

INSTRUMENT AND DEVICE IDENTIFICATION TABLE				
FIRST-LETTER		SUCCEEDING-LETTERS		
MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS OR SAMPLER		ALARM, TROUBLE	
B	BURNER FLAME			CLOSE, DECREASE (1)
C	CONDUCTIVITY		CONTROL	
D	DENSITY	DIFFERENTIAL		OPEN, INCREASE (1)
E	VOLTAGE (EMF)		SENSOR (PRIMARY ELEMENT)	
F	FLOW RATE	RATIO (FRACTION)	FAILURE	
G	GAS		GLASS, VIEWING DEVICE, GAUGE (2)	GENERATOR (ULTRASONIC)
H	HAND (MANUAL)			HIGH
I	CURRENT (ELECTRICAL)		INDICATE	
J	POWER	SCAN		
K	TIME	TIME RATE OF CHANGE		CONTROL STATION
L	LEVEL		LIGHT (3)	LOW
M	MOTOR	MOMENTARY	OPERATE, ON/OFF	MIDDLE, INTERMEDIATE
N	MOISTURE			START
O	TORQUE		ORIFACE, RESTRICTION	STOP, OVERLOAD
P	PRESSURE, VACUUM		POINT (TEST CONNECTION)	
Q	COMMON, QUANTITY	INTEGRATE, TOTALIZE		
R	RADIOACTIVITY		RECORD	
S	SPEED, FREQUENCY	SAFETY		SWITCH
T	TEMPERATURE		TRANSMITTER	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS, VALVE, DAMPER (4)		VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL	
X	UNCLASSIFIED (5)	X AXIS	UNCLASSIFIED (5)	UNCLASSIFIED (5)
Y	EVENT, STATE, OR PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT
Z	POSITION	Z AXIS		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT

NOTES FOR INSTRUMENT AND DEVICE IDENTIFICATION TABLE:

- WHEN THE B AND D LETTERS ARE TO REPRESENT AN OPEN AND CLOSED COMMAND OR POSITION, THEY ARE CURRENTLY OFTEN USED NOT AS A MODIFIER, BUT RATHER AS A READOUT OR OUTPUT FUNCTION. FOR EXAMPLE, SB RATHER THAN SCB.
- IN CURRENT DRAWINGS, THE LETTER G IS OFTEN USED TO REPRESENT A GAUGE AS IN TG (TEMPERATURE GAUGE). HOWEVER, SINCE A TEMPERATURE GAUGE USUALLY HAS A SCALE TO READ A SPECIFIC TEMPERATURE, IT WOULD MORE CORRECTLY BE CALLED AN INDICATOR (TI). GAUGE IS INCLUDED FOR HISTORICAL REASONS.
- ON CURRENT NEWPCC P&ID DRAWINGS, THE PILOT LIGHTS USUALLY OMIT THE L DESIGNATION. FOR EXAMPLE, A VALVE OPEN PILOT LIGHT IS DESIGNATED AS ZD. TECHNICALLY, THE APPROPRIATE IDENTIFIER IS ZLD, BUT ZD HAS BEEN MAINTAINED FOR HISTORICAL REASONS.
- THE USE OF V AS AN INITIAL LETTER HAS BEEN INCORRECTLY USED IN THE PAST TO REPRESENT A VALVE OR A DAMPER, AND IS MAINTAINED IN THE IDENTIFICATION TABLE DUE TO ITS COMMON USE AS SUCH. HOWEVER, THESE INSTRUMENTS SHOULD IDEALLY BE RENAMED TO THE APPROPRIATE IDENTIFIERS. FOR EXAMPLE, MOST VY INSTRUMENTS (PNEUMATIC RELAYS) ON THE CURRENT DRAWINGS COULD BE RELABELLED AS HY OR FY INSTRUMENTS.
- THE LETTER X IS TO BE DEFINED AT THE TIME OF USE, AND MAY BE USED FOR MULTIPLE DEFINITIONS WHERE NO OTHER LETTER IS APPLICABLE.

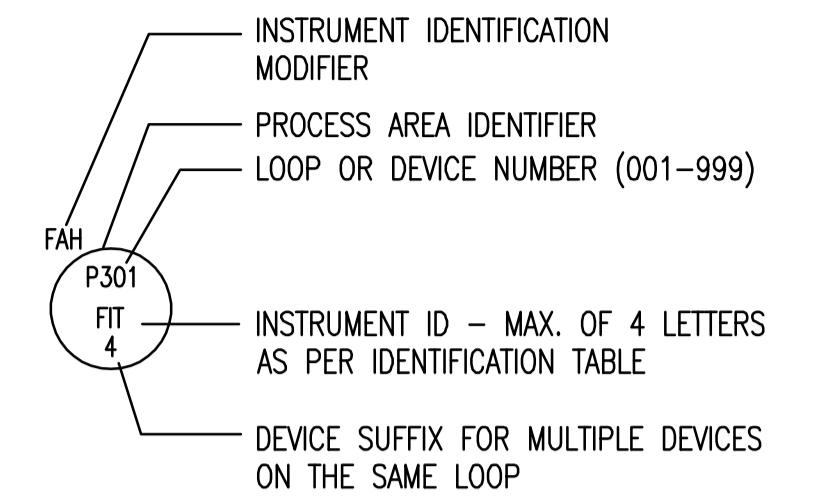
INSTRUMENT FIELD DEVICE IDENTIFIERS			
IDENTIFIER	DEFINITION	IDENTIFIER	DEFINITION
AAH	ANALYSIS ALARM - HIGH	PSHH	PRESSURE SWITCH HIGH (2ND STAGE)
AAHH	ANALYSIS ALARM - HIGH-HIGH	PSL	PRESSURE SWITCH LOW
AE	ANALYSIS ELEMENT	PSV	PRESSURE SAFETY VALVE (RELIEF)
AIT	ANALYSIS INDICATING TRANSMITTER (ANALYTIC INST.)	PT	PRESSURE TRANSMITTER
AK	ANALYSIS (AMPLER) CONTROL STATION	PY	PRESSURE RELAY (1/1 CONVERTER)
ASH	ANALYSIS SWITCH - HIGH	SI	SPEED INDICATOR
ASHH	ANALYSIS SWITCH - HIGH-HIGH	SK	SPEED CONTROL STATION
ASY	ANALYSIS SAFETY RELAY	ST	SPEED TRANSMITTER
AT	ANALYSIS TRANSMITTER (ANALYTIC INST.)	TE	TEMPERATURE ELEMENT
BK	BURNER CONTROL STATION	TG	TEMPERATURE GAUGE
BS	BURNER FLAME SWITCH	TI	TEMPERATURE INDICATOR
BV	BURNER VALVE	TIC	TEMPERATURE INDICATING CONTROLLER
DE	DENSITY ELEMENT	TIT	TEMPERATURE INDICATING TRANSMITTER
DR	DENSITY RECORDER	TR	TEMPERATURE RECORDER
DT	DENSITY TRANSMITTER	TS	TEMPERATURE SWITCH
DX	DENSITY SOURCE (X = SOURCE)	TSH	TEMPERATURE SWITCH HIGH
EE	VOLTAGE ELEMENT/TRANSFORMER	TSL	TEMPERATURE SWITCH LOW
EI	VOLTAGE INDICATOR	TT	TEMPERATURE TRANSMITTER
ET	VOLTAGE TRANSMITTER	TV	TEMPERATURE VALVE
FE	FLOW ELEMENT	TW	TEMPERATURE THERMOWELL
FG	FLOW METER ULTRASONIC GENERATOR	TY	TEMPERATURE RELAY (SOLENOID VALVE OR M/P)
FI	FLOW INDICATOR	XE	VELOCITY ELEMENT
FIC	FLOW INDICATING CONTROLLER	XI	VELOCITY INDICATOR
FIT	FLOW INDICATING TRANSMITTER	XK	UNCLASSIFIED CONTROL STATION (X = FIRE)
FQI	FLOW TOTALIZING INDICATOR	XT	POWER FACTOR TRANSMITTER
FQY	FLOW TOTALIZING / INTEGRATING RELAY	XT	VELOCITY TRANSMITTER (X = VELOCITY)
FR	FLOW RECORDER	XX	UNCLASSIFIED (XX = ALARM ANNUNCIATOR)
FRC	FLOW RECORDING CONTROLLER	YS	COMPUTER SWITCH
FRQ	FLOW RECORDING TOTALIZER	YSA	STATE SAFETY ALARM
FSL	FLOW SWITCH LOW	YSL	STATE SAFETY LIGHT
FT	FLOW TRANSMITTER	ZI	POSITION INDICATOR
FV	FLOW VALVE	ZS	POSITION SWITCH
FY	FLOW COMPUTER / RELAY	ZSB	POSITION SWITCH CLOSED (LIMIT SWITCH)
GE	GAS ELEMENT	ZSD	POSITION SWITCH OPEN (LIMIT SWITCH)
GS	GAS SWITCH MODULE	ZSH	POSITION SWITCH HIGH
HK	HAND CONTROL STATION	ZSL	POSITION SWITCH LOW
HS	HAND SWITCH	ZT	POSITION TRANSMITTER
HSS	HAND SAFETY SWITCH		
HV	HAND VALVE		
IS	CURRENT SWITCH		
IE	CURRENT ELEMENT/TRANSFORMER		
II	CURRENT INDICATOR		
IY	CURRENT RELAY		
KY	TIMER RELAY		
LCV	LEVEL CONTROL VALVE		
LE	LEVEL ELEMENT		
LI	LEVEL INDICATOR		
LIC	LEVEL INDICATING CONTROLLER		
LIT	LEVEL INDICATING TRANSMITTER		
LR	LEVEL RECORDER		
LSL	LEVEL SWITCH LOW		
LSH	LEVEL SWITCH HIGH		
LSHL	LEVEL SWITCH HIGH/LOW		
LT	LEVEL TRANSMITTER		
LV	LEVEL VALVE		
LY	LEVEL RELAY (1/1 CONVERTER)		
MB	MOTOR DECREASE OR REVERSE		
MD	MOTOR INCREASE OR FORWARD		
MF	MOTOR FAILURE		
MM	MOTOR RUN		
MO	MOTOR OVERLOAD		
NS	MOISTURE SWITCH		
PCV	PRESSURE CONTROL VALVE		
PE	PRESSURE ELEMENT		
PG	PRESSURE GAUGE		
PI	PRESSURE INDICATOR		
PIC	PRESSURE INDICATING CONTROLLER		
PIT	PRESSURE INDICATING TRANSMITTER		
PR	PRESSURE RECORDER		
PS	PRESSURE SWITCH		

NOTES FOR INSTRUMENT FIELD DEVICE IDENTIFIERS:

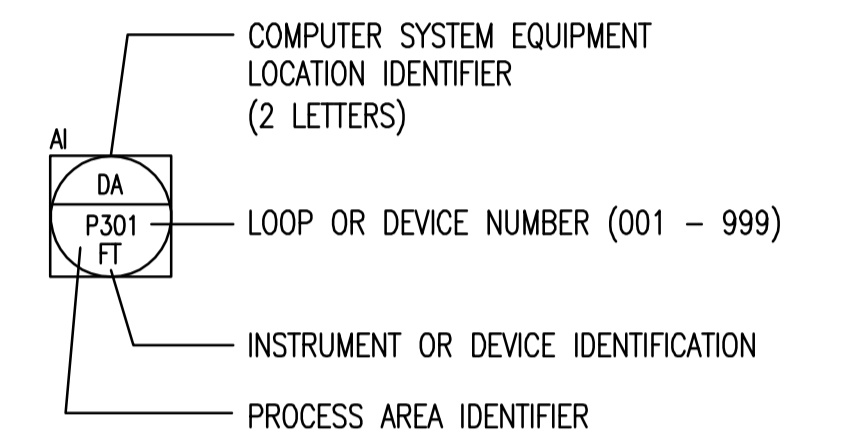
- THE LAST IDENTIFIER LETTER IS IN SOME CASES OPTIONAL (EG. FSL)
- THIS TABLE IS DERIVED FROM THE INSTRUMENT & DEVICE IDENTIFICATION TABLE, AND IS NOT EXHAUSTIVE.

INSTRUMENT IDENTIFICATION MODIFIER	
IDENTIFIER	DEFINITION
(N)	N MULTIPLE INSTRUMENTS
AA	AUDIBLE ALARM
A/M	AUTO / MANUAL
A/O/T	AUTO / OFF / TEST
C/H	COMPUTER / HAND
C/L	COMPUTER / LOCAL
CLS	CLOSE
C/O	COMPUTER / OFF
COB	COMPUTER / OFF / BYPASS
COH	COMPUTER / OFF / HAND
COT	COMPUTER / OFF / TIME
DCS	DISTRIBUTED CONTROL SYSTEM
DS	DECREASE SPEED
E/R	EXTEND / RETRACT
E/S	EMERGENCY STOP
ETM	ELAPSED TIME METER
FOR	FORWARD / OFF / REVERSE
H/A	HAND / AUTO
HOA	HAND / OFF / AUTO
HOR	HAND / OFF / REMOTE
I/D	INCREASE / DECREASE
INT/EXT	INTERNAL / EXTERNAL
IS	INCREASE SPEED
LCP	LOCAL CONTROL PANEL
LD	LOCKABLE DISCONNECT
LJB	LOCAL JUNCTION BOX
L/O	LOCAL / OFF
LOR	LOCAL / OFF / REMOTE
LOS	LOCK OFF STOP
L/R	LOCAL / REMOTE
LSR	LOCAL / STOP / REMOTE
MCC	MOTOR CONTROL CENTER
O/A	OFF / AUTO
O/C	OPEN / CLOSE
O/M	OFF / MAINTENANCE
O/O	OFF / ON
OPN	OPEN
RST	RESET
RTD	RESISTIVE TEMPERATURE DEVICE
SEL	SELECTOR
S/F	SLOW / FAST
SOFA	SLOW / OFF / FAST / AUTO
SOL	SOLENOID
S/S	START / STOP
S/W	SUMMER / WINTER
TAH	TEMPERATURE ALARM HIGH
TAL	TEMPERATURE ALARM LOW
TSH	TEMPERATURE SWITCH HIGH
TSL	TEMPERATURE SWITCH LOW
T/C	THERMOCOUPLE
VIB	VIBRATION

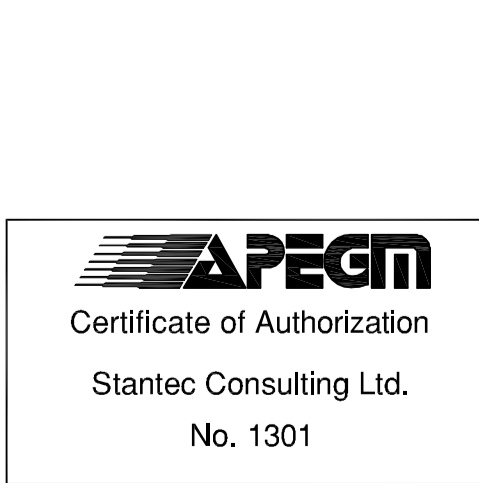
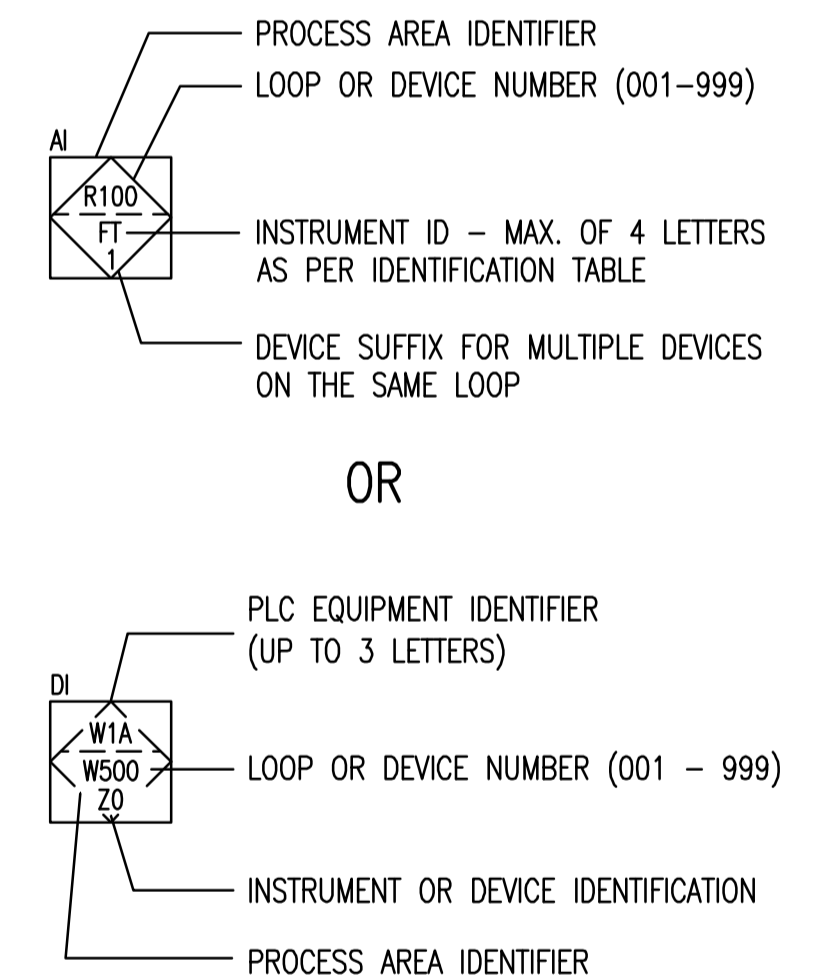
INSTRUMENT FIELD DEVICE NUMBERING



CONTROL SYSTEM (DCS) POINT TAG NUMBERING



PLC POINT TAG NUMBERING



WARNING
 IF POWER EQUIPMENT OR EXPLOSIVES ARE TO BE USED FOR EXCAVATION ON THIS PROJECT THE CONTRACTOR MUST:
 1) NOTIFY THE GAS COMPANY OF THE PROPOSED LOCATION OF EXCAVATION.
 2) TAKE PRECAUTION TO AVOID DAMAGE TO GAS COMPANY INSTALLATIONS.
 SEE PROVINCIAL REGULATION 140/92 FOR DETAILS

METRIC
 WHOLE NUMBERS INDICATE MILLIMETRES
 DECIMALIZED NUMBERS INDICATE METRES

LOCATION APPROVED UNDERGROUND STRUCTURES		B.M. ELEV.
SUPV. U/G STRUCTURES COMMITTEE	DATE	
NOTE: LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.		
3 ISSUED FOR TENDER	16.03.09	D.R.
2 ISSUED FOR TENDER REVIEW	16.03.07	D.R.
1 ISSUED FOR 95% REVIEW	16.01.29	D.R.
NO. REVISIONS	DATE	BY

Stantec
 500-311 Portage Ave, Winnipeg MB Canada
 www.stantec.com

DESIGNED BY: S.L.	CHECKED BY: D.R.
DRAWN BY: E.G.D.	APPROVED BY: S.K.B.
HOR. SCALE: AS NOTED	RELEASED FOR CONSTRUCTION:
VERTICAL:	DATE

THE CITY OF WINNIPEG
 WATER AND WASTE DEPARTMENT

Winnipeg

NORTH END SEWAGE TREATMENT PLANT (NEWPCC)
 HAULED LIQUID WASTE FACILITY PHASE II UPGRADE

PROCESS & INSTRUMENTATION DIAGRAM
 LEGEND AND DETAILS - SHEET 2 OF 3

TENDER NO. **952-2015** CITY DRAWING NUMBER **I-0101A-A0009-002** SHEET **2** OF **20**