

**TECHNICAL SPECIFICATION**

Nº: I-ET-3010.2D-5520-800-P4X-003

CLIENT: AGUP

SHEET: 1 of 12

JOB: HIGH CAPACITY FPSO - GAS EXPORTATION ALL ELECTRIC

AREA: ATAPU 2 AND SÉPIA 2

SRGE

TITLE: **TOPSIDES AND HULL AUTOMATION  
INTERFACE**

INTERNAL

ESUP

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**INDEX OF REVISIONS****REV.****DESCRIPTION AND/OR REVISED SHEETS**

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## 1 INTRODUCTION

### 1.1 Object


1.1.1 This Technical Specification describes the communication interfaces for integration of Topsides and Hull A&C Systems of the UNIT.

### 1.2 Definitions

1.2.1 Refer to I-ET-3010.00-1200-940-P4X-002 – GENERAL TECHNICAL TERMS.

### 1.3 Abbreviations, Acronyms and Initialisms

A&C	Automation & Control
AEPR	Automation & Electrical Panels Room
AMS	Asset Monitoring System
BDV	Blowdown Valve
CCR-ATR	Central Control Room – Automation and Turbomachinery Room
CCR-EA	Central Control Room – Equipment Ambiance
CCR-OA	Central Control Room – Operation Ambiance
CSS	Control and Safety System
CPU	Central Processing Unit
DHSV	Down Hole Safety Valve
DHSV-e	Electrical Actuated DHSV
ESD	Emergency Shutdown
FGS	Fire and Gas System
HCS	Hull Control System
HFGS	Hull Fire and Gas System
HSD	Hull Process Shutdown System
HMI	Human-Machine Interface
LAN	Local Area Network
MMS	Machine Monitoring System
OWS	SUBSEA OPERATION WORKSTATION
PA/GA	Public Announcement/General Alarm
PAP	Protection and Acquisition Panel
PCS	Process Control System
PLC	Programmable Logic Controller
PSD	Process Shutdown System
SAS	Subsea Data Acquisition System
SOS	Supervisory and Operation System
TEAP	TOPSIDES ELECTRICAL ASSIGNMENT PANEL

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## 2 REFERENCE DOCUMENTS, CODES AND STANDARDS

### 2.1 External References

#### IEC - INTERNATIONAL ELECTROTECHNICAL COMMISSION

IEC 60079 EXPLOSIVE ATMOSPHERES – ALL PARTS  
 IEC 60529 DEGREES OF PROTECTION PROVIDED BY ENCLOSURES (IP CODE)

#### INMETRO – INSTITUTO NACIONAL DE METROLOGIA, NORMALIZAÇÃO E QUALIDADE INDUSTRIAL

PORTARIA Nº 115 (21/MARÇO/2022) REQUISITOS DE AVALIAÇÃO DA CONFORMIDADE PARA EQUIPAMENTOS ELÉTRICOS PARA ATMOSFERAS EXPLOSIVAS - CONSOLIDADO.


### 2.2 Internal References

#### 2.2.1 Project Documents

I-DE-3010.2D-5520-800-P4X-002	AUTOMATION AND CONTROL ARCHITECTURE
I-DE-3010.2E-1200-800-P4X-001	CENTRAL CONTROL ROOM LAYOUT
I-DE-3010.00-5140-797-P4X-001	ELECTRICAL SYSTEM AUTOMATION ARCHITECTURE DIAGRAM
I-DE-3010.00-5140-797-P4X-002	ELECTRICAL SYSTEM AUTOMATION TYPICAL ACTUATION DIAGRAMS
I-ET-3010.00-5140-700-P4X-003	ELECTRICAL REQUIREMENTS FOR PACKAGES FOR OFFSHORE UNITS
I-ET-3010.00-5520-861-P4X-002	SUPERVISION AND OPERATION SYSTEM – SOS
I-LI-3010.2D-1200-940-P4X-002	EQUIPMENT LIST
I-DE-3010.2D-5140-946-P4X-002	KEY ONE-LINE DIAGRAM
I-DE-3010.2D-5140-946-P4X-003	TOPSIDE 220V SYSTEMS ONE-LINE DIAGRAM
I-DE-3010.2E-5146-946-P4X-003	HULL 220V SYSTEMS ONE-LINE DIAGRAM
I-DE-3010.2D-5265-946-P4X-001	TOPSIDE UPS AND DC SYSTEMS ONE-LINE DIAGRAM
I-DE-3010.2E-5265-946-P4X-002	HULL UPS AND DC SYSTEMS ONE-LINE DIAGRAM
I-LI-3010.00-5140-797-P4X-001	ELECTRICAL SYSTEM AUTOMATION INTERFACE SIGNALS LIST

#### 2.2.2 PETROBRAS Reference Documents

DR-ENGP-M-I-1.3 SAFETY ENGINEERING GUIDELINE

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### 2.3 Classification Society

The Detail Design Phase shall be submitted to approval by Classification Society. The design and installation shall take into account their requirements and comments.

## 3 INTERFACE DESCRIPTION

### 3.1 General

3.1.1 A&C System of the UNIT is composed by 2 (two) A&C Systems: Topsides A&C System, responsible for automation and control of the plant unit, and Hull A&C System, responsible for the automation and control of Hull and facilities. For further details, see documents listed at 2.2.1.

3.1.2 All instruments, panels, materials and equipment proper to be used in hazardous areas, shall have conformity certificates complying with PORTARIA INMETRO N° 115 de 21/MARÇO/2022, and its annexes, and shall be approved by Classification Society.

3.1.3 The interface signals described in item 4 shall pass through PN-5500550 (INTERFACE PANEL HULL x TOPSIDE). For requirements and specifications of this panel, see item 3.2.

3.1.4 Definition of electrical actuation of each electrical load is in accordance with I-ET-3010.00-5140-700-P4X-003 – ELECTRICAL REQUIREMENTS FOR PACKAGES FOR OFFSHORE UNITS.

3.1.5 Additional interface signals (not mentioned in item 4) may be needed according to Detail Engineering Design.

3.1.6 Hull A&C System integration with Topsides A&C System shall consider that:

- All hardwired and optical interconnections between CCR-OA and AEPR shall be routed through junction boxes close to the CCR-EA after passing through PN-5500550. These junction boxes shall be located outside accommodation module, where a terminal strip for input and another for output points shall be available. These junction boxes shall be used to optical fiber and hardwired signals passages.
- Hull Electro-Optical Conversion Panel (PN-5523505), located at CCR-EA and Topsides Electro-Optical Conversion Panel (PN-5523005), located at AEPR, shall be used for optical interconnections from junction boxes cited above, for more information on signals interconnected to these panels, refer to I-DE-3010.2D-5520-800-P4X-002 - AUTOMATION AND CONTROL ARCHITECTURE. Electro-optical converters shall be installed in these panels. Hardwired interconnection shall not be considered in these panels.
- Cables, multicables and optical fibers interconnecting the CCR-EA to Topsides equipment installed inside CCR-OA or RADIO ROOM shall be Topsides scope. Cables length shall comply with I-DE-3010.2E-1200-800-P4X-001 – CENTRAL

CONTROL ROOM LAYOUT. These cables shall have free plus 5 m length each. Routing, size and general specification of these cables shall be defined during Detail Design and shall be agreed upon by all parts involved.

- Cables used inside CCR-OA shall be Topsides scope, when used to interconnect equipment supplied by Topsides.
- Power supply for all automation panels, workstations and electrical devices installed in AEPR is described in technical I-ET-3010.00-5140-700-P4X-003 ELECTRICAL REQUIREMENTS FOR PACKAGES FOR OFFSHORE UNITS.

### 3.2 PN-5500550 Requirements

3.2.1 This panel shall contain all necessary means to perform the interconnection of the signals described in item 4.

3.2.2 PN-5500550 shall be considered as a standard panel, with dimensions of, at least, 1.6 m x 0.8 m x 2.0 m (L x W x H). It shall have IP-56 protection degree, according to IEC 60529 and shall be classified as Ex-e, according to IEC-60079. This panel shall be made of AISI 316L stainless steel plates.

### 3.3 Automation Equipment

#### 3.3.1 Hull Automation Equipment

3.3.1.1 For interface purposes, the following equipment represented at I-DE-3010.2D-5520-800-P4X-002 - AUTOMATION AND CONTROL ARCHITECTURE shall be considered as Hull Automation Equipment, even if located in Topsides areas or furnished by Topsides SELLER. Their dimensions, weight and nominal power are described in I-LI-3010.2D-1200-940-P4X-002 – EQUIPMENT LIST.

Quantity	Tag	Description	Localization
1	PN-1358501	REMOTE ULLAGE, PRESSURE AND TEMPERATURE MONITORING PANEL	CCR-EA
1	PN-1358502	REMOTE ULLAGE, PRESSURE AND TEMPERATURE MONITORING WORKSTATION	CCR-OA
1	PN-1358503	STABILITY AND LOAD CALCULATION WORKSTATION	CCR-OA
1	PN-1358504	HIGH LEVEL OVERFILL SYSTEM PANEL	CCR-EA
1	PN-1358505	HIGH LEVEL OVERFILL ALARM VIEWER PANEL	CCR-OA
1	PN-5500506	HULL MMS PROTECTION AND ACQUISITION PANEL (HULL PAP)	CCR-EA
1	PN-5500516	HULL CPU PANEL	CCR-EA
1	PN-5500550	INTERFACE PANEL HULL X TOPSIDE	NOTE 1
1	PN-5520501	HULL CSS PANEL	CCR-EA
1	PN-5520502	HULL CSS REMOTE I/O PANEL	CCR-EA
1	PN-5520503	HULL CSS REMOTE I/O PANEL	MAIN DECK - ESSENTIAL PANELS ROOM (EPR)
1	PN-5520504	HULL CSS REMOTE I/O PANEL	MAIN DECK - ESSENTIAL PANELS ROOM (EPR)
1	PN-5520505	HULL CSS REMOTE I/O PANEL	ENGINE ROOM 2ND DECK



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Quantity	Tag	Description	Localization
1	PN-5520506	HULL CSS REMOTE I/O PANEL	ENGINE ROOM 5TH DECK
1	PN-5520507	HULL CSS REMOTE I/O PANEL	MAIN DECK - FWD PANELS ROOM (FORECASTLE)
1	PN-5520508	HULL CSS REMOTE I/O PANEL	M-15B
1	PN-5522501	HULL ADDRESSABLE FIRE DETECTION SYSTEM PANEL	CCR-EA
1	PN-5522502	HULL ADDRESSABLE FIRE DETECTION SYSTEM VIEWER PANEL	CCR-OA
1	PN-5523506	HULL SOS PROCESS CLUSTER	CCR-EA
1	PN-5523507	HULL SOS SAFETY CLUSTER	CCR-EA
1	PN-5523508	HULL SOS CLUSTERS PANEL	CCR-EA
5	PN-5523502A/E	HULL SOS HMI	CCR-OA
1	PN-5523503	HULL MAIN HMI	CCR-OA
1	PN-5523505	HULL ELECTRO-OPTICAL CONVERSION PANEL	CCR-EA
1	PN-1358510	HULL STRUCTURE HEALTH MONITORING SYSTEM PANEL	MAIN DECK - FWD PANELS ROOM (FORECASTLE)
1	PN-5525501	HC SAMPLING SYSTEM PANEL	MAIN DECK - FWD PANELS ROOM (FORECASTLE)
1	PN-5525502	HC SAMPLING SYSTEM DETECTOR CABINET (S)	MAIN DECK
1	PN-5525503	HC SAMPLING SYSTEM DETECTOR CABINET (P)	MAIN DECK
1	PN-5525511	O2 SAMPLING SYSTEM PANEL (HC BLANKET)	MAIN DECK - FWD PANELS ROOM (FORECASTLE)
1	PN-5525512	O2 SAMPLING SYSTEM DETECTOR CABINET (HC BLANKET) (S)	MAIN DECK
1	PN-5525513	O2 SAMPLING SYSTEM DETECTOR CABINET (HC BLANKET) (P)	MAIN DECK
1	PN-5527501	HULL OPERATOR DESK ALARM PANEL	CCR-OA
1	PN-5527001	TOPSIDES OPERATOR DESK ALARM PANEL	CCR-OA

**NOTE 1:** This panel location shall be defined by Detail Engineering Design Phase.

**3.3.2 Topsides Automation Equipment**

3.3.2.1 For interface purposes, the following equipment represented at I-DE-3010.2D-5520-800-P4X-002 – AUTOMATION AND CONTROL ARCHITECTURE shall be considered as Topsides Automation Equipment, even if located in Hull areas or furnished by Hull SELLER. Their dimensions, weight and nominal power are described in I-LI-3010.2D-1200-940-P4X-002 – EQUIPMENT LIST.

Quantity	Tag	Description	Localization
2	PN-1210001A/B	SUBSEA MASTER CONTROL STATION	A & E PANELS ROOM (M-17)
2	PN-1210002A/B	SUBSEA MASTER CONTROL STATION	A & E PANELS ROOM (M-17)
2	PN-1210003A/B	SUBSEA MASTER CONTROL STATION	A & E PANELS ROOM (M-17)
2	PN-1210004A/B	SUBSEA MASTER CONTROL STATION	A & E PANELS ROOM (M-17)
2	PN-1210005A/B	SUBSEA MASTER CONTROL STATION	A & E PANELS ROOM (M-17)
4	PN-1210010A/D	SUBSEA OPERATION WORKSTATION (OWS)	CCR-OA
6	PN-1210011A/F	CI-ELETRICAL / DHSV-E PANELS)	A & E PANELS ROOM (M-17)


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Quantity	Tag	Description	Localization
2	PN-1210016A/B	TOPSIDES ELECTRICAL ASSIGNMENT PANEL (TEAP)	A & E PANELS ROOM (M-17)
1	PN-1223001	FLOW METERING SYSTEM PANEL	A & E PANELS ROOM (M-17)
1	PN-1223002	FLOW METERING SYSTEM MONITOR	CCR-OA
1	PN-5400002A	EMERGENCY PANEL	CCR-OA
1	PN-5400002B	EMERGENCY PANEL	RADIO ROOM
2	PN-5500001A/B	AUTOMATION ENGINEERING WORKSTATION	CCR-ATR
1	PN-5500004	CORROSION MONITORING SYSTEM PANEL	A & E PANELS ROOM (M-17)
2	PN-5500005A/B	AUTOMATION MAINTENANCE WORKSTATION	CCR-ATR
1	PN-5500007	MMS SERVER PANEL	A & E PANELS ROOM (M-17)
1	PN-5500008	MMS WORKSTATION	CCR-ATR
1	PN-5500009	TOPSIDES MMS PROTECTION AND ACQUISITION PANEL (TOPSIDES PAP)	A & E PANELS ROOM (M-17)
4	PN-5500010A/D	COMPRESSION CAPACITY CONTROL SYSTEM WORKSTATIONS	CCR-OA
1	PN-5500011	ASSET MANAGEMENT SYSTEM (AMS) WORKSTATION	CCR-ATR
1	PN-5500013	ASSET MANAGEMENT SYSTEM (AMS) WORKSTATION	INSTRUMENTATION WORKSHOP
1	PN-5500014	MMS SERVER PANEL	A & E PANELS ROOM (M-17)
1	PN-5500015	MMS WORKSTATION	CCR-ATR
1	PN-5500016	TOPSIDES CPU PANEL	A & E PANELS ROOM (M-17)
1	PN-5520001	TOPSIDES CSS PANEL	A & E PANELS ROOM (M-17)
1	PN-5520101	CSS TOPSIDES REMOTE I/O PANEL	M-01
1	PN-5520102	CSS TOPSIDES REMOTE I/O PANEL	M-02
1	PN-5520104	CSS TOPSIDES REMOTE I/O PANEL	M-04
2	PN-5520105A/B	CSS TOPSIDES REMOTE I/O PANEL	M-05 / M-05B
1	PN-5520106	CSS TOPSIDES REMOTE I/O PANEL	M-06
2	PN-5520107A/B	CSS TOPSIDES REMOTE I/O PANEL	M-07A / M-07B
1	PN-5520109	CSS TOPSIDES REMOTE I/O PANEL	M-09
3	PN-5520110A/B/C	CSS TOPSIDES REMOTE I/O PANEL	M-10 / M-10B / M-10C
1	PN-5520111	CSS TOPSIDES REMOTE I/O PANEL	M-11
1	PN-5520112	CSS TOPSIDES REMOTE I/O PANEL	M-13 ROOMS
2	PN-5520113A/B	CSS TOPSIDES REMOTE I/O PANEL	M-13 ROOMS
1	PN-5520114	CSS TOPSIDES REMOTE I/O PANEL	M-14
1	PN-5520115	CSS TOPSIDES REMOTE I/O PANEL	M-15
1	PN-5520117	CSS TOPSIDES REMOTE I/O PANEL	A & E PANELS ROOM (M-17)
1	PN-5522001	TOPSIDES ADDRESSABLE FIRE DETECTION SYSTEM PANEL	A & E PANELS ROOM (M-17)



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Quantity	Tag	Description	Localization
1	PN-5522002	TOPSIDES ADDRESSABLE FIRE DETECTION SYSTEM VIEWER PANEL	CCR-OA
2	PN-5523008A/B	PACKAGE MAINTENANCE WORKSTATION	CCR-ATR
1	PN-5523009	TOPSIDES SOS PROCESS CLUSTER	A & E PANELS ROOM (M-17)
1	PN-5523010	TOPSIDES SOS SAFETY CLUSTER	A & E PANELS ROOM (M-17)
1	PN-5523011	TOPSIDES SOS CLUSTERS PANEL	A & E PANELS ROOM (M-17)
5	PN-5523002A/E	TOPSIDES SOS HMIS	CCR-OA
1	PN-5523003	TOPSIDES MAIN HMI	CCR-OA
1	PN-5523004	FIRE & GAS HMI	CCR-OA
1	PN-5523005	TOPSIDES ELECTRO-OPTICAL CONVERSION PANEL	A & E PANELS ROOM (M-17)
2	PN-5523006/B	REMOTE ACCESS WORKSTATION	CCR-OA
2	PN-5523007A/B	OPERATOR'S ROOM SOS HMIS	(M-15B LAB) LABORATORY OPERATOR'S ROOM
4	PN-5524002A/D	IWCS PANEL	A & E PANELS ROOM (M-17)

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## 4 TOPSIDES AND HULL AUTOMATION INTERFACES

### 4.1 Hardwired Interface


4.1.1 The following hardwired interfaces between Toppers CSS and Hull CSS shall be done:

QUANTITY	TYPE	PANEL 1	PANEL 2	PURPOSE
1	DISCRETE	PN-5400002A	CSS-PSD Controllers	ESD-2
1	DISCRETE	PN-5400002B	CSS-PSD Controllers	ESD-2
2	DISCRETE	PN-5400002A	CSS-FGS Controllers	ESD-3P and ESD-3T
2	DISCRETE	PN-5400002B	CSS-FGS Controllers	ESD-3P and ESD-3T
1	DISCRETE	PN-5400002A	CSS-FGS Controllers	ESD-4
1	DISCRETE	PN-5400002B	CSS-FGS Controllers	ESD-4
1	DISCRETE	PN-5400002A	CSS-FGS Controllers	Prepare to abandon Push button
1	DISCRETE	PN-5400002B	CSS-FGS Controllers	Prepare to abandon Push button
2	DISCRETE	CSS-FGS Controllers	(PA/GA)	Initiation of the sound alarm prepares to abandon
NOTE 1	DISCRETE	PN-5400002A	CSS-FGS Controllers	BDV's actuation. One signal per BDV
1	DISCRETE	CSS-PSD Controllers	CSS-HSD Controllers	ESD-2
1	DISCRETE	CSS-HSD Controllers	CSS-PSD Controllers	ESD-2
4	DISCRETE	CSS-FGS Controllers	CSS-HFGS Controllers	ESD-3P, ESD-3T, Fire Pump and Foam Pump Starts
1	DISCRETE	CSS-FGS Controllers	CSS-HFGS Controllers	ESD-4
1	DISCRETE	CSS-HFGS Controllers	CSS-FGS Controllers	ESD-4
2	DISCRETE	CSS-HFGS Controllers	CSS-FGS Controllers	ESD-3P and ESD-3T
4	DISCRETE	CSS-PCS Controllers	CSS-HCS Controllers	B-5133502A/B Pump start and stop commands (NOTE 3)
2	DISCRETE	CSS-PSD Controllers	CSS-HSD Controllers	B-5133502A/B Pump Trip command (NOTE 3)
4	DISCRETE	CSS-PCS Controllers	CSS-HCS Controllers	B-5133501A/B Pump start / stop (NOTE 3)
2	DISCRETE	CSS-PSD Controllers	CSS-HSD Controllers	B-5133501A/B Pump Trip Command (NOTE 3)
NOTE 2	ANALOG	TQ-5331501P/S	CSS-PSD Remote I/O Panels	TQ-5331501P/S commands
NOTE 2	DISCRETE	TQ-5331501P/S	CSS-PSD Remote I/O Panels	TQ-5331501P/S commands
NOTE 2	ANALOG	TQ-5331501P/S	CSS-PCS Remote I/O Panels	TQ-5331501P/S commands
NOTE 2	DISCRETE	TQ-5331501P/S	CSS-PCS Remote I/O Panels	TQ-5331501P/S commands
1	DISCRETE	CSS-PSD Controllers	PSD Alarms Panel	Signal to initiate sound and visual indication for PSD main alarms
1	DISCRETE	CSS-FGS Controllers	FGS Alarms Panel	Signal to initiate sound and visual indication for FGS
1	ANALOG	CSS-HCS Controllers	CSS-PCS – Controllers	Pressure reading of the HC/IG Header
1	DISCRETE	CSS-HCS Controllers	CSS-PCS – Controllers	Signal selection between HC/IG Operation

**NOTE 1:** Final quantity of BDVs, and therefore, the quantity of hardwired connections shall be confirmed during Detail Design phase.

**NOTE 2:** Final quantity of signals to be confirmed during Detail Design phase.

**NOTE 3:** HULL Seller is responsible for implementing selection logic between pumps A and B.

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4.1.2 Whenever a Topside load is powered by a Hull electrical panel interfaces between Topside CSS Remote I/O Panel and Hull electrical panel shall be foreseen. Similarly, whenever a Hull load is powered by a Topside electrical panel interfaces between Hull CSS Remote I/O Panel and Topside electrical panel shall be foreseen.

For the required interfaces for each load type, refer to I-LI-3010.00-5140-797-P4X-001 - ELECTRICAL SYSTEM AUTOMATION INTERFACE SIGNALS LIST. To identify which Topside Loads are powered by a Hull electrical panel, refer to the following One-Line diagrams:

- I-DE-3010.2D-5140-946-P4X-002 - KEY ONE-LINE DIAGRAM
- I-DE-3010.2D-5140-946-P4X-003 - TOPSIDE 220V SYSTEMS ONE-LINE DIAGRAM
- I-DE-3010.2E-5146-946-P4X-003 - HULL 220V SYSTEMS ONE-LINE DIAGRAM
- I-DE-3010.2D-5265-946-P4X-001 - TOPSIDE UPS AND DC SYSTEMS ONE-LINE DIAGRAM
- I-DE-3010.2E-5265-946-P4X-002 - HULL UPS AND DC SYSTEMS ONE-LINE DIAGRAM

4.1.3 For more information related to interfaces with electrical system, such as interfaces signals with PN-TG-5147001A/B/C/D/E/F-01, see I-LI-3010.00-5140-797-P4X-001 - ELECTRICAL SYSTEM AUTOMATION INTERFACE SIGNALS LIST.

## 4.2 Optical Interface

4.2.1 The following optical interfaces between Toppides and Hull shall be done:

QUANTITY OF PAIRS (CONNECTIONS)	TYPE	EQUIPMENT 1	EQUIPMENT 2
2	MULTIMODE	Package LAN Hull Switches	Package LAN Toppides Switches
2	MULTIMODE	CSS LAN Hull Switches	CSS LAN Toppides Switches
2	MULTIMODE	SOS LAN Hull Switches	SOS LAN Toppides Switches
4	MULTIMODE	PN-1210010A/D	PN-1210001-005A/B via switch inside PN-5524001A/B
1	MULTIMODE	PN-5522001	PN-5522002
4	MULTIMODE	Compression Capacity Control System LAN (NOTE 1)	PN-5500010A/D
1	MULTIMODE	PN-5500506	PN-5500007
1	MULTIMODE	PN-5500007	PN-5500008
1	MULTIMODE	PN-5500015	PN-5500014
1 (NOTE 2)	MULTIMODE	HCS PLC (PN-5520501)	To HSDN
1 (NOTE 2)	MULTIMODE	HSD PLC (PN-5520501)	To HSDN
1 (NOTE 2)	MULTIMODE	HFGS PLC (PN-5520501)	To HSDN
1	MULTIMODE	PN-TG-5147001A/F-01	PN-TG-5147001A/F-03
1	MULTIMODE	PN-UC-1225001A/B-01	PN-UC-1225001A/B-04
1	MULTIMODE	PN-UC-1231001A/C-01	PN-UC-1231001A/C-04
1	MULTIMODE	PN-UC-1231002A/D-01	PN-UC-1231002A/D-04
1	MULTIMODE	PN-UC-1252001A/B-01	PN-UC-1252001A/B-04
1	MULTIMODE	PN-UC-1254001A/C-01	PN-UC-1254001A/C-04

**NOTE 1:** This interface shall be specified during detailing design. For more information, refer to I-DE-3010.2D-5520-800-P4X-002 - AUTOMATION AND CONTROL ARCHITECTURE.

**NOTE 2:** Depending on HSDN Topology, the quantity of pairs may vary.

## 4.3 Software Interface

4.3.1 In order to serve Fire and Gas HMI (PN-5523004), Toppides SOS RTDS (FGS) shall acquire data from HFGS PLC and display in PN-5523004 information from Fire and Gas Systems from both FGS and HFGS PLCs.

4.3.2 For further information about this integration, refer to I-ET-3010.00-5520-861-P4X-002 - SUPERVISION AND OPERATION SYSTEM – SOS.