

## **INSTRUMENT LOOP DRAWINGS**

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### **1. GENERAL**

#### **1.1 References - General**

- .1 Refer to Section 17010.

#### **1.2 Instrument Loop Drawings**

- .1 The following fourteen (14) Drawings show typical instrument loop wiring diagrams as referenced by this Specification Section. One (1) Drawing per loop will be completed by the Contractor and submitted for approval after award of Contract.

ILD-01	Instrument Loop Diagram – Optical Dissolved Oxygen Analyzer
ILD-02	Instrument Loop Diagram – Pneumatic Control Valve
ILD-03	Instrument Loop Diagram – Two Position Motorized Valve
ILD-04	Instrument Loop Diagram – Flow Transmitter
ILD-05	Instrument Loop Diagram – Field Mounted Process Switch
ILD-06	Instrument Loop Diagram – Ultrasonic Level Transmitter
ILD-07	Instrument Loop Diagram – Ferric Chloride Tank Level
ILD-08	Instrument Loop Diagram – Pressure Transmitter
ILD-09	Instrument Loop Diagram – Thermal Oxidizer F661-TO
ILD-10	Instrument Loop Diagram – Solenoid Valve
ILD-11	Instrument Loop Diagram – Sludge Pump
ILD-12	Instrument Loop Diagram – Fixed Speed Drive
ILD-13	Instrument Loop Diagram – Fermenter Mechanism Drive
ILD-14	Instrument Loop Diagram – Variable Speed Drive

### **2. PRODUCTS**

- .1 Not used

### **3. EXECUTION**

- .1 Not used

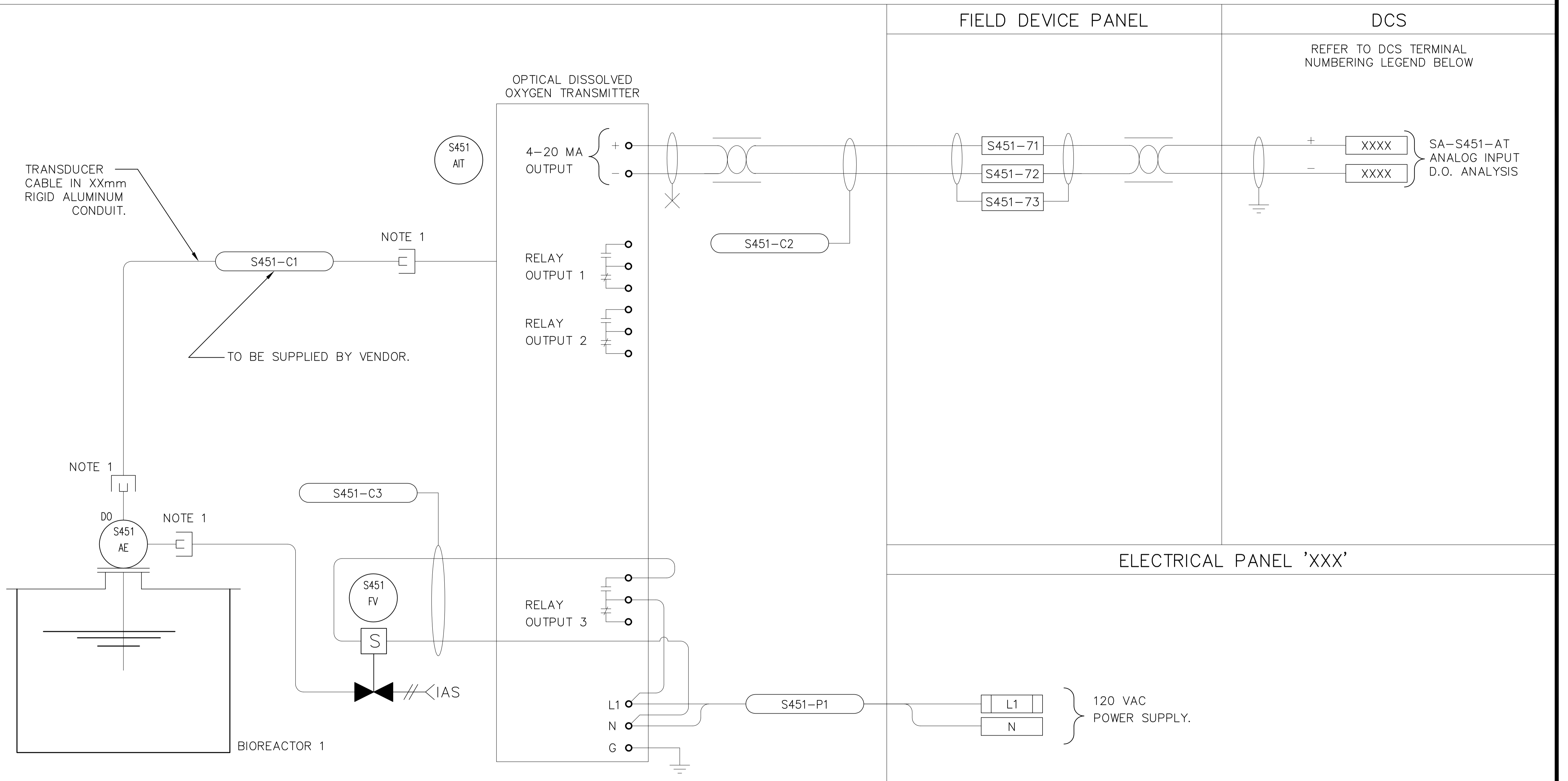
**END OF SECTION**

INSTRUMENT LOOP DIAGRAM

LOOP NO. S451

FIELD PROCESS AREA

ELECTRICAL ROOM



**NOTE:**  
1. QUICK DISCONNECT COUPLING.

**DCS TERMINAL NUMBERING**  
TYPICAL TERMINAL NUMBER → 4 1 A +7A  
CABINET NUMBER (0-9) →  
ROW NUMBER (1-10) →  
ZONE IDENTIFIER (A/A1 - D/D1) →  
TERMINAL IDENTIFIER →

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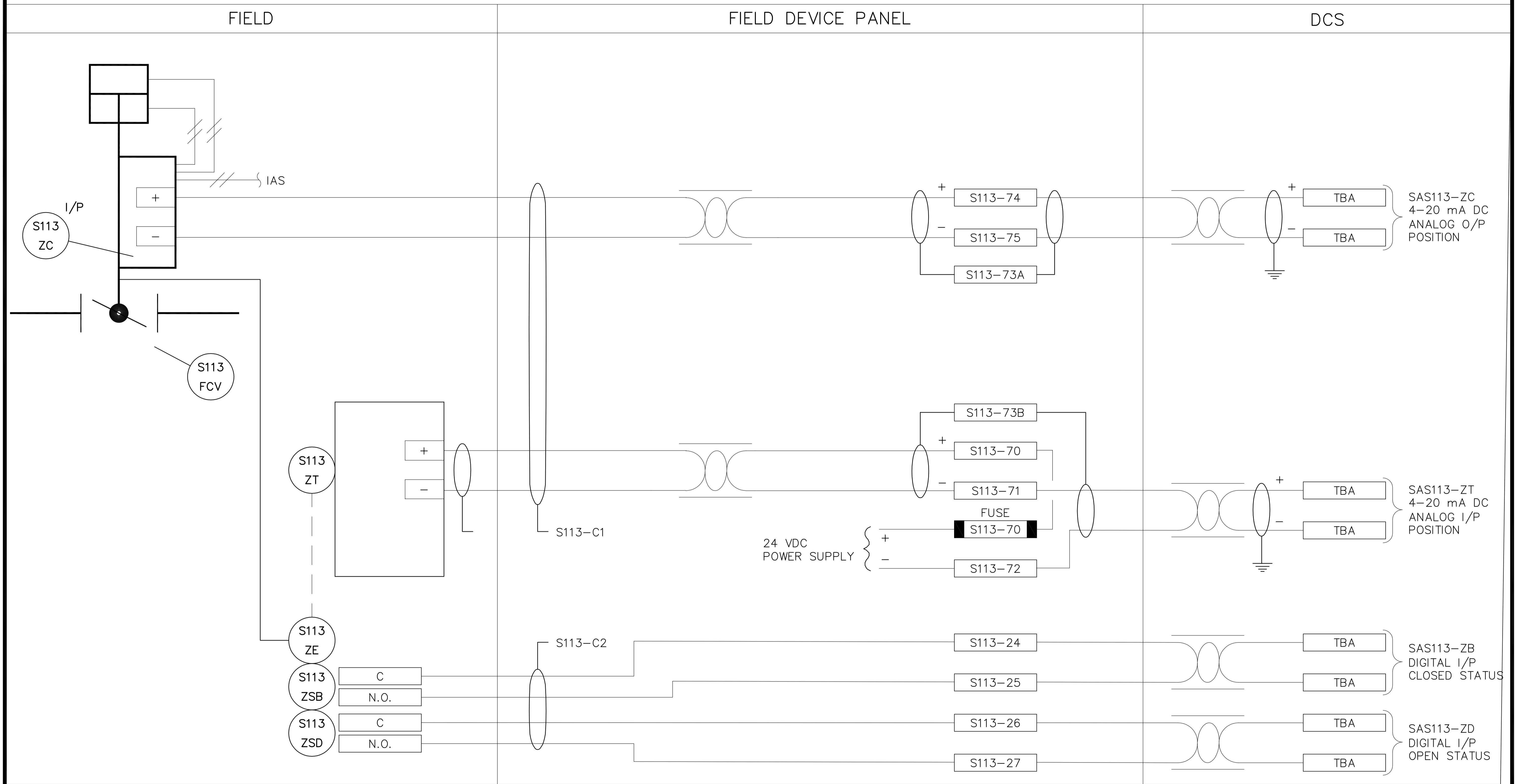
TYPICAL INSTRUMENT LOOP DIAGRAM  
OPTICAL DISSOLVED OXYGEN ANALYZER

SCALE AS NOTED  
DATE 2006/06/05  
DES SWT DWN SRP  
CKD BL APP SWT

DRAWING NO.  
ILD-01

INSTRUMENT LOOP DIAGRAM

LOOP NO. S113



DCS TERMINAL NUMBERING

TYPICAL TERMINAL NUMBER → 4 1 A +7A  
 CABINET NUMBER (0-9) →  
 ROW NUMBER (1-10) →  
 ZONE IDENTIFIER (A/A1 - D/D1) →  
 TERMINAL IDENTIFIER →



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 CKD BL APP SWT

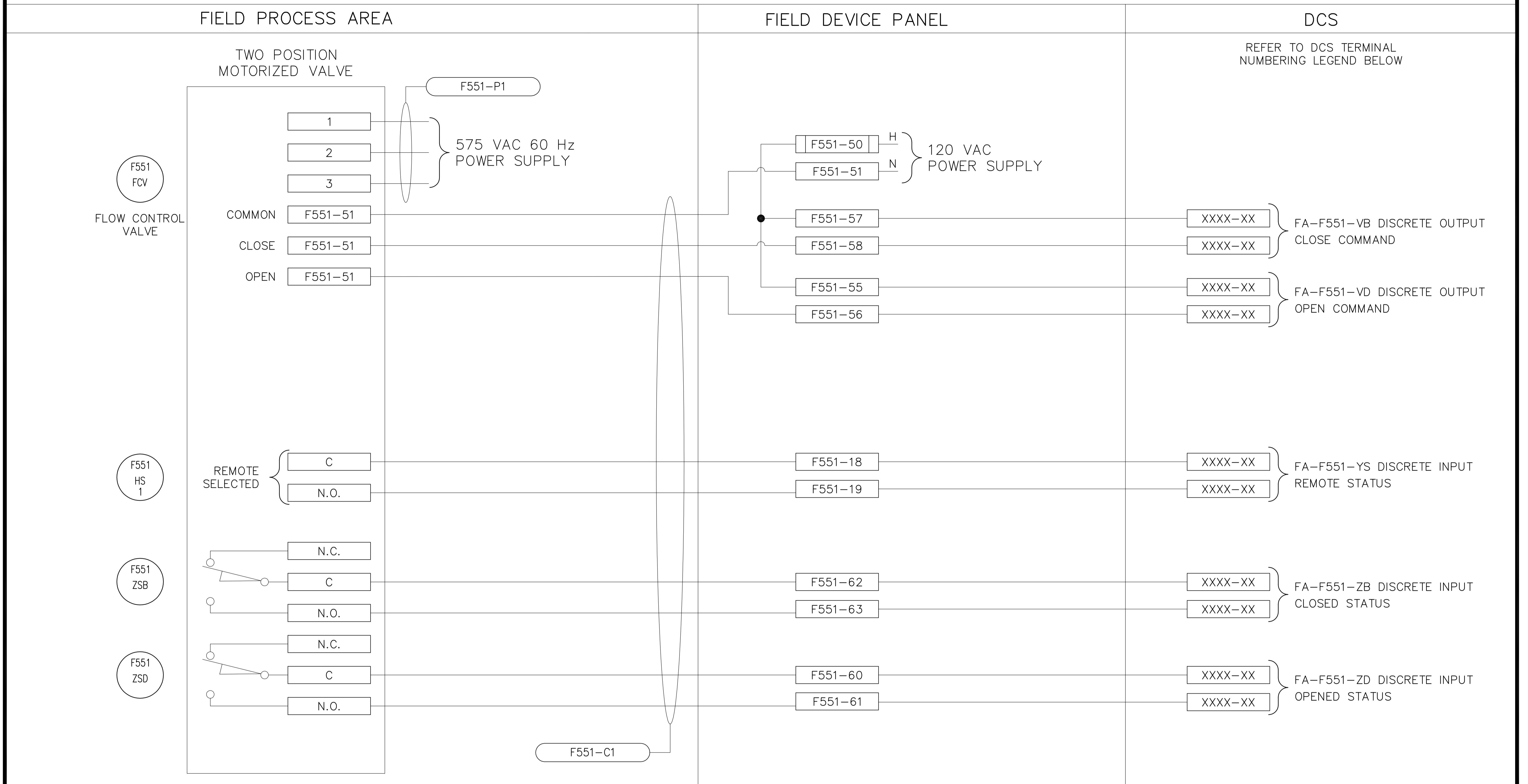
TYPICAL INSTRUMENT LOOP DIAGRAM  
 PNEUMATIC CONTROL VALVE

DRAWING NO.  
 ILD-02

DATE	REVISION	APP.

INSTRUMENT LOOP DIAGRAM

LOOP NO. F551



DCS TERMINAL NUMBERING

TYPICAL TERMINAL NUMBER → 4 1 A +7A

CABINET NUMBER (0-9) →

ROW NUMBER (1-10) →

ZONE IDENTIFIER (A/A1 - D/D1) →

TERMINAL IDENTIFIER →



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INSTRUMENT LOOP DIAGRAM  
TWO POSITION MOTORIZED VALVE

DRAWING NO.  
ILD-03

DATE	REVISION	APP.

INSTRUMENT LOOP DIAGRAM

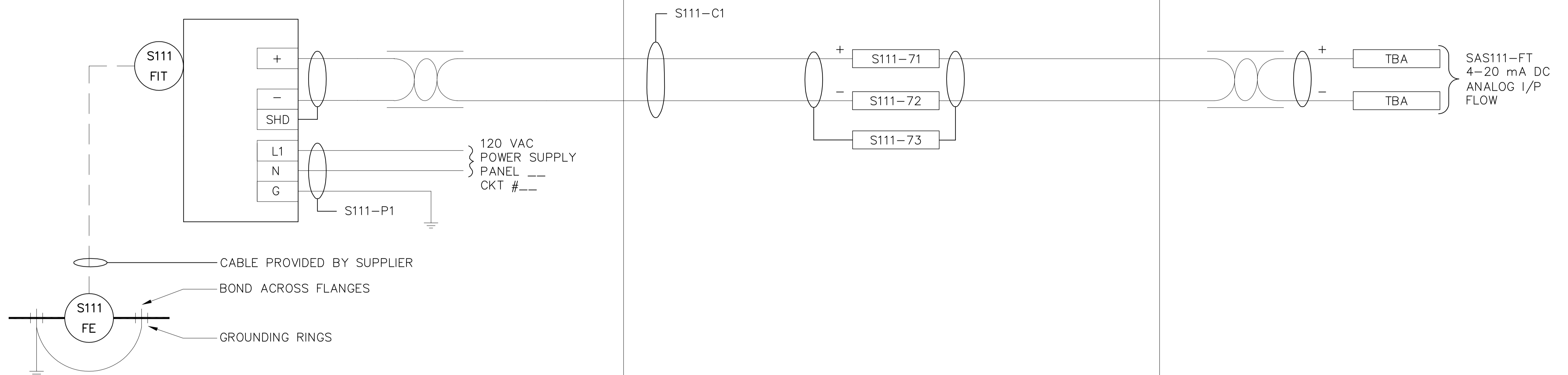
LOOP NO. S111

FIELD PROCESS AREA

FIELD DEVICE PANEL

DCS

REFER TO DCS TERMINAL NUMBERING LEGEND BELOW



DCS TERMINAL NUMBERING

TYPICAL TERMINAL NUMBER → 4 1 A +7A  
 CABINET NUMBER (0-9) →  
 ROW NUMBER (1-10) →  
 ZONE IDENTIFIER (A/A1 - D/D1) →  
 TERMINAL IDENTIFIER →



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TYPICAL INSTRUMENT LOOP DIAGRAM  
 FLOW TRANSMITTER

SCALE AS NOTED  
 DATE 2006/06/05  
 DES SWT DWN SRP  
 CKD BL APP SWT

DRAWING NO.  
 ILD-04

DATE	REVISION	APP.

INSTRUMENT LOOP DIAGRAM

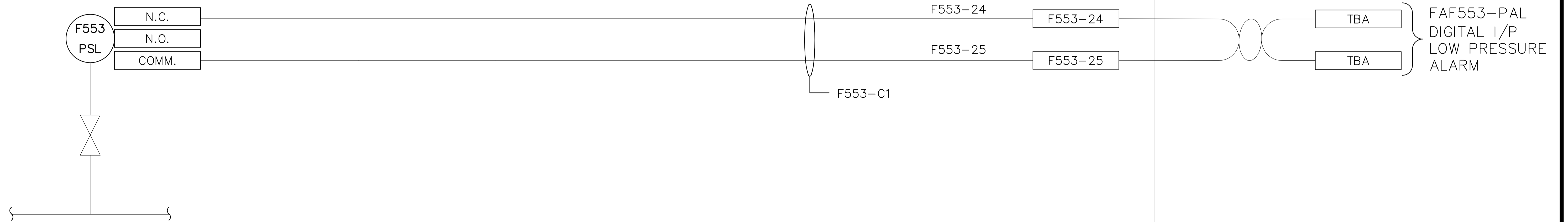
LOOP NO. F661

FIELD PROCESS AREA

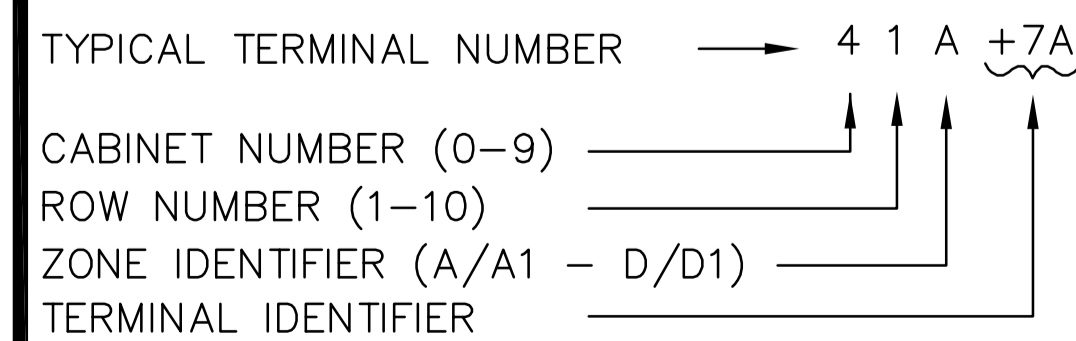
FIELD DEVICE PANEL

DCS

REFER TO DCS TERMINAL NUMBERING LEGEND BELOW



DCS TERMINAL NUMBERING



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TYPICAL INSTRUMENT LOOP DIAGRAM  
 FIELD MOUNTED PROCESS SWITCH

DRAWING NO.  
 ILD-05

DATE	REVISION	APP.

INSTRUMENT LOOP DIAGRAM

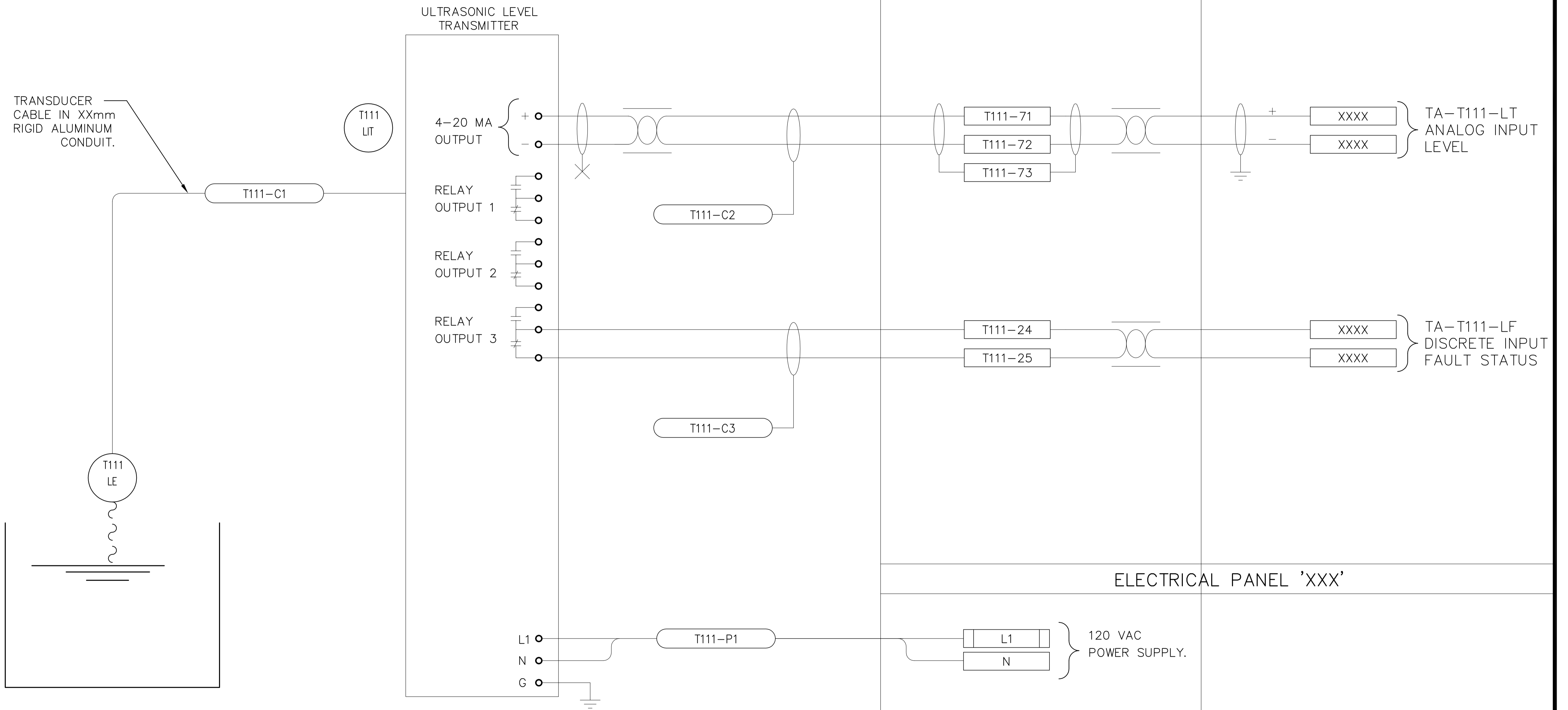
LOOP NO. T111

FIELD PROCESS AREA

FIELD DEVICE PANEL

DCS

REFER TO DCS TERMINAL NUMBERING LEGEND BELOW



DCS TERMINAL NUMBERING

TYPICAL TERMINAL NUMBER → 4 1 A +7A

CABINET NUMBER (0-9) →

ROW NUMBER (1-10) →

ZONE IDENTIFIER (A/A1 - D/D1) →

TERMINAL IDENTIFIER →



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 CKD BL APP SWT

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INSTRUMENT LOOP DIAGRAM  
 ULTRASONIC LEVEL TRANSMITTER

DRAWING NO.  
 ILD-06

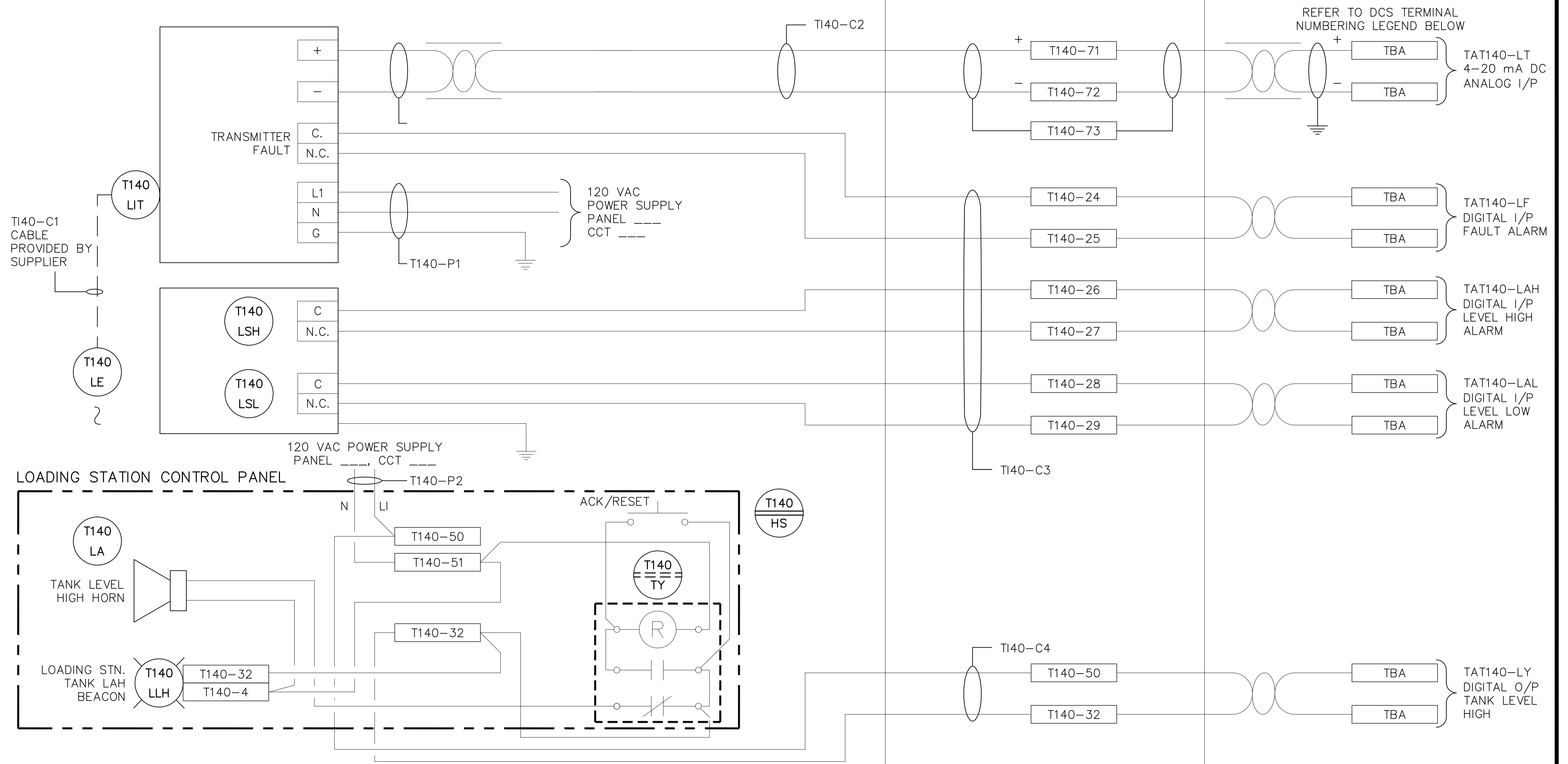
INSTRUMENT LOOP DIAGRAM

LOOP NO. T140

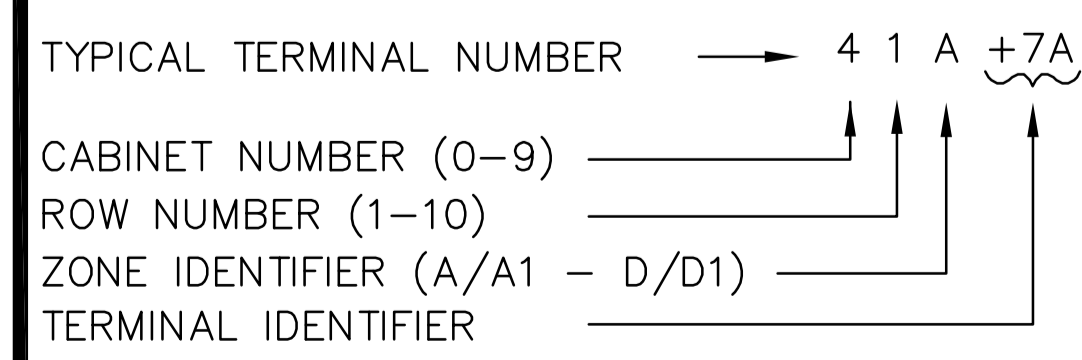
FIELD PROCESS AREA

FIELD DEVICE PANEL

DCS



DCS TERMINAL NUMBERING



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INSTRUMENT LOOP DIAGRAM  
 FERRIC CHLORIDE TANK LEVEL

DRAWING NO.  
 ILD-07

DATE	REVISION	APP.



INSTRUMENT LOOP DIAGRAM

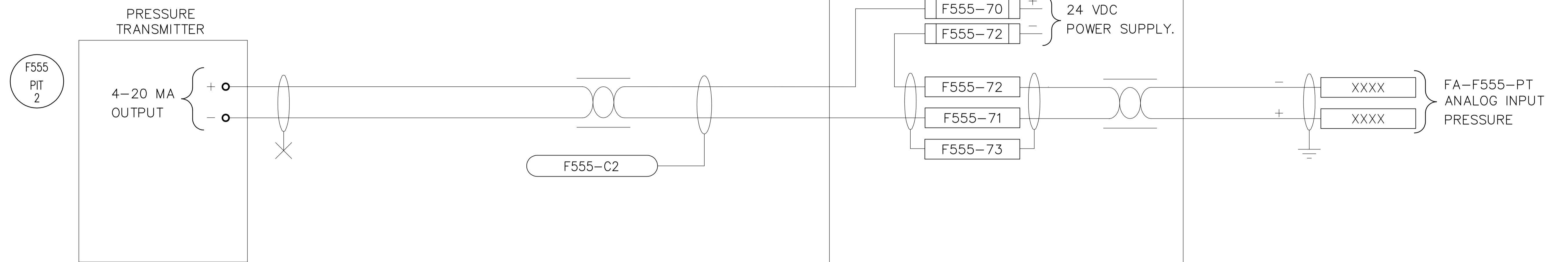
LOOP NO. F555

FIELD PROCESS AREA

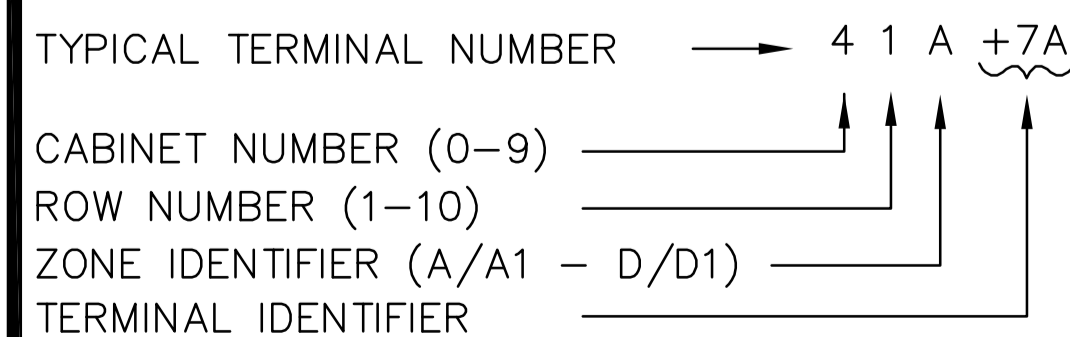
FIELD DEVICE PANEL

DCS

REFER TO DCS TERMINAL NUMBERING LEGEND BELOW



DCS TERMINAL NUMBERING



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 CKD BL APP SWT

TYPICAL INSTRUMENT LOOP DIAGRAM  
 PRESSURE TRANSMITTER

DRAWING NO.  
 ILD-08

DATE	REVISION	APP.

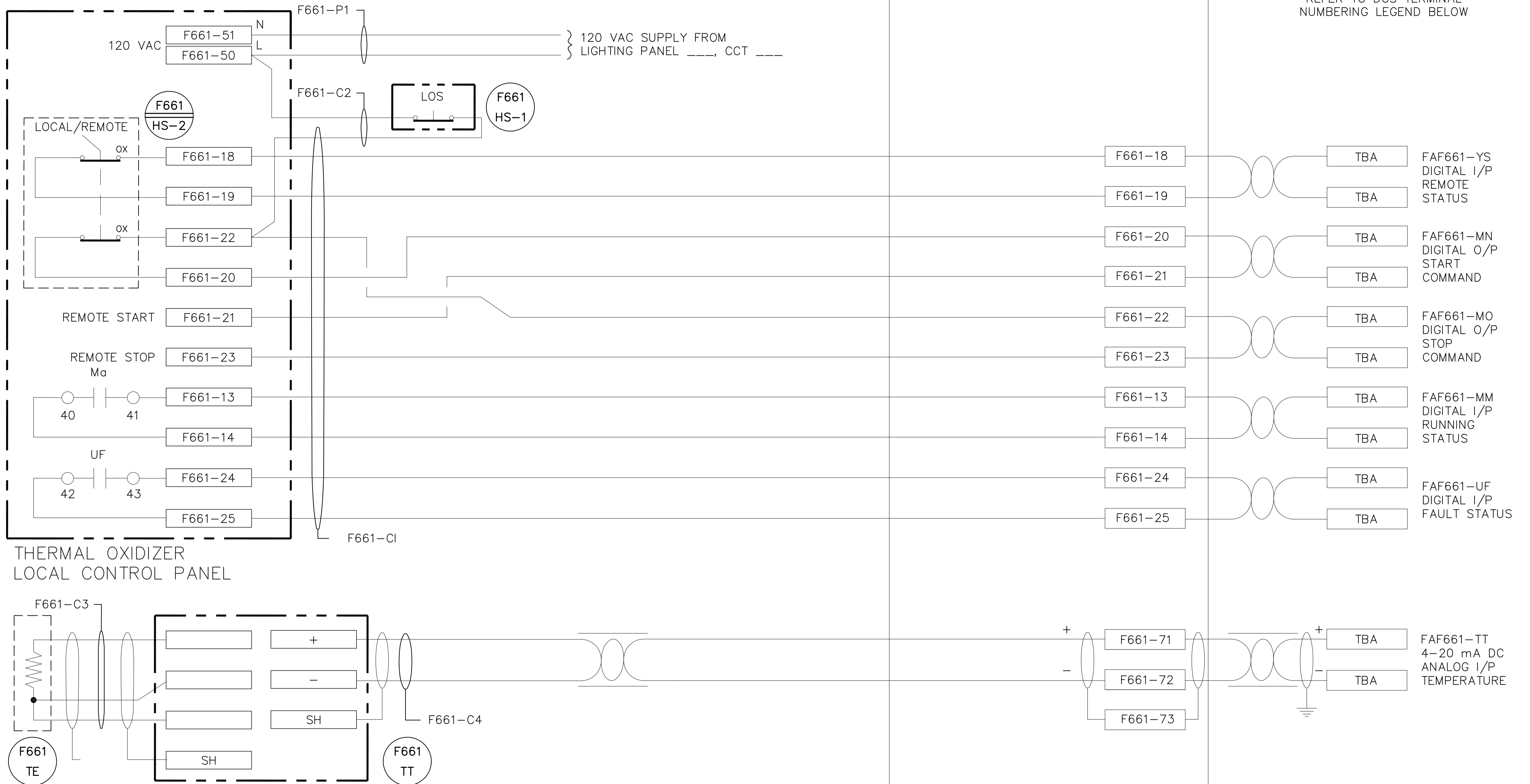
INSTRUMENT LOOP DIAGRAM

LOOP NO. F555

FIELD

FIELD DEVICE PANEL

DCS



THERMAL OXIDIZER LOCAL CONTROL PANEL

DCS TERMINAL NUMBERING

TYPICAL TERMINAL NUMBER → 4 1 A +7A

CABINET NUMBER (0-9) →

ROW NUMBER (1-10) →

ZONE IDENTIFIER (A/A1 - D/D1) →

TERMINAL IDENTIFIER →



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CKD BL APP SWT

INSTRUMENT LOOP DIAGRAM  
THERMAL OXIDIZER F661-TO

DRAWING NO.  
ILD-09

DATE REVISION APP.

INSTRUMENT LOOP DIAGRAM

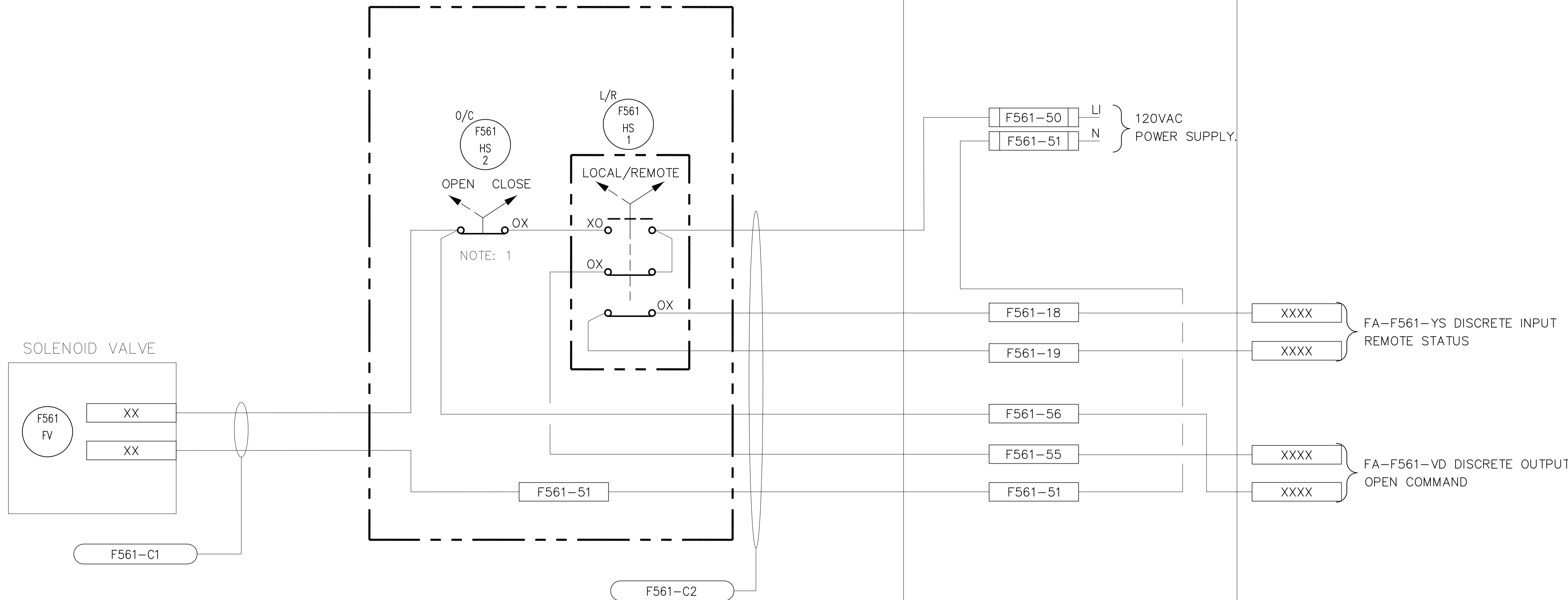
LOOP NO. F561

FIELD PROCESS AREA

FIELD DEVICE PANEL

DCS

REFER TO DCS TERMINAL NUMBERING LEGEND BELOW



DCS TERMINAL NUMBERING

TYPICAL TERMINAL NUMBER → 4 1 A +7A  
 CABINET NUMBER (0-9) →  
 ROW NUMBER (1-10) →  
 ZONE IDENTIFIER (A/A1 - D/D1) →  
 TERMINAL IDENTIFIER →



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 CKD BL APP SWT

TYPICAL INSTRUMENT LOOP DIAGRAM  
 SOLENOID VALVE

DRAWING NO.  
 ILD-10

DATE	REVISION	APP.

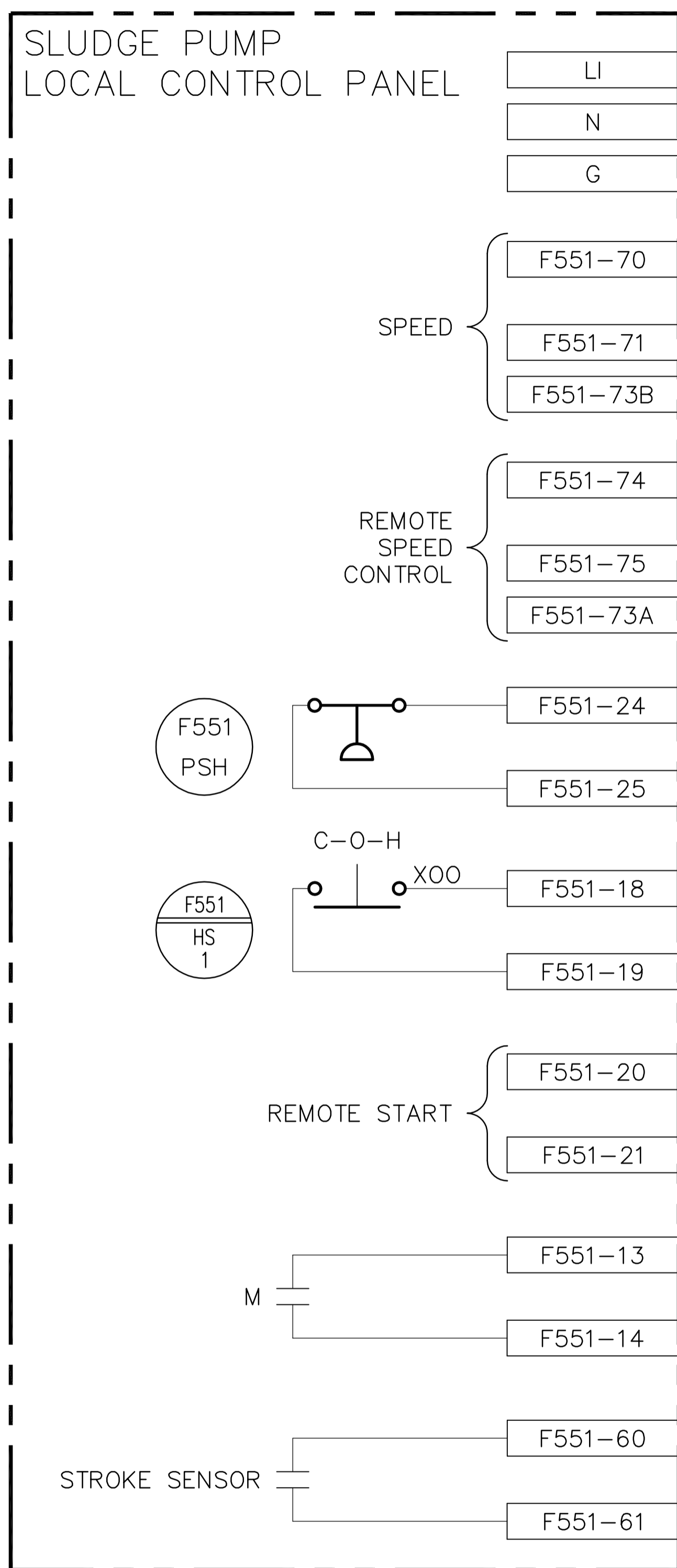
INSTRUMENT LOOP DIAGRAM

LOOP NO. F551

FIELD PROCESS AREA

FIELD DEVICE PANEL

DCS



F551-P1

120 VAC POWER SUPPLY FROM PANEL ----, CCT ----

24 VDC POWER SUPPLY

FUSE

F551-70

F551-72

REFER TO DCS TERMINAL NUMBERING LEGEND BELOW

FA-F551-ST ANALOG I/P SPEED FEEDBACK

FA-F551-SC ANALOG O/P SPEED REF.

FA-F551-PAH DISCRETE I/P PRESSURE HIGH ALARM

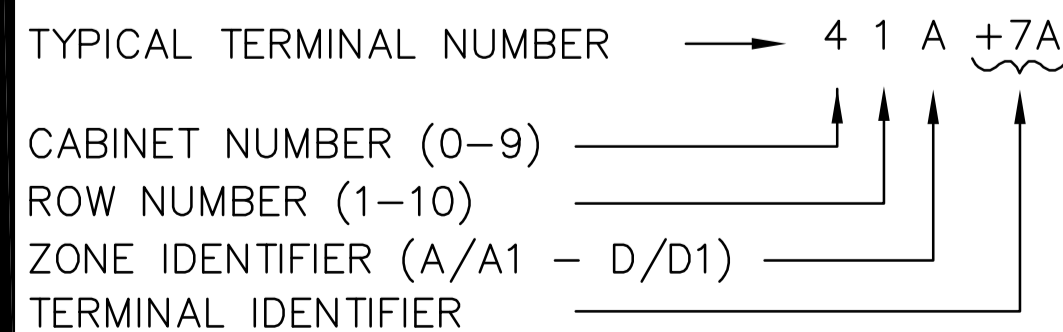
FA-F551-YS DISCRETE I/P COMPUTER STATUS

FA-F551-MN DISCRETE O/P START COMMAND

FA-F551-MM DISCRETE I/P RUNNING STATUS

FA-F551-SS DIGITAL I/P STROKE STATUS

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TYPICAL INSTRUMENT LOOP DIAGRAM  
SLUDGE PUMP

DRAWING NO.  
ILD-11

DATE REVISION APP.

INSTRUMENT LOOP DIAGRAM

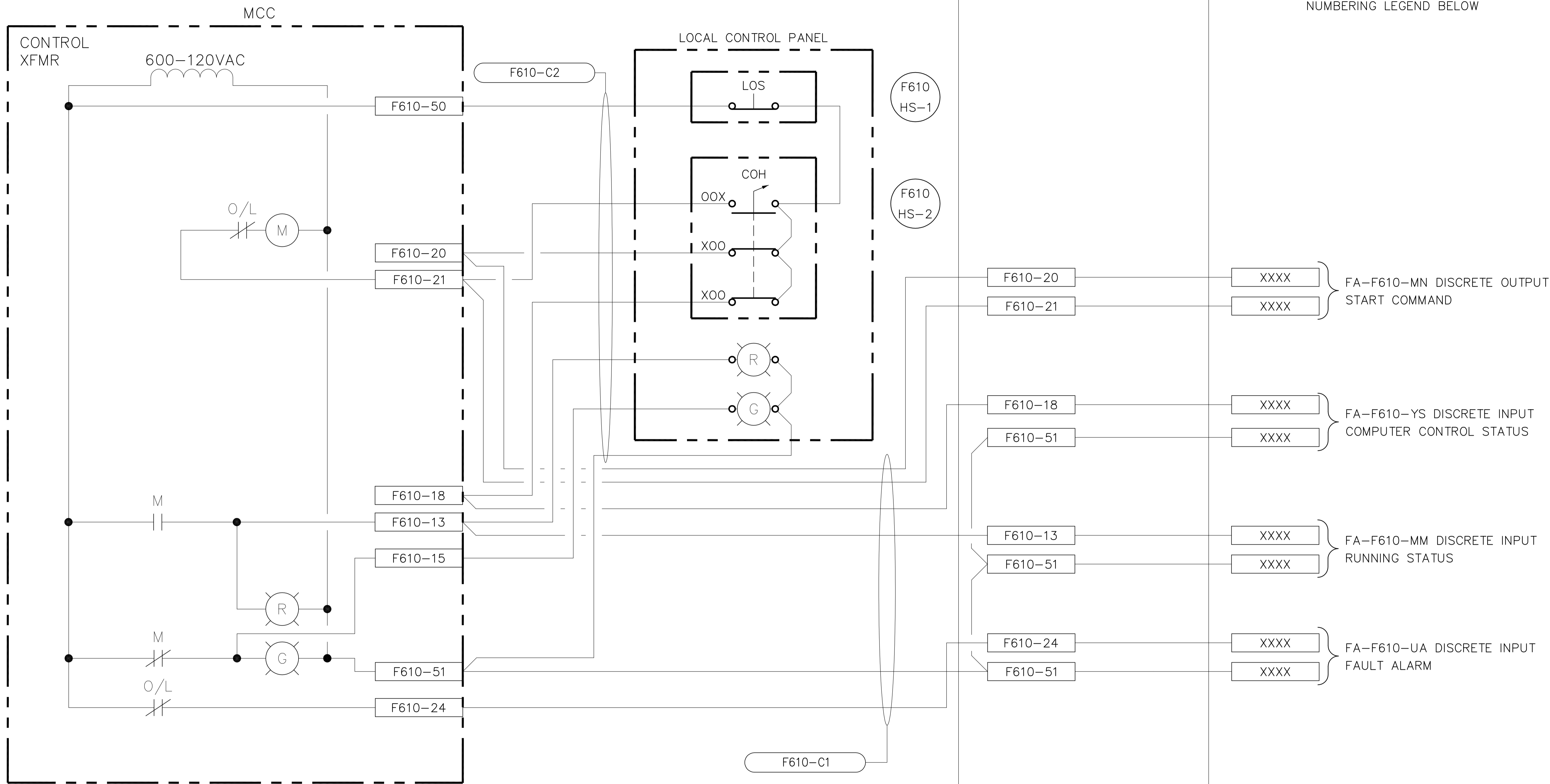
LOOP NO. F610

FIELD

FIELD DEVICE PANEL

DCS

REFER TO DCS TERMINAL NUMBERING LEGEND BELOW



DCS TERMINAL NUMBERING

TYPICAL TERMINAL NUMBER → 4 1 A +7A  
 CABINET NUMBER (0-9) →  
 ROW NUMBER (1-10) →  
 ZONE IDENTIFIER (A/A1 - D/D1) →  
 TERMINAL IDENTIFIER →



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TYPICAL INSTRUMENT LOOP DIAGRAM  
 FIXED SPEED DRIVE

DRAWING NO.  
 ILD-12

DATE	REVISION	APP.

INSTRUMENT LOOP DIAGRAM

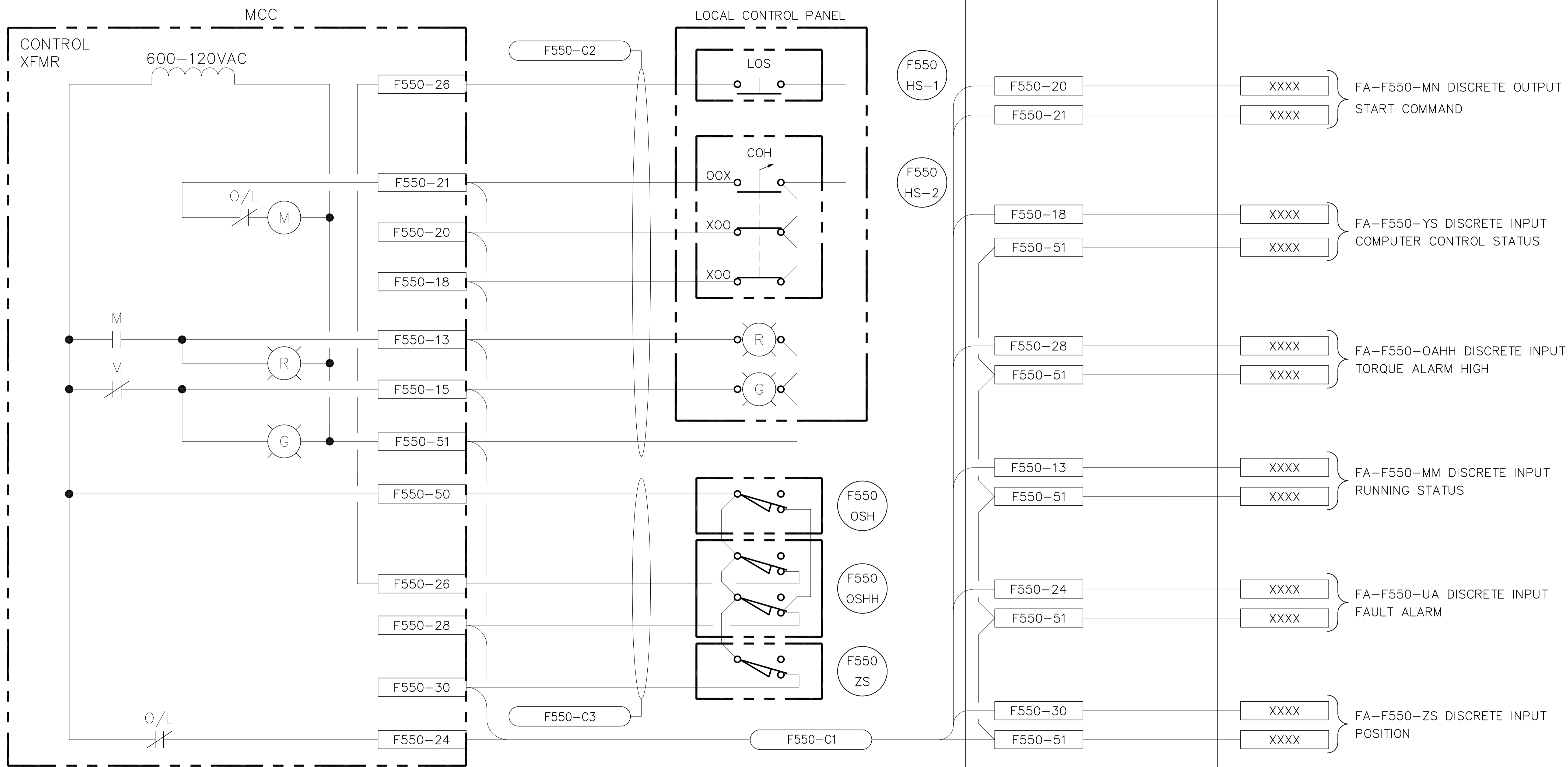
LOOP NO. F550

FIELD

FIELD DEVICE PANEL

DCS

REFER TO DCS TERMINAL NUMBERING LEGEND BELOW



DCS TERMINAL NUMBERING

TYPICAL TERMINAL NUMBER → 4 1 A +7A  
 CABINET NUMBER (0-9) →  
 ROW NUMBER (1-10) →  
 ZONE IDENTIFIER (A/A1 - D/D1) →  
 TERMINAL IDENTIFIER →



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 CKD BL APP SWT

TYPICAL INSTRUMENT LOOP DIAGRAM  
 FERMENTER MECHANISM DRIVE

DRAWING NO.  
 ILD-13

DATE REVISION APP.

INSTRUMENT LOOP DIAGRAM

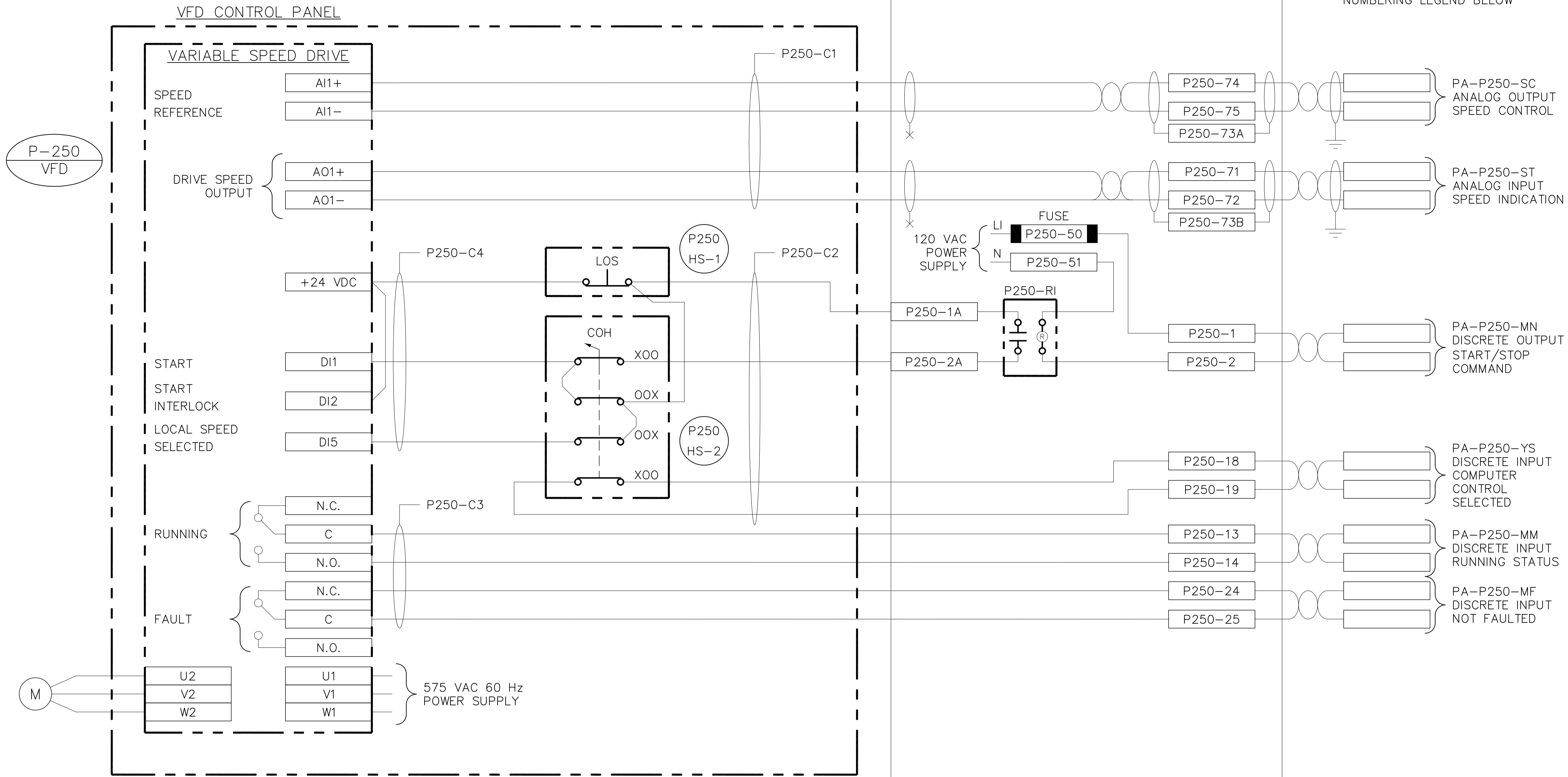
LOOP NO. P250

FIELD

FIELD DEVICE PANEL

DCS

REFER TO DCS TERMINAL NUMBERING LEGEND BELOW



DCS TERMINAL NUMBERING

TYPICAL TERMINAL NUMBER → 4 1 A +7A

CABINET NUMBER (0-9) →

ROW NUMBER (1-10) →

ZONE IDENTIFIER (A/A1 - D/D1) →

TERMINAL IDENTIFIER →



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TYPICAL INSTRUMENT LOOP DIAGRAM  
 VARIABLE SPEED DRIVE

DRAWING NO.  
 ILD-14

DATE REVISION APP.