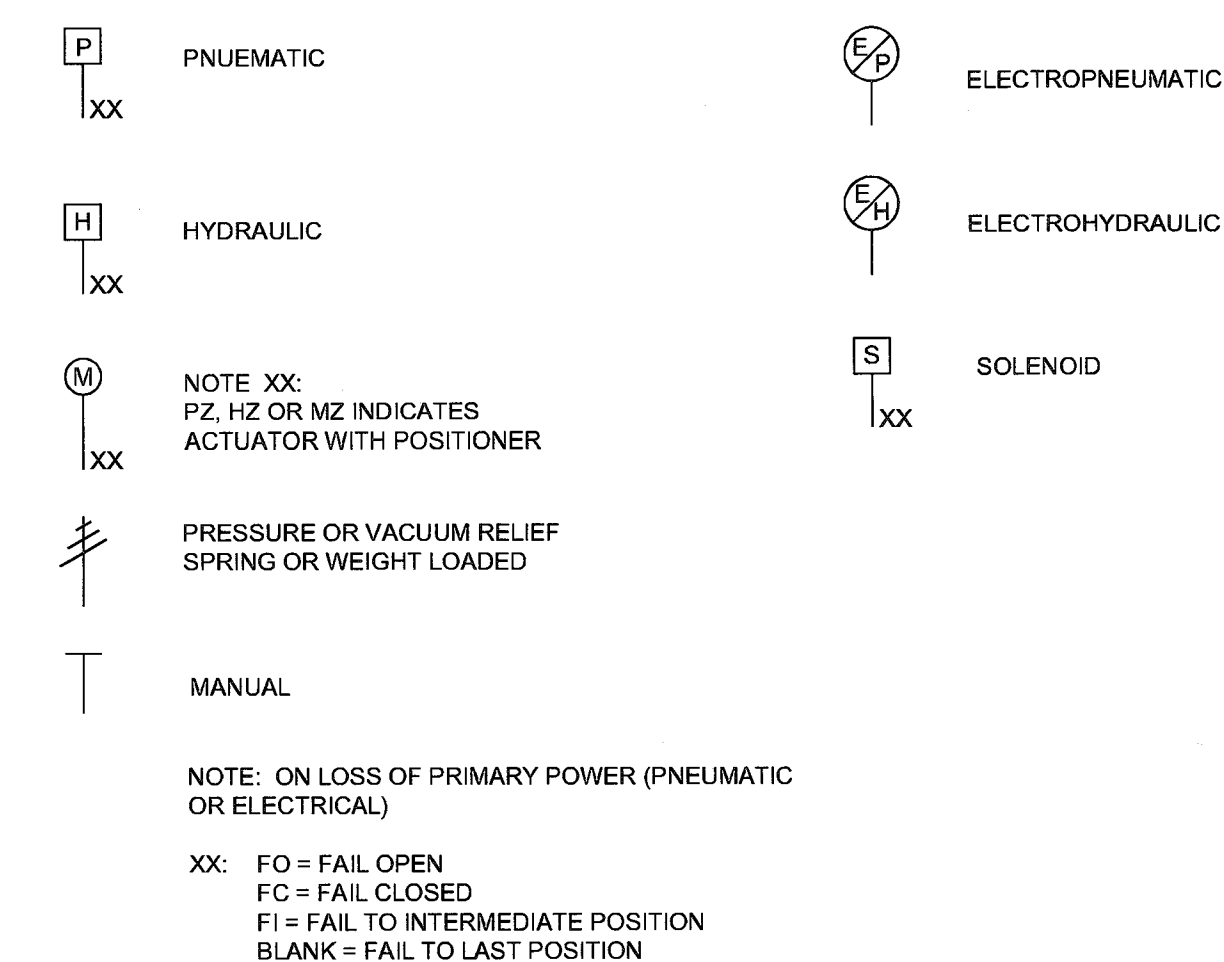
GENERAL INSTRUMENT OR FUNCTION SYMBOLS

	DISCRETE INSTRUMENT	SHARED DISPLAY/ SHARED CONTROL	COMPUTER FUNCTION	PROGRAMMABLE LOGIC CONTROLLER
OPERATOR ACCESSIBLE				
NOT ACCESSIBLE TO OPERATOR				
FIELD MOUNTED				
FRONT OF PANEL MOUNTED				
INTERIOR OF PANEL MOUNTED				
MOTOR CONTROL CENTER MOUNTED				
INSTRUMENTS SHARING A COMMON HOUSING				
ANNUNCIATOR				

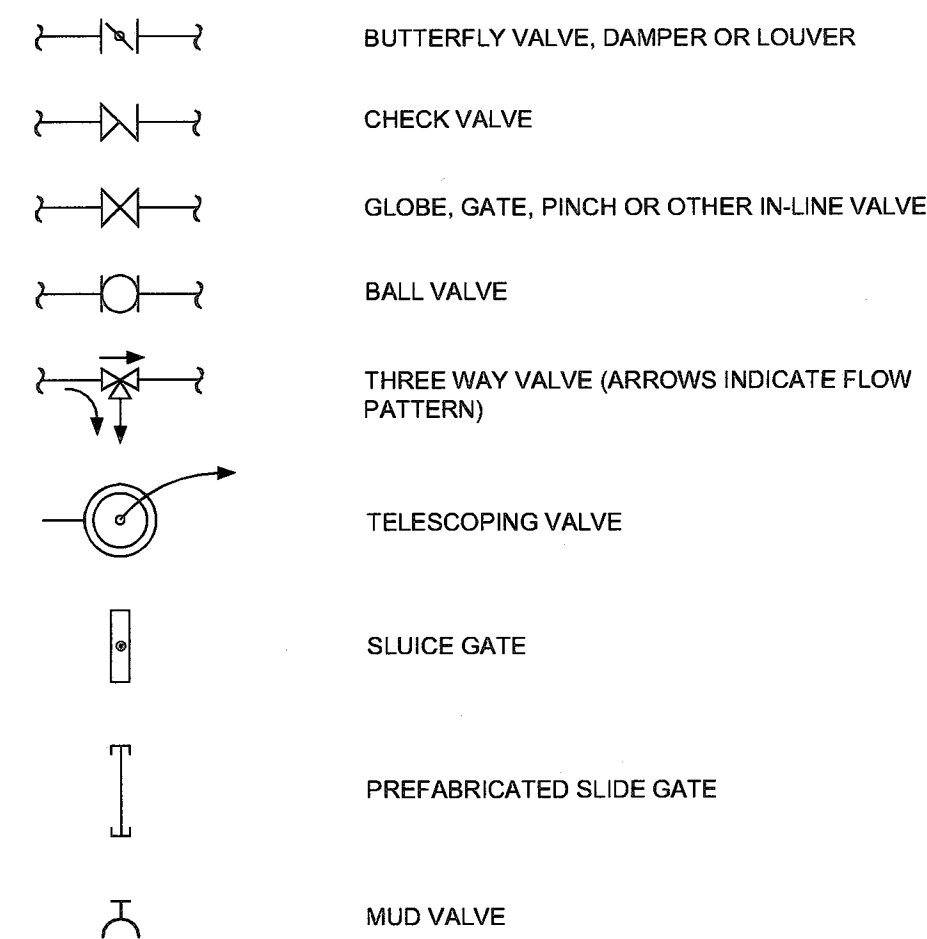
PRIMARY ELEMENT SYMBOLS



ACTUATOR SYMBOLS

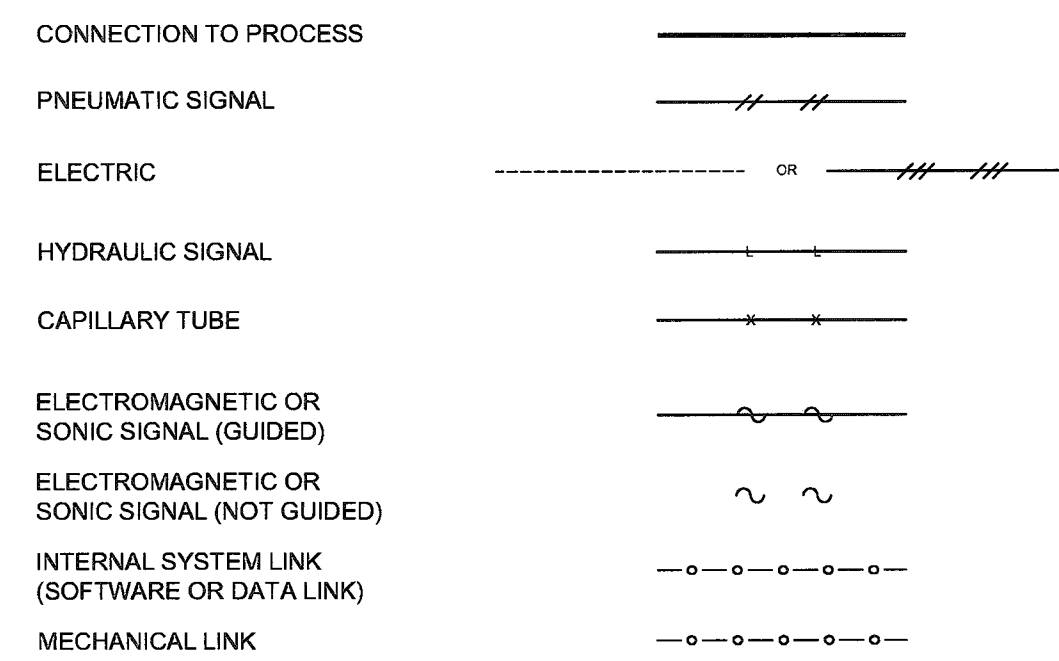


VALVE & GATE SYMBOLS



INSTRUMENT LINE SYMBOLS

(LINES TO BE DRAWN FINE IN RELATION TO PROCESS PIPING LINES)



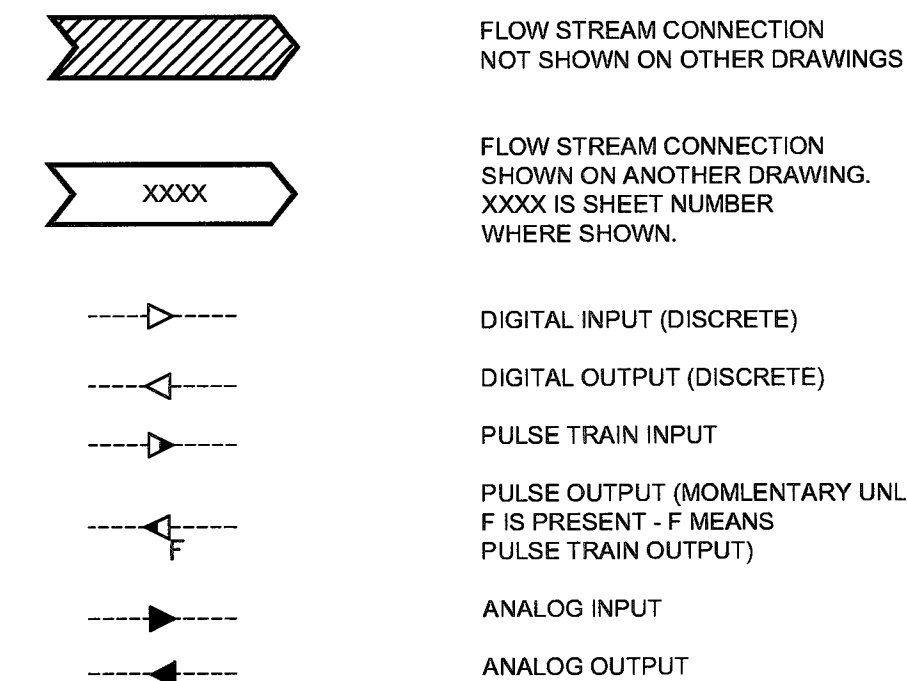
ABBREVIATIONS/ACRONYMS

AS	AIR SUPPLY	ES	ELECTRIC SUPPLY
GS	GAS SUPPLY	HS	HYDRAULIC SUPPLY
WS	WATER SUPPLY	CO	CONTACT OUTPUT
CI	CONTACT INPUT	PD	POSITIVE DISPLACEMENT
FMR	FM RADIO	MTU	MASTER TERMINAL UNIT
RTU	REMOTE TERMINAL UNIT		

GENERAL NOTES

- SEE DIVISION 40 OF THE SPECIFICATIONS FOR FURTHER INSTRUMENTATION REQUIREMENTS.
- THIS IS A GUIDE TO READING INSTRUMENT SOCIETY OF AMERICA (ISA) FORMAT P&ID OR LOOP DIAGRAMS. THESE SYMBOLS AND TECHNIQUES HAVE MOSTLY EXTRACTED FROM ISA STANDARD S5.1. THIS IS NOT HOWEVER, A COMPLETE OR EXACT DUPLICATION OF S5.1. NOT ALL SYMBOLS SHOWN ARE USED ON THIS PROJECT. SOME SYMBOLS MAY BE USED THAT ARE NOT SHOWN. CONTACT THE ENGINEER OR REFER TO ISA STANDARD S5.1 FOR CLARIFICATIONS.
- POWER SUPPLIES SHALL BE FURNISHED BY THE INSTRUMENT SUPPLIER AS REQUIRED TO MEET THE VOLTAGE AND CURRENT REQUIREMENTS OF THE COMPONENTS IN EACH LOOP OR SYSTEM.

COMMUNICATION & PROCESS SYMBOLS



GENERAL NOTE:

- ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING WIRING WITH INSTRUMENTATION EQUIPMENT PROVIDED IN DIVISION 40.

INSTRUMENTATION STANDARD SYMBOLS AND LEGEND

BABY FARMS LIFT STATION AND FORCE MAIN IMPROVEMENTS
FALL CREEK REGIONAL WASTE DISTRICT

DESIGNED: WER
DRAWN: WER
REVIEWED: WER
APPROVED: WLM

DATE: _____
SCALE: NOT TO SCALE
SHEET NO. I-001

SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY WHEN PLOTTED