InTouch 8174425

INSTRUCT ESP INTELLIGENT CONTROLLER
Power Glitch X4 Events

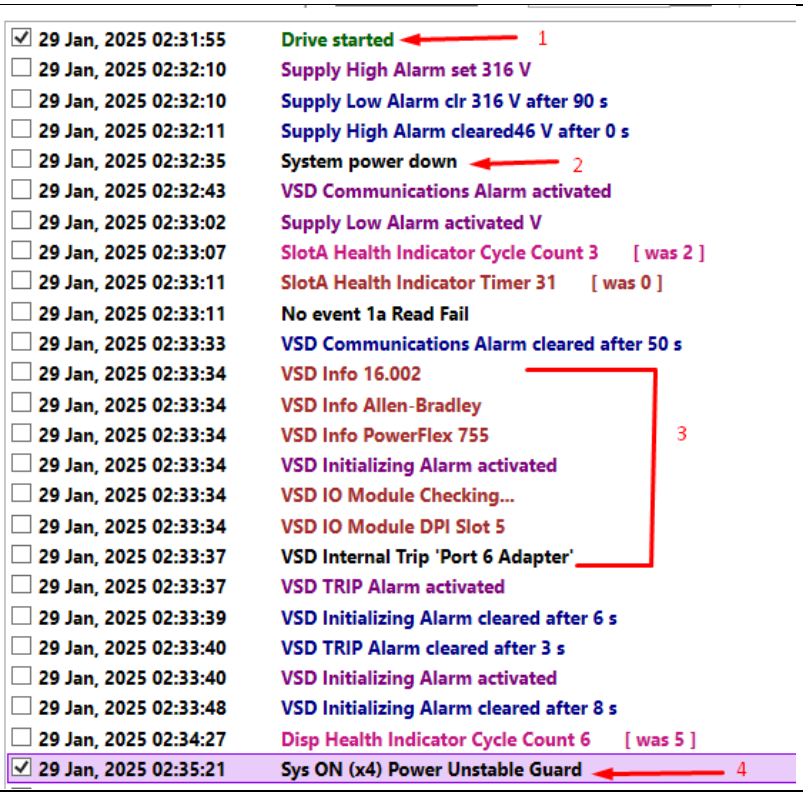
Revision History

Rev	Effective Date	Description
01	04-Feb-2025	First release

ALERT SUMMARY

In many oil and gas fields throughout the world, power quality remains a major concern causing many up-time reliability issues. At times, the power supply can be “glitchy” and momentarily loses 3 Phase power to the Variable Speed Drive. The Instruct in many cases reports a trip event commonly shows up as Sys ON (x4) Power Unstable Guard. This fault could also be masked as a VSD communication fault.

See below typical log entry where such power “glitch” occurs.



1. Drive is running
2. Power Glitch occurs, Instruct goes down, most likely the drive also goes down.
3. 1 minute or so later, the controller re-establishes communication with the drive
4. After the controller fully boots up, reads the fault code from the processor and reports an x4 event, defined as power unstable guard by the processor.

ROOT CAUSE

Customer’s 3 phase power supply is unstable and “glitches”.

CORRECTIVE ACTION

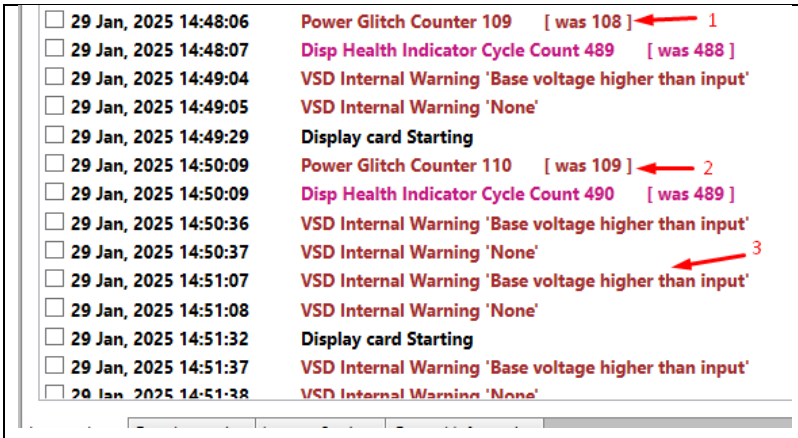
Upgrade the Instruct FW to 2.126r008. This version of the FW reprioritizes slot power to preserve as much energy left in the Instruct during this power glitch event. The FW will preserve slot power

responsible for communicating to the VSD and will kill power to the display and the remaining slots that are not used for VSD communication. In this way the VSD will continue to run, assuming the power glitch was small enough to “ride-through” this momentary dip. After 4 seconds of surviving the power glitch the Instruct will then restart the display card and the remaining slots and continue to operate and log data as normal. In this event, the Instruct will now register these power glitches each time they occur.

A video was recorded to demonstrate the behaviour before and after the FW upgrade.

For Sensia employee’s please use this link: Sensia Instruct x4 Power Glitch

For SLB employee’s please use this link: SLB Instruct x4 Power Glitch



1. Drive was running normal. Power glitch occurred. The Instruct display lost power but the control card + the TCP/IP card survived
2. Another Power glitch event occurred and the Instruct survived
3. While the voltage is lost, the Instruct is detecting that the supply voltage is lower than the base voltage. This is a new feature to warn the user when base voltage is incorrectly set. Base voltage should never be set above 95% of Vinput reported by the Instruct.

In some locations where Instruct X4 fault was a more common occurrence mainly because most VSDs were running a generator, a DC power supply was installed. The overall X4 occurrences dropped significantly however not nearly enough. Using the DC power supply and FW 2.126r008 will eliminate most of these occurrences.