



Monitoring a Subsea XT without the Control System

Subsea Controls Down Under 2024





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Sensor Types & SIIIS Levels

Finding a Connection

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Simplify Subsea Testing

Subsea XT Sensors

SIIS & IWIS

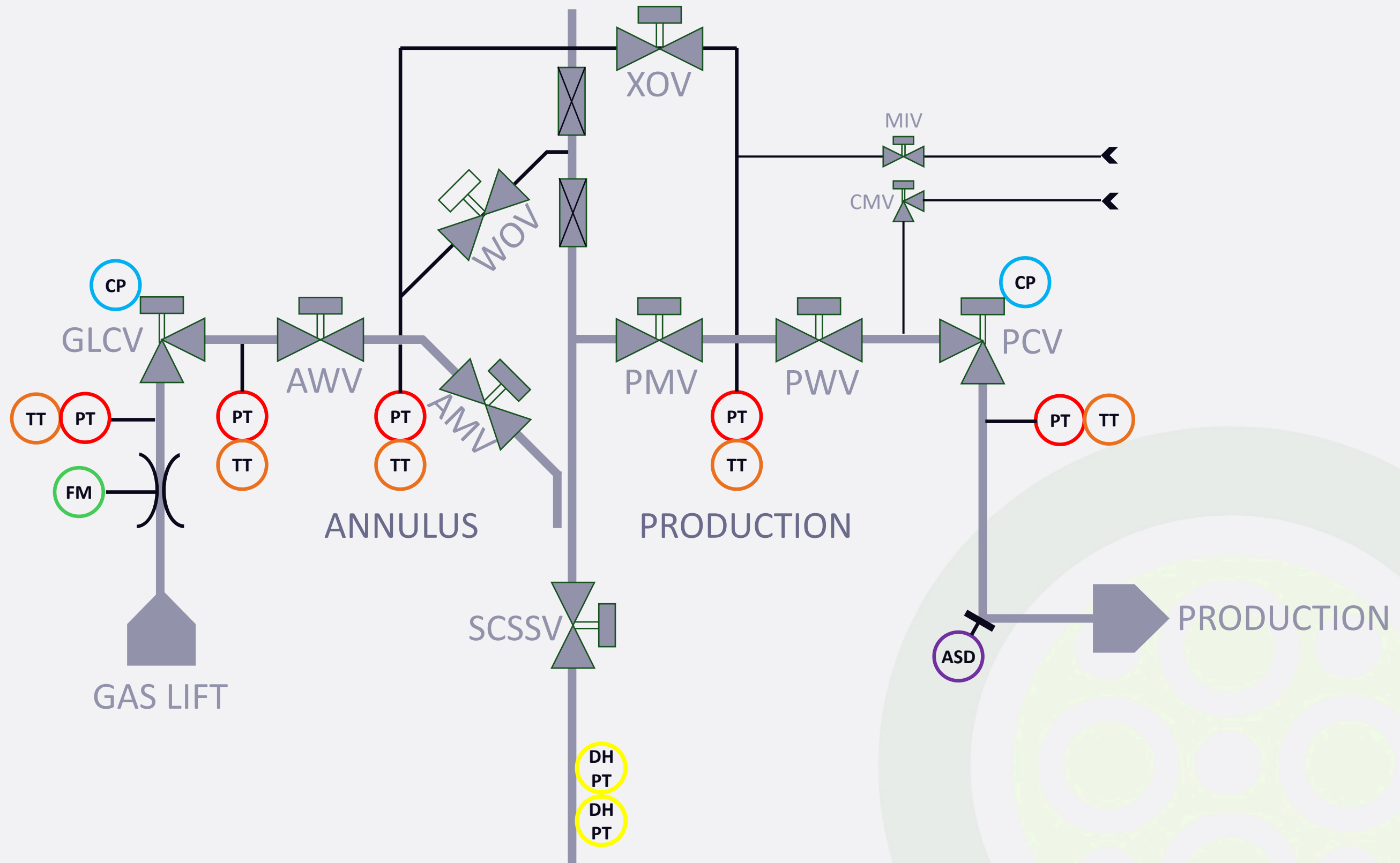
Subsea Instrumentation Standardisation (SIIS)

- Level 1: Analogue (4-20mA)
- Level 2: Digital Serial (CANopen)
- Level 3: Ethernet TCP/IP

- Pressure
- Temperature
- Flow
- Choke Position
- Sand Detection

Intelligent Well Interface Standard (IWIS)

- Down-Hole PT



Simplify Subsea Testing

Subsea XT Sensors

No Surface Comms – When?

- ❖ Subsea Control System has not been commissioned
- ❖ Specific sensor is not being read at Master Control Station
- ❖ Subsea Controls have been decommissioned but well is not fully Plugged & Abandoned

Sensor Monitor Specification

● Analog Sensors

● Digital Sensors

● Connection Modes

● Display Units

● Datalogging

● Triggering

0 to 20mA, 0 to 20V

RS485, CAN, MODBUS, & Others

2, 3 & 4-Wire Modes

Programmable Units

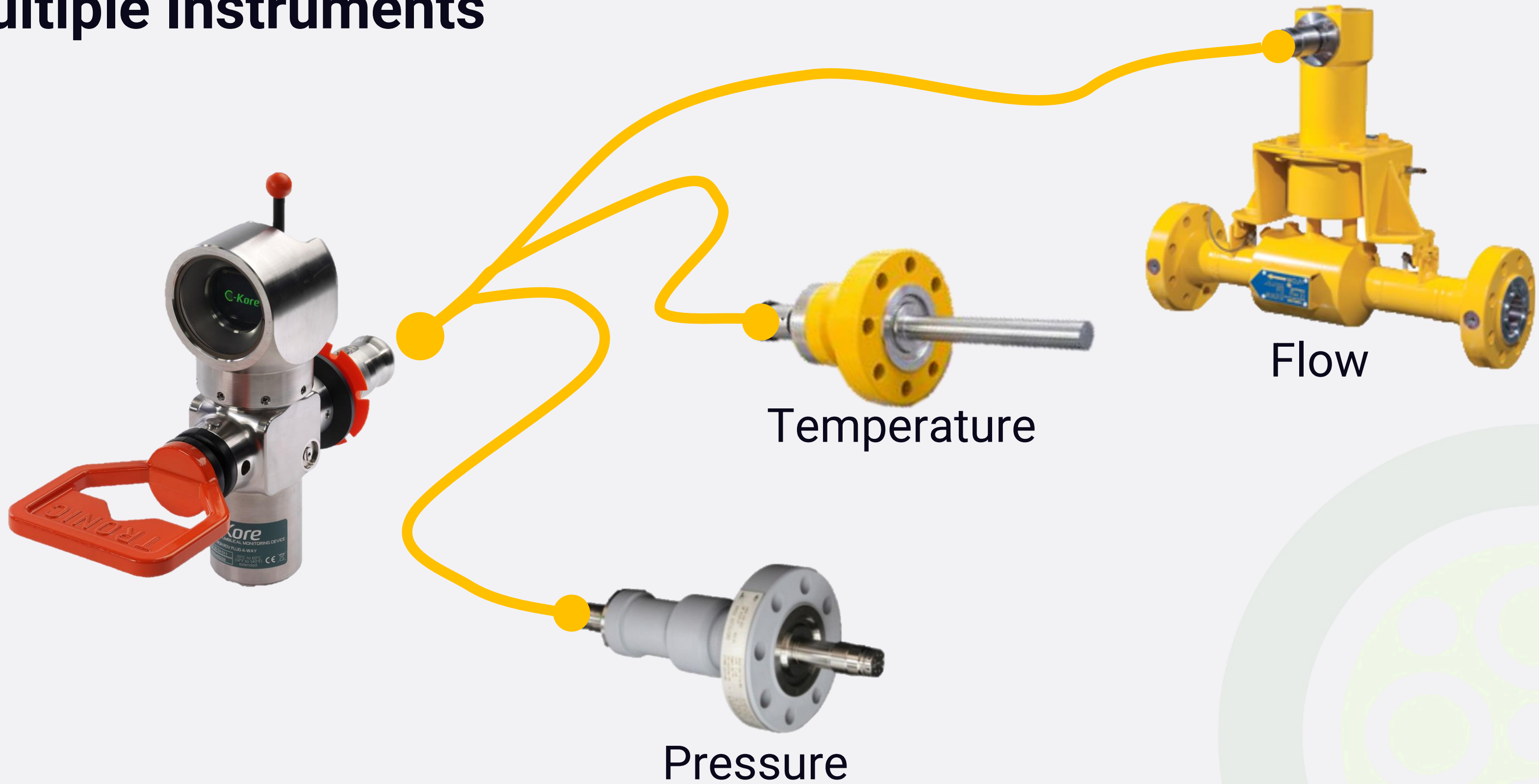
Every Measurement

Light / Proximity / Schedule



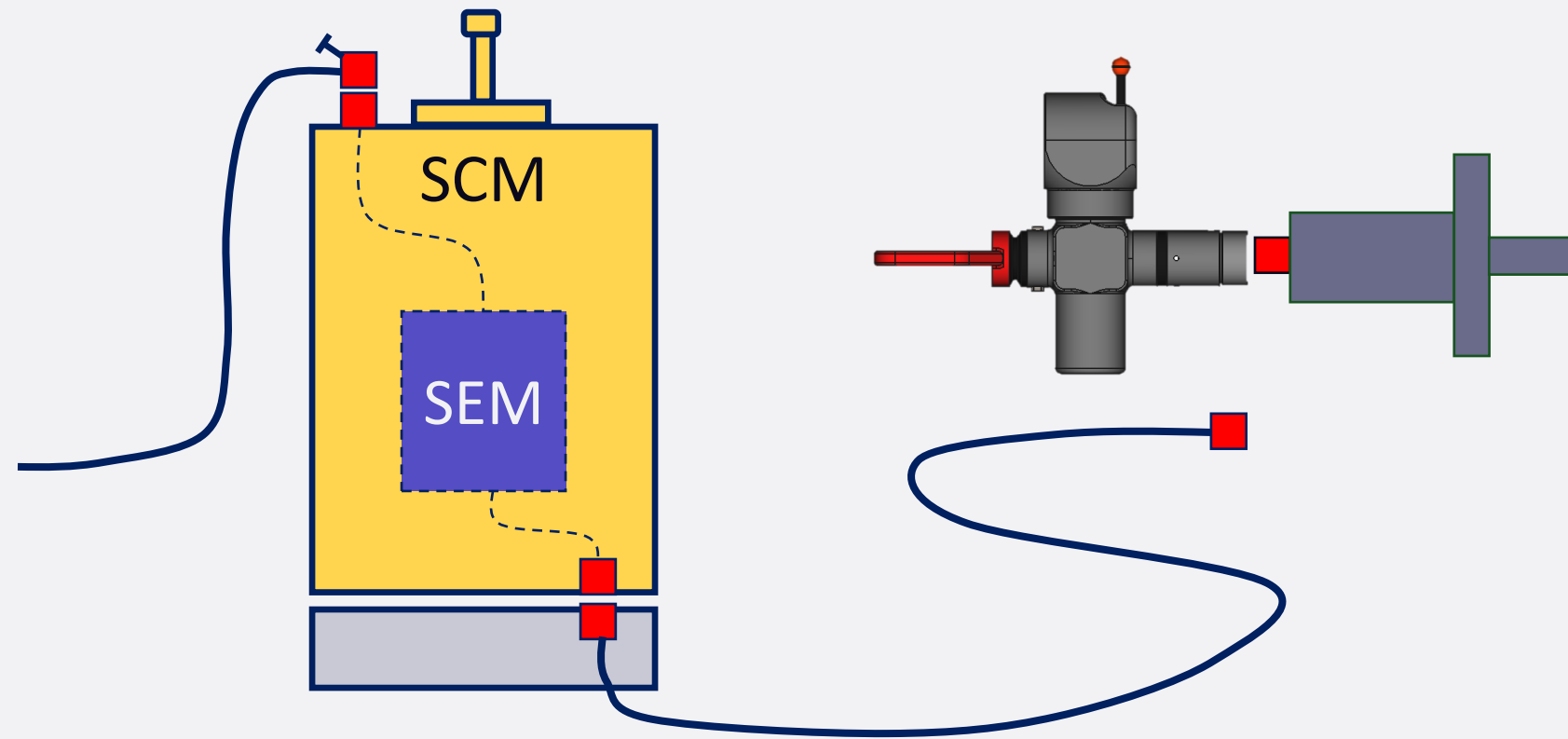
Simplify Subsea Testing

Sensor Monitor Multiple Instruments



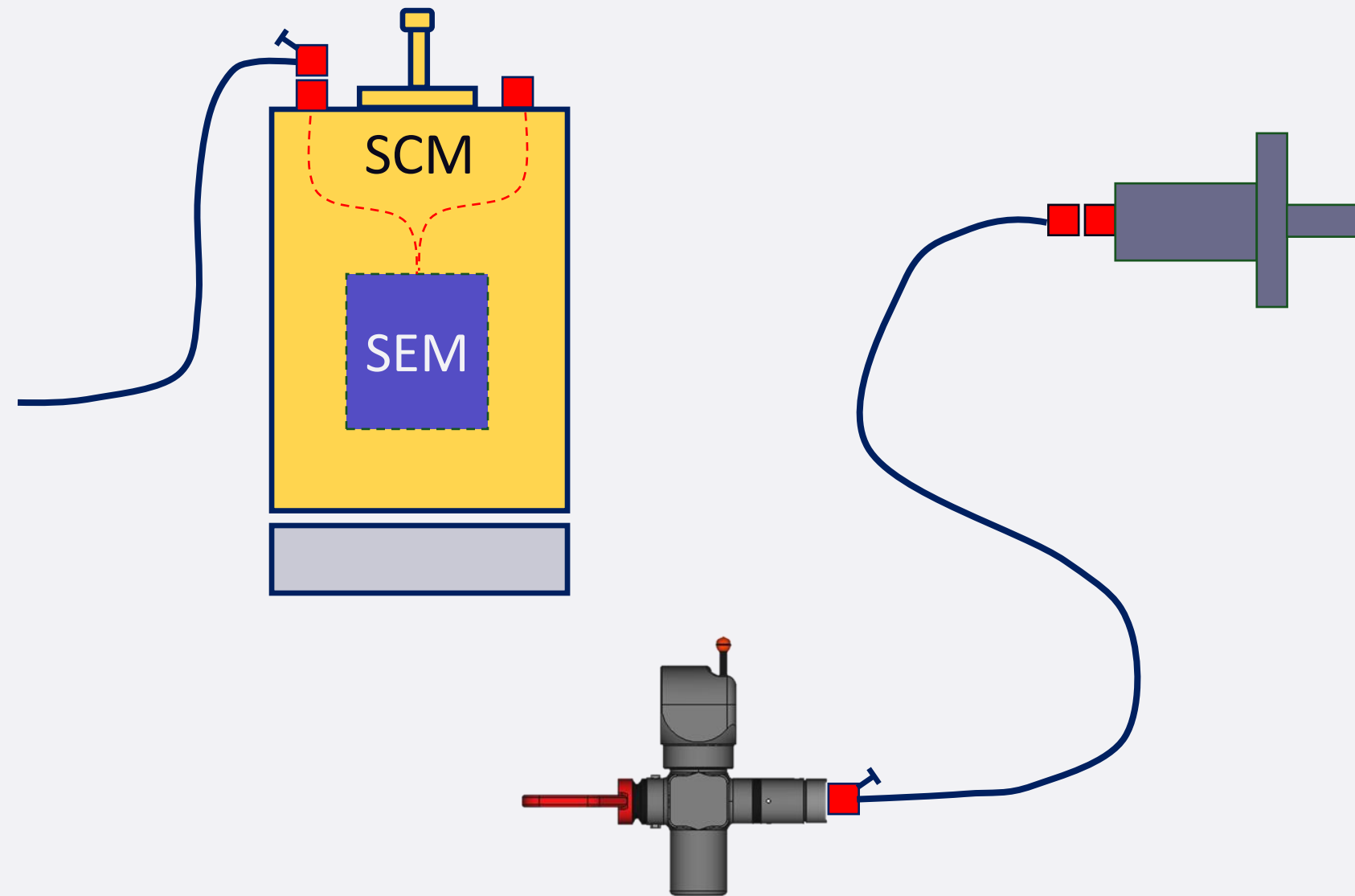
Finding a Connection

Wet-Mate Connector on Sensor



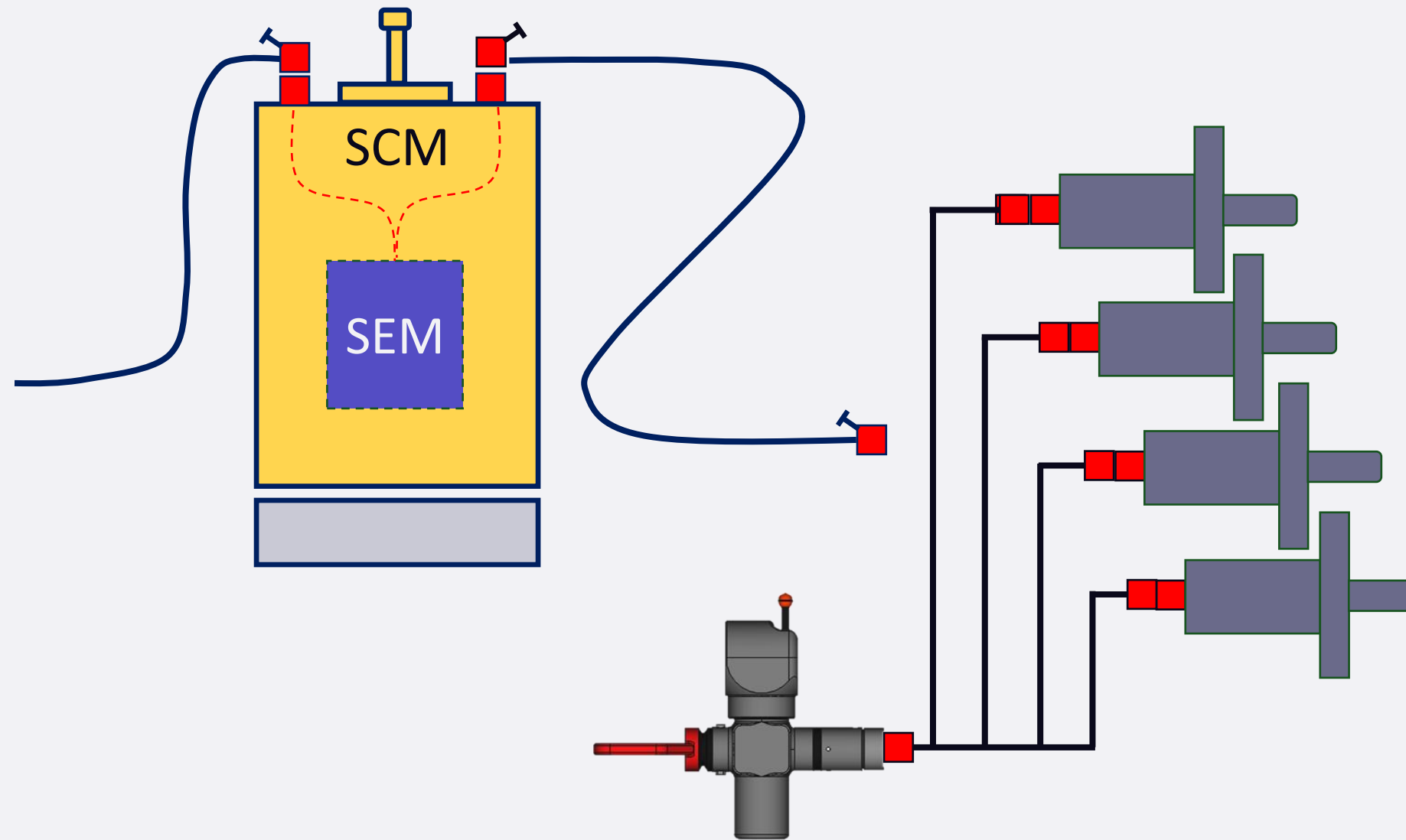
Finding a Connection

Wet-Mate Connector on SCM



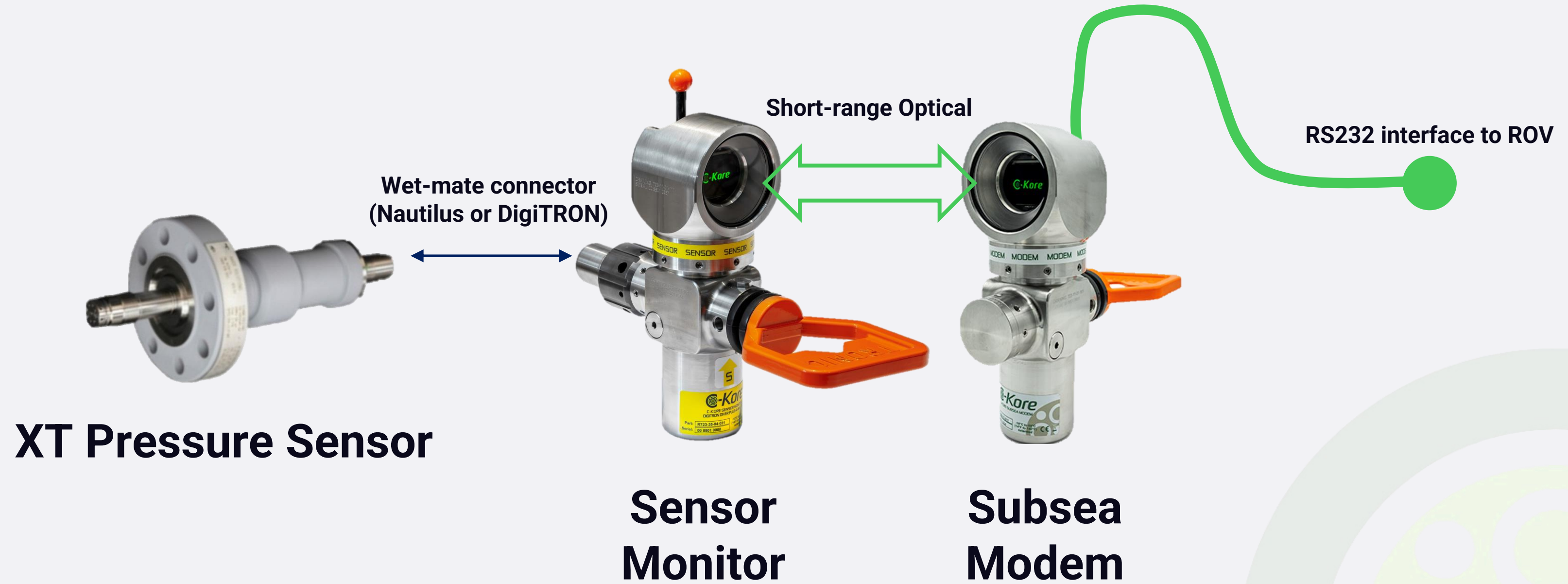
Finding a Connection

Wet-Mate Connector on XT



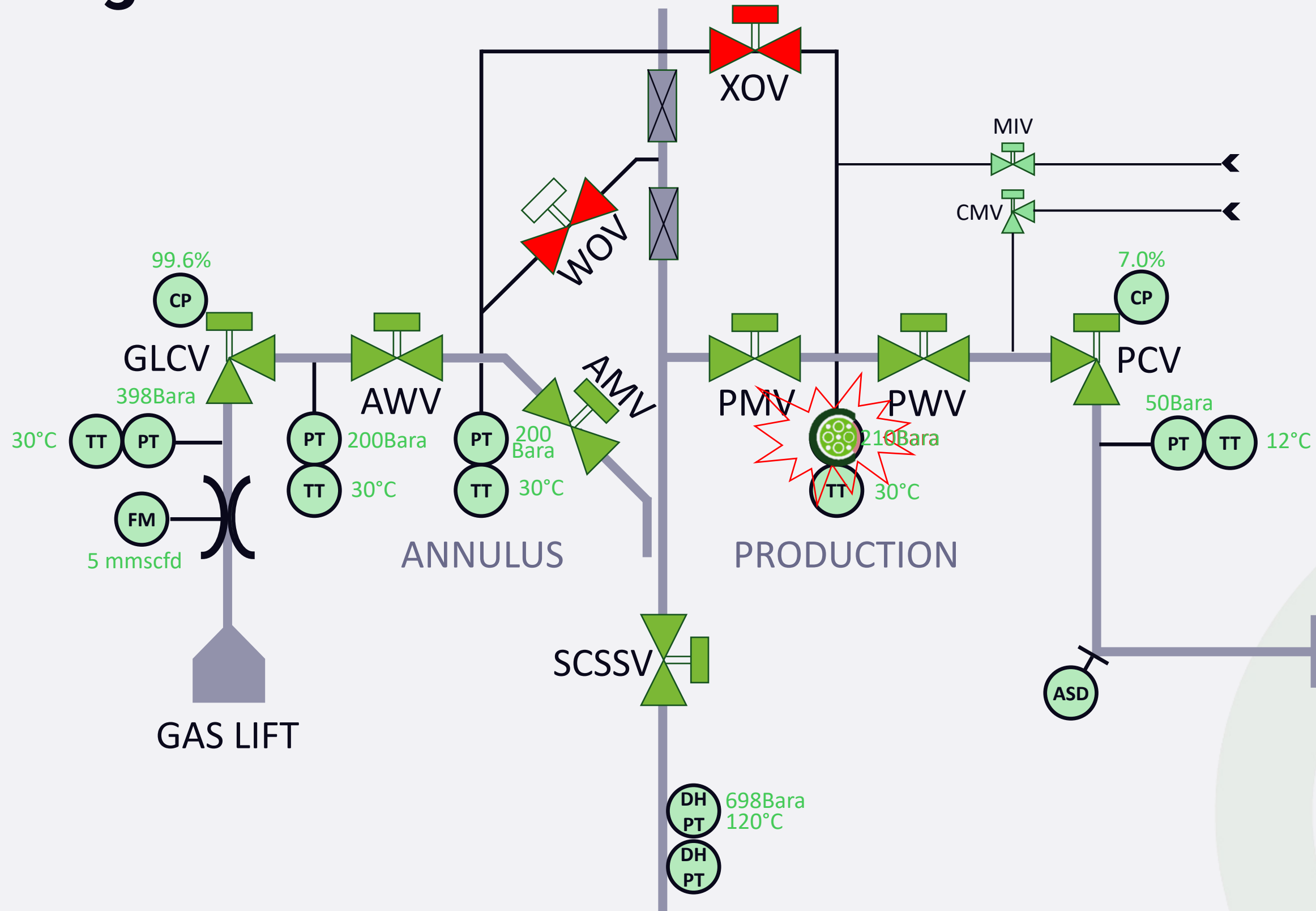
Finding a Connection

Longer Term Monitoring



Sensor Monitor

Fault-Finding XT Sensors



Simplify Subsea Testing

Sensor Monitor

Monitoring valve leakage in XT with no Comms

Leak test on Well with comms issues

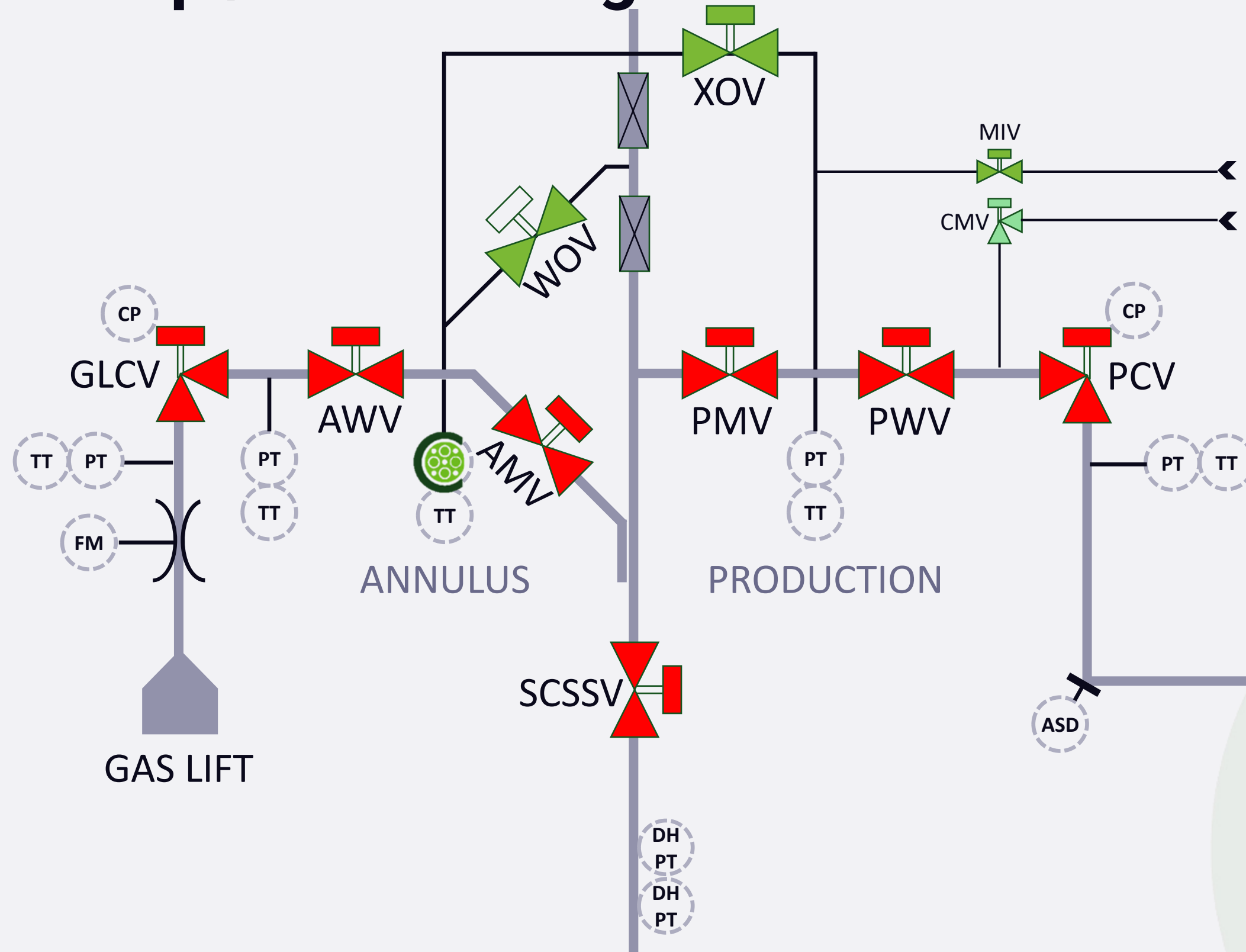
Pressure monitoring for 36 hours

Continuous display and datalogging



Sensor Monitor

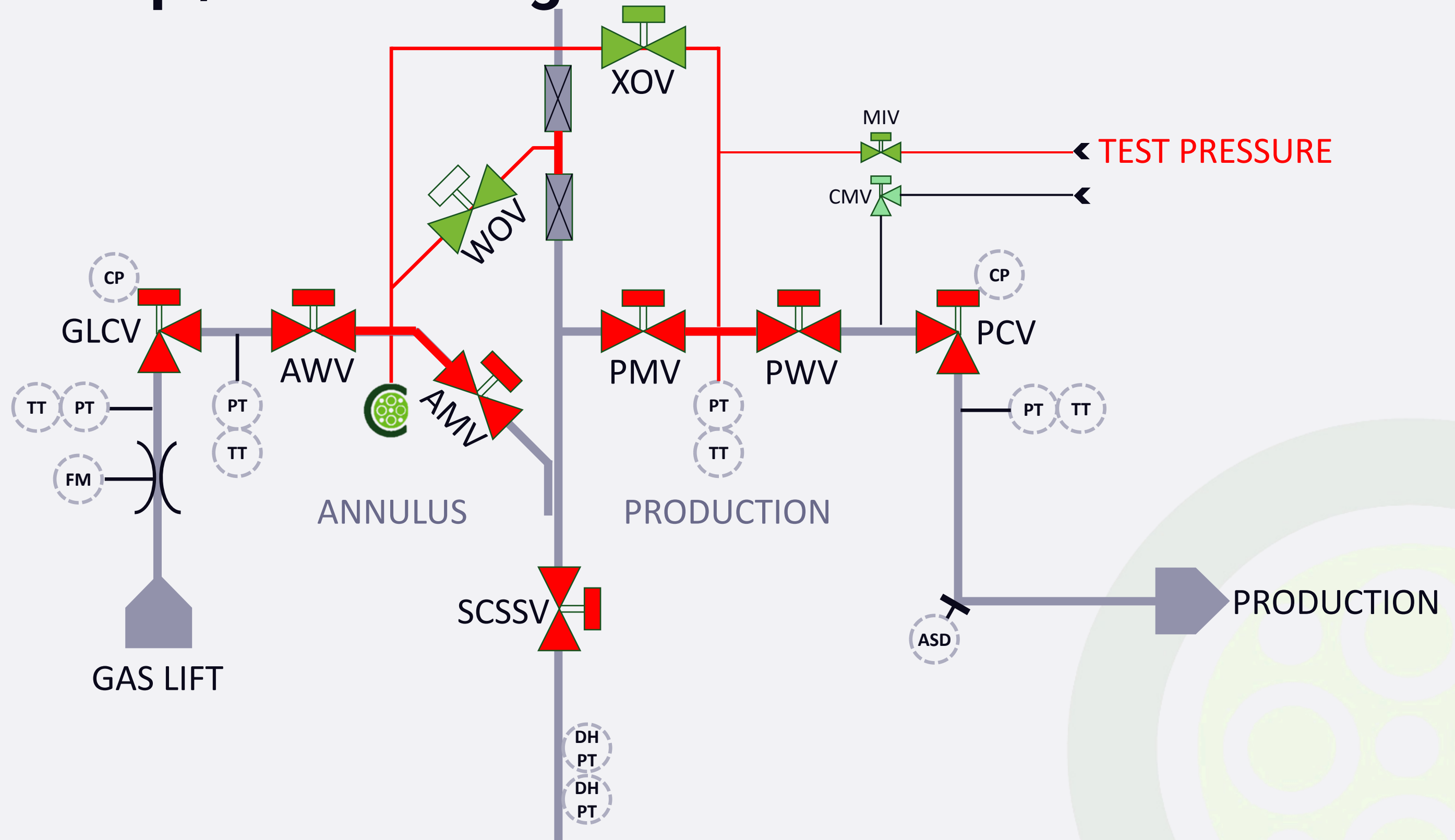
Testing Tree Cap / Crown Plug



Simplify Subsea Testing

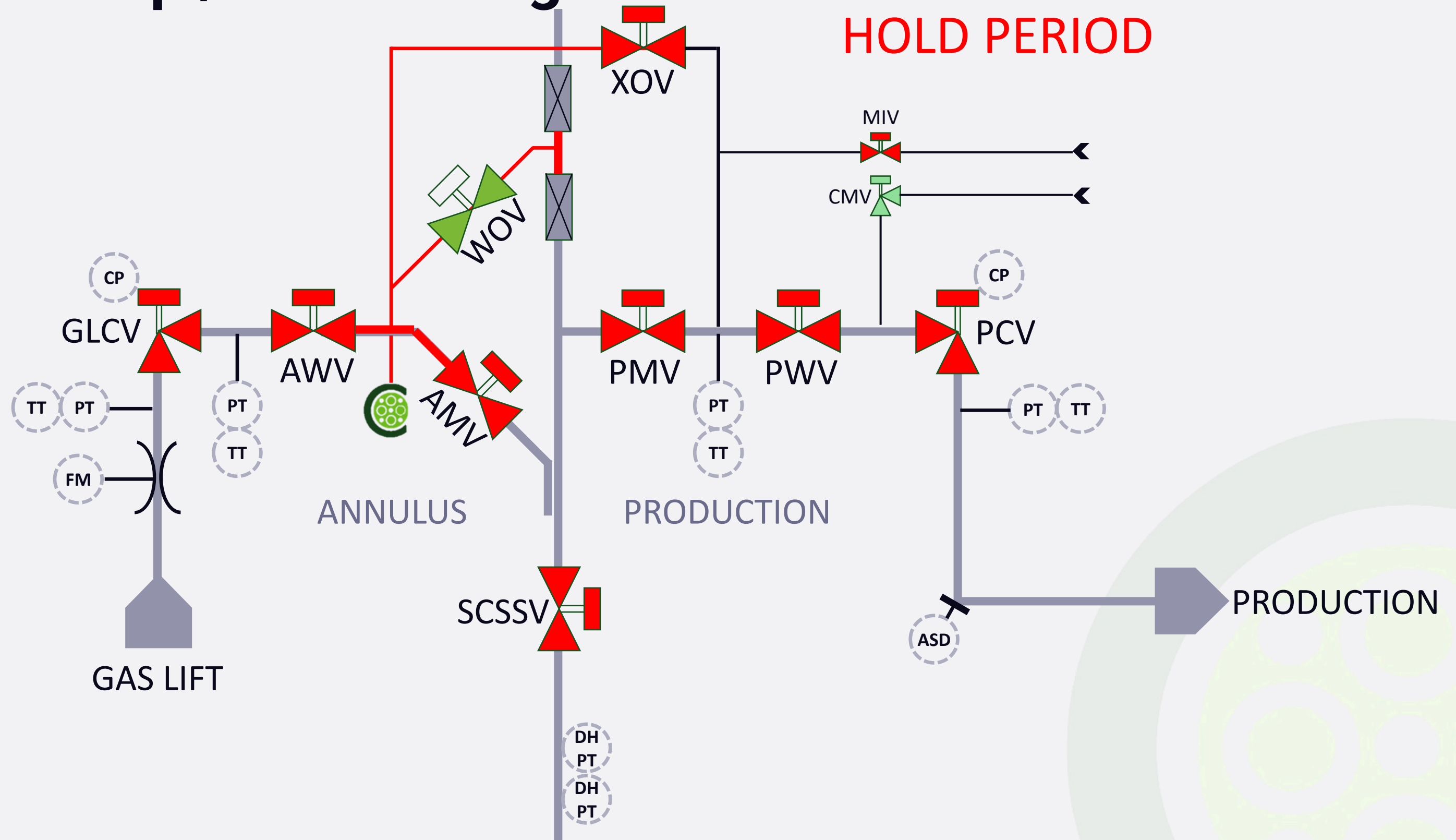
Sensor Monitor

Testing Tree Cap / Crown Plug



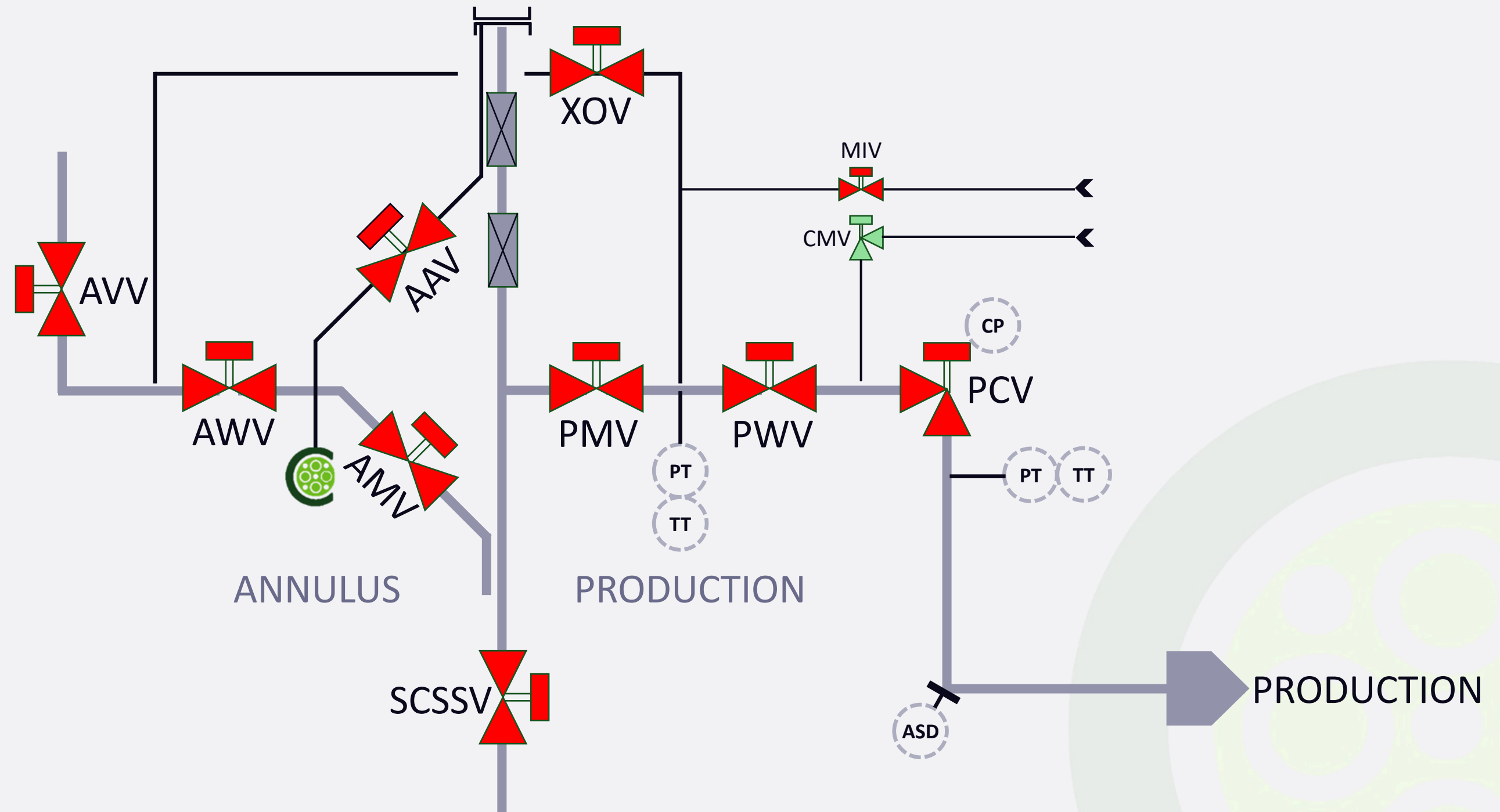
Sensor Monitor

Testing Tree Cap / Crown Plug



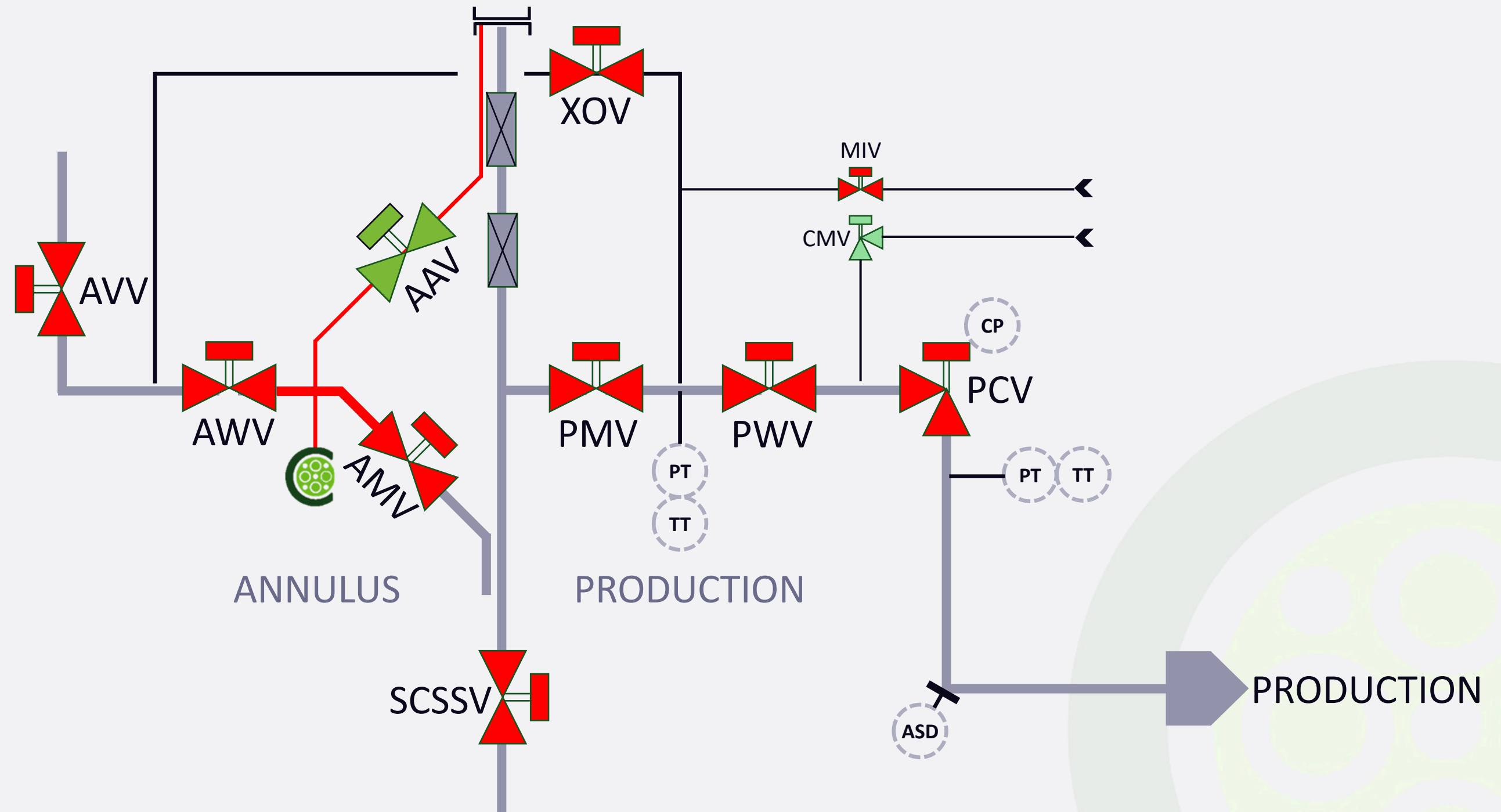
Sensor Monitor

Testing AAV in Direction of Flow



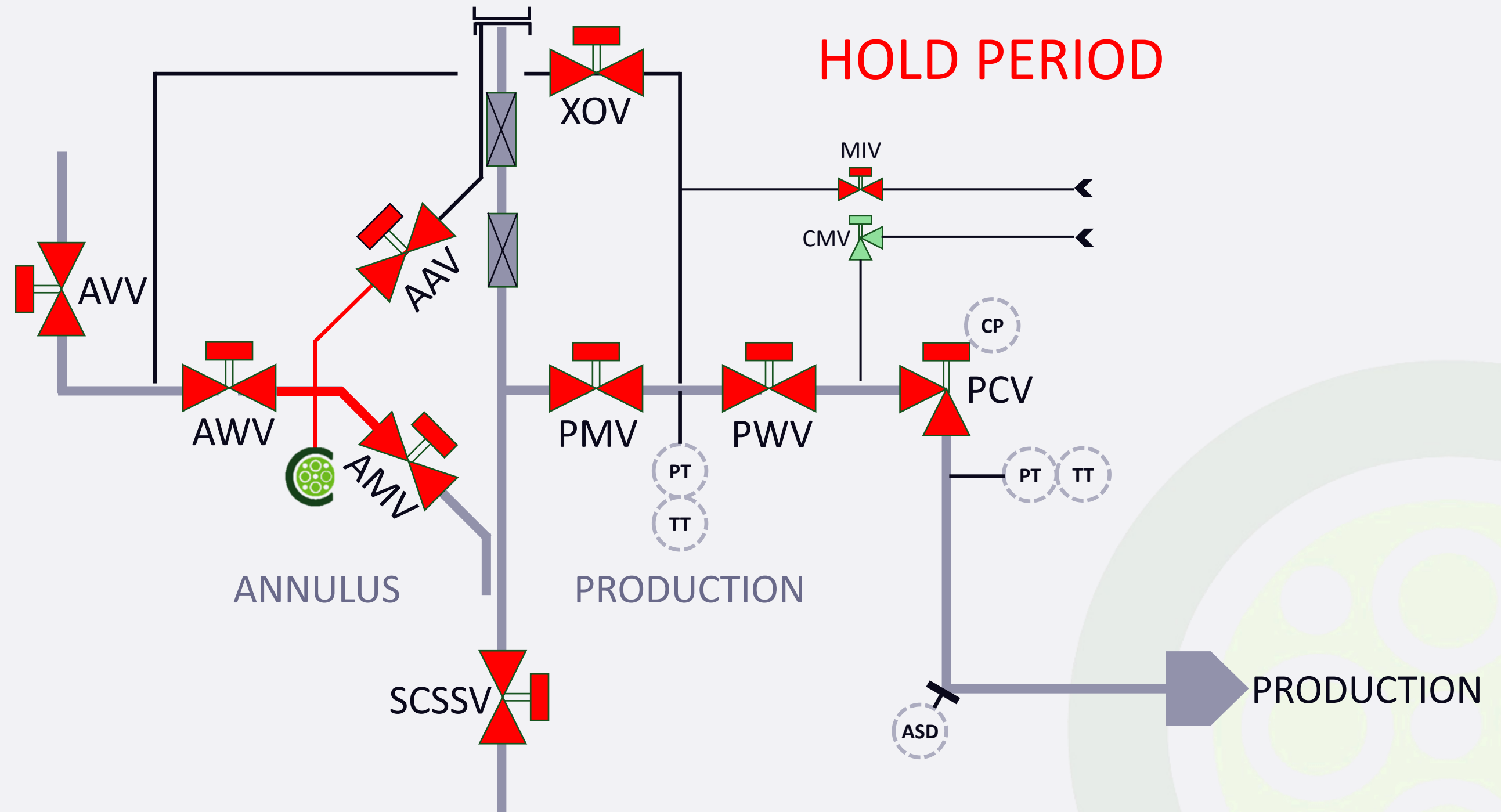
Sensor Monitor

Testing AAV in Direction of Flow



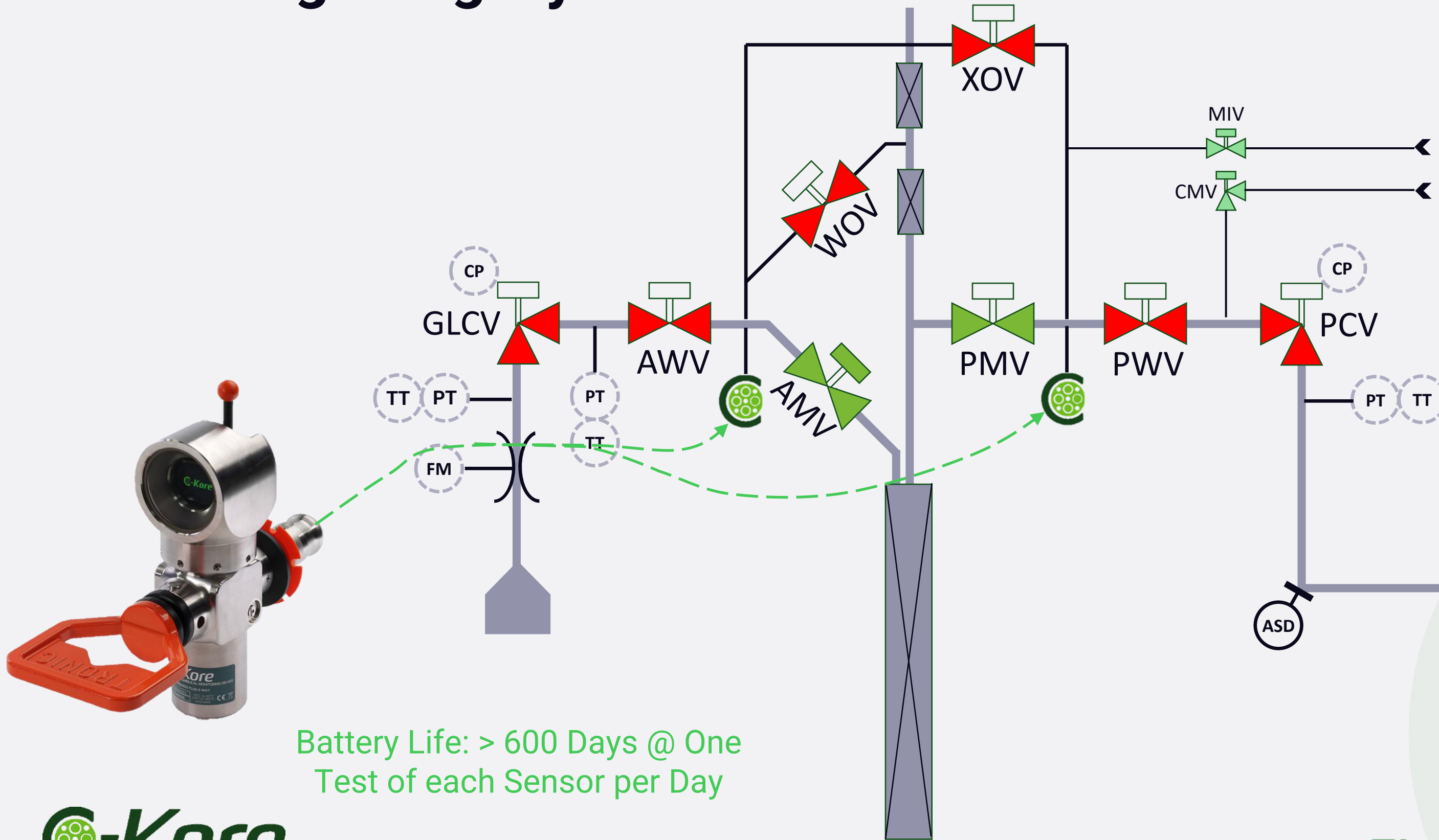
Sensor Monitor

Testing AAV in Direction of Flow



Sensor Monitor

Well Plug Integrity Test



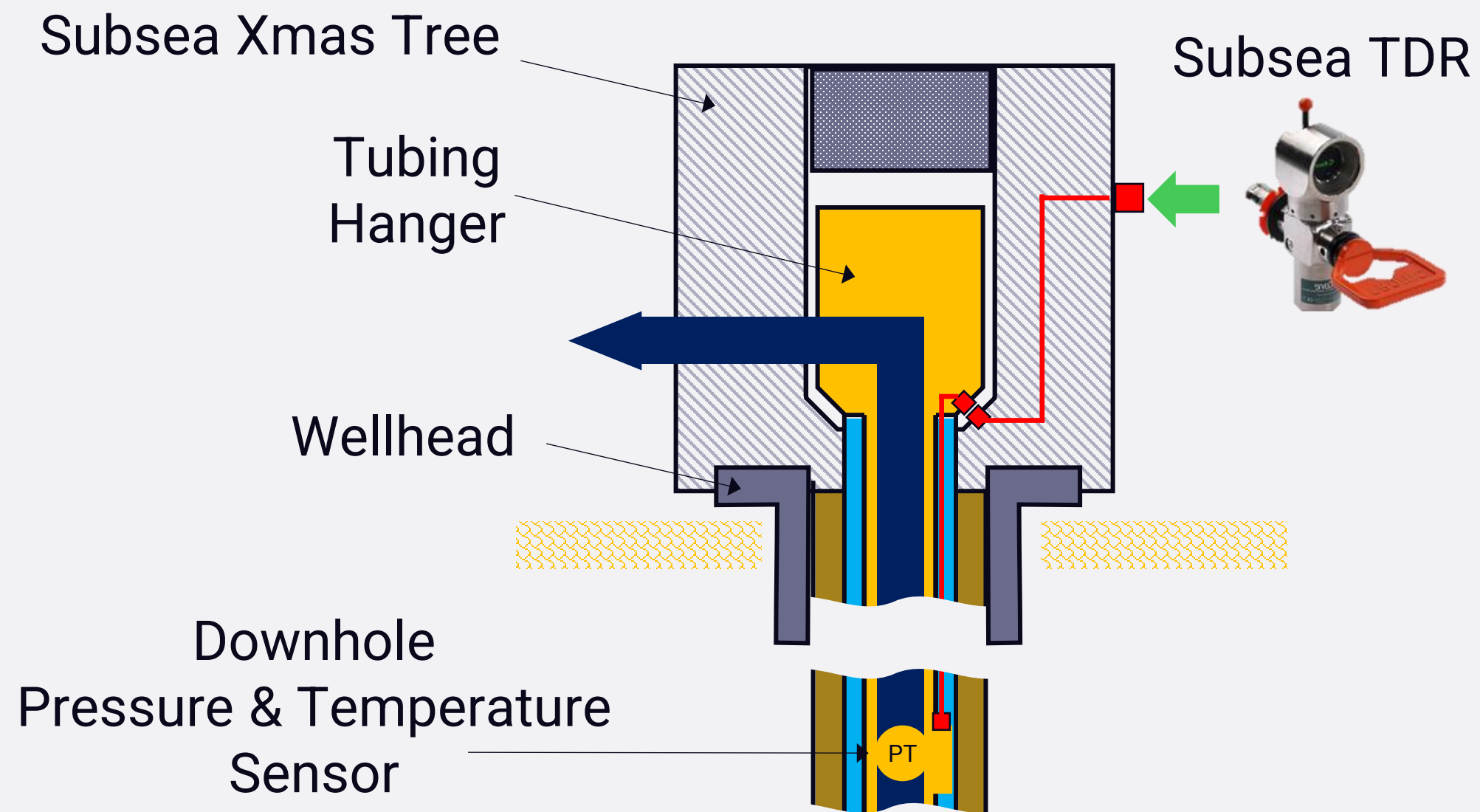
Battery Life: > 600 Days @ One Test of each Sensor per Day



Simplify Subsea Testing

Subsea TDR for Downhole Gauge Cables

Solution #1: Wet-Mate Connector on Xmas Tree

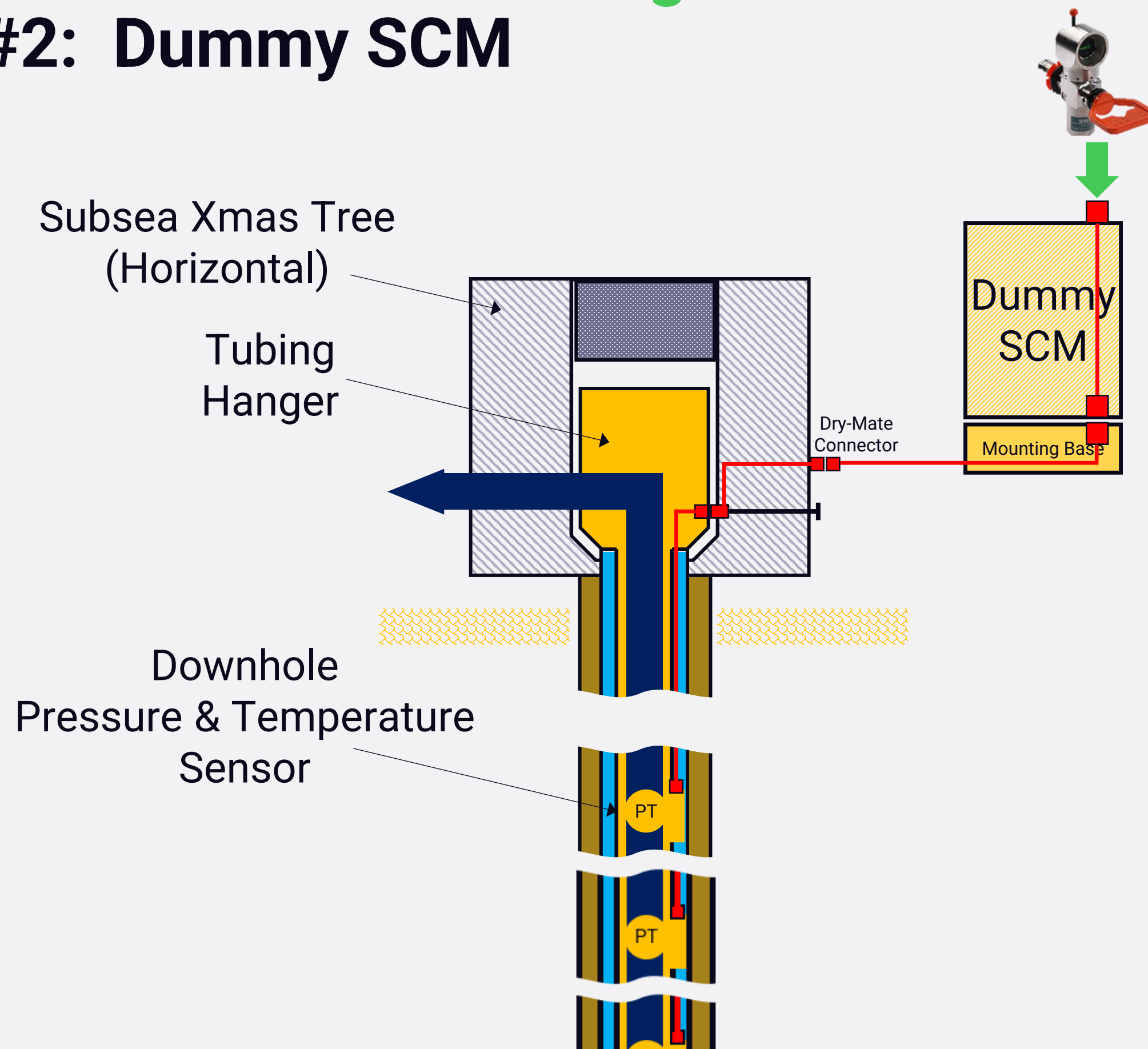


or Subsea Optical TDR



Subsea TDR for Downhole Gauge Cables

Solution #2: Dummy SCM



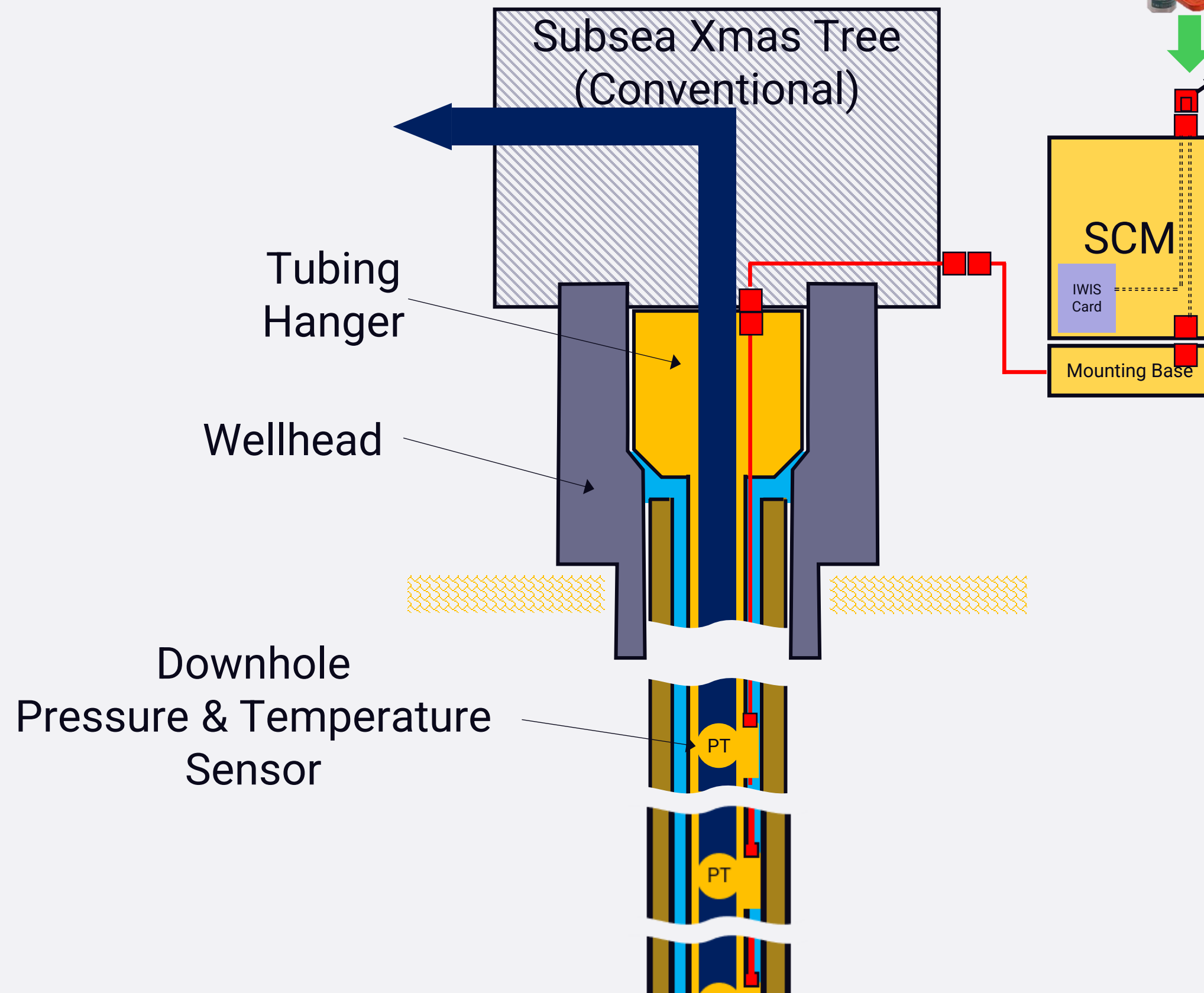
Dummy SCM

Fitted with cable harness to interface with SCM Mounting Base connector.

A C-Kore Subsea TDR can be connected via a wet-mate connector in the top of the Dummy SCM.

Subsea TDR for Downhole Gauge Cables

Solution #3: DHG connector in SCM



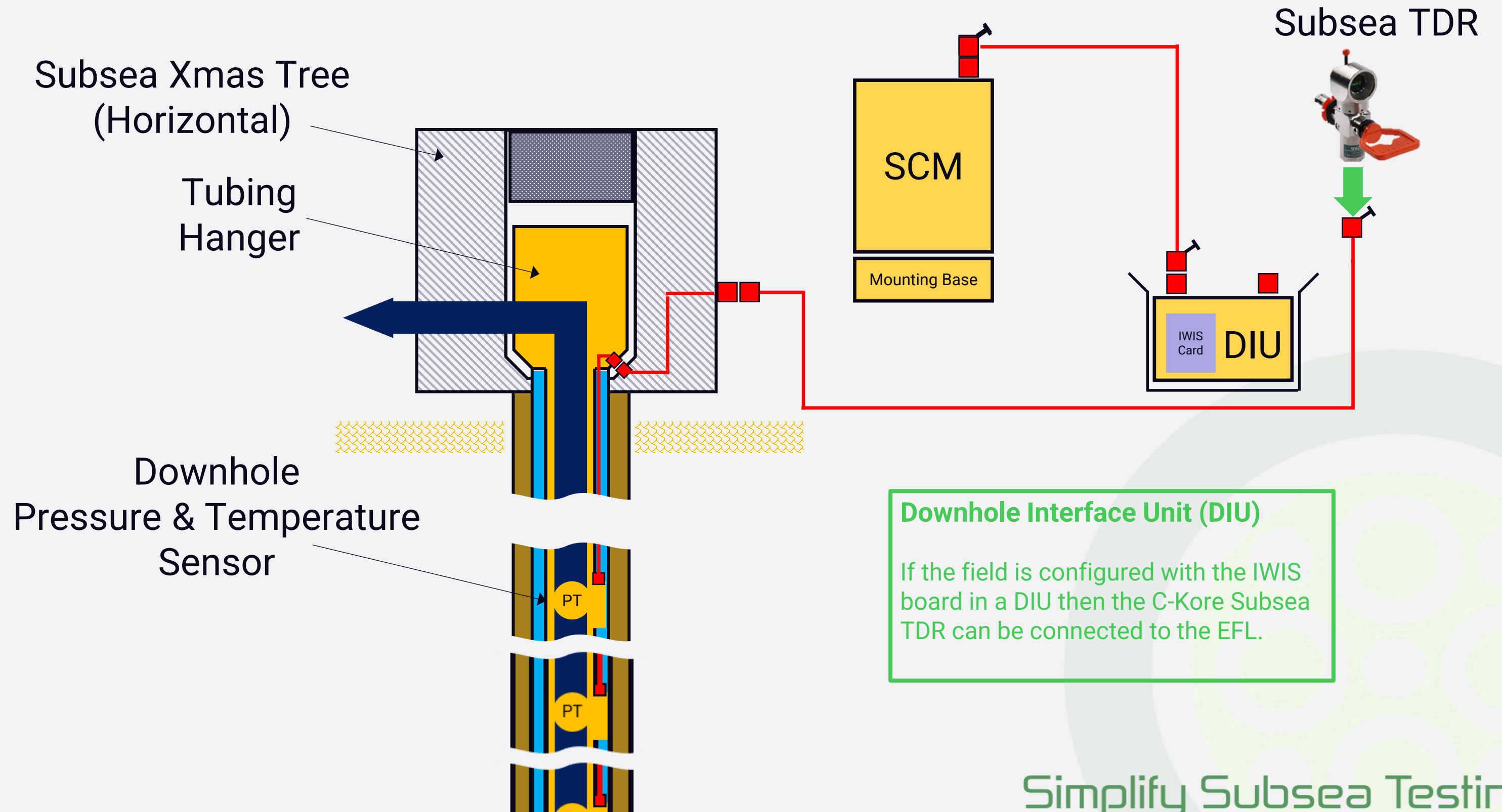
Modified SCM

An SCM with a wet-mate connector in the top to act as a hot-stab point if the operator wants to test the DH Gauge directly or use Subsea TDR.

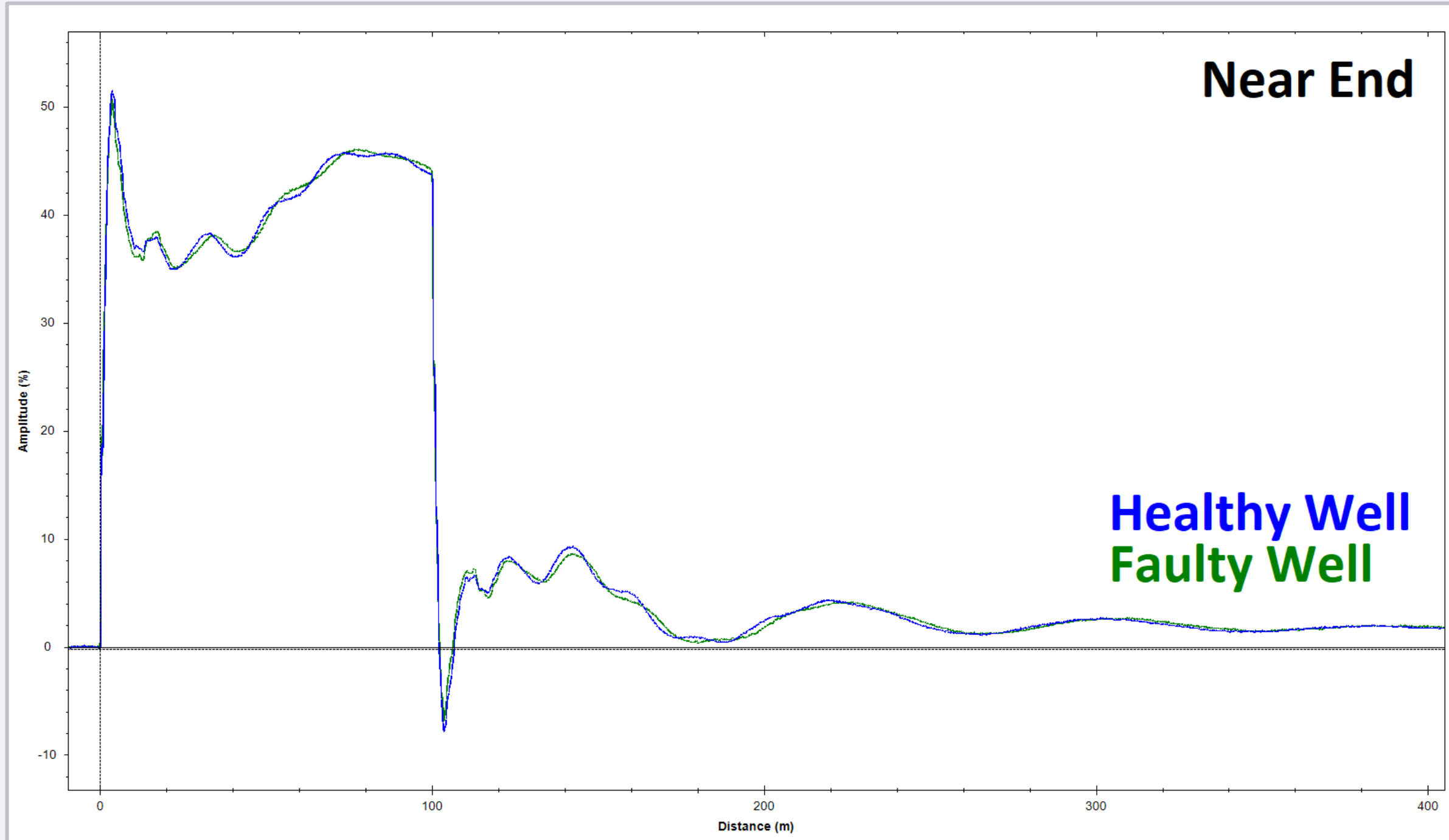
In normal operation a bridging plug would connect the DHG to the IWIS board.

Subsea TDR for Downhole Gauge Cables

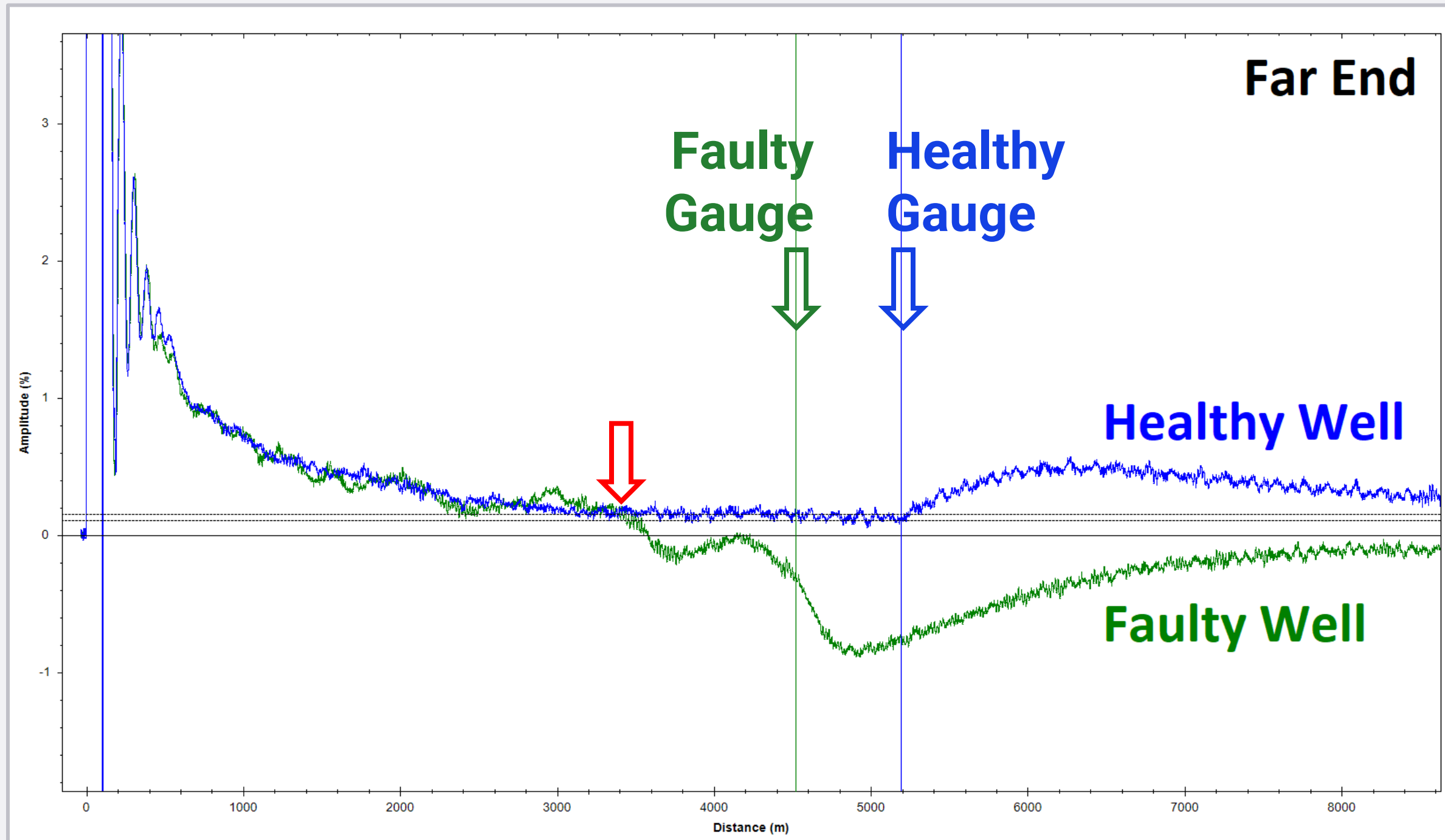
Solution #4: Downhole Interface Unit



Subsea TDR Down Hole



Subsea TDR Down Hole



C-Kore Subsea Test Tools



Thank You
Any Questions?



Simplify Subsea Testing