Bently Nevada Asset Condition Monitoring

ADAPT 3701/55 Emergency Shutdown Device (ESD)

Advanced Distributed Architecture Platform Technology - ADAPT

Baker Hughes Bently Nevada™ Advanced Distributed Architecture Platform Technology, or ADAPT 3701, is a family of compact, high performance safety, machinery protection and condition monitoring solutions targeted at specific assets and applications.

The ADAPT 3701 family is targeted at machines ranked as critical to highly-critical where a safety system is necessary and a permanent on-line protection and condition monitoring system is recommended.

3701/55 Emergency Shutdown Device

Description

ADAPT ESD, or 3701/55 Emergency Shutdown Device, is a safety PLC with a graphical logic programming interface and integrated overspeed detection designed for emergency shutdown of rotating machinery such as steam, gas, and hydro turbines, expanders, and other process equipment.

ADAPT ESD is a compact, standalone, triple-redundant, safety shutdown device that is designed to meet a broad range of user scenarios and applications. The design offers a robust electrical and mechanical package with careful attention to reliability and availability as well as extensive self-diagnostics and compliance to industry standards. Owners and operators of critical machinery will benefit from ADAPT ESD's compliance with global industry standards such as; API 670, API 612, and IEC 61508 and SIL3 certification.

3701/55 ESD is configured and validated with a version of Bently Nevada Monitor Configuration (BNMC) software specific to the ADAPT ESD safety system. BNMC offers a simple and powerful configuration, graphical logic programming and testing environment which results from extensive user interaction studies with endusers, OEM's, and our field services team.

Integration with unit controls, HMI's, or other plant automation systems is via Ethernet using Modbus TCP.

Key Features

- Emergency Shutdown Device with integrated Overspeed Detection System (ODS).
- IEC 61508 SIL 3 Certification.
- Triple redundant processor modules (CPU modules).
- Triple redundant relay output modules with 5 relays per module. Each relay module has a dedicated Protection Fault Relay, 2 relays programmable as part of a 2oo3 set or as independent 1oo1, and 2 independent 1oo1 relays.
- 2 sets of 3 overspeed sensor inputs configurable for magnetic speed pick-ups or eddy current proximity probes.
- 20 Discrete Inputs.
- 12 inputs configurable as 4-20 mA analog inputs or discrete inputs.
- Up to 500 logic blocks.
- No more than 2 ms logic execution time and 8 ms relay response time for 10 ms response from input to relay output.
- 2oo3 or 3 independent 1oo1 ODS configuration.
- Redundant 24VDC Power Inputs.
- Six 4-20 mA outputs, two from each processor module proportional to the configured full scale speed range.
- Two 10Base-T/100Base TX RJ45 Ethernet connections per processor module.
- Hardware configuration lock prevents changes when in run mode.
- Modbus TCP communication.
- Regulatory Compliance and Certifications: EU: LVD & EMC and machinery directive pending SIL, North America General Safety, RoHS compliant, (North America Zone 2 Haz Loc, and ATEX Zone 2 planned).

Benefits

- Independent, standalone, triple redundant safety PLC and overspeed detection system.
- Supports on-line testing.
- Simple but powerful graphical user interface for developing and testing trip logic.
- New generation platform ensuring robust, long term lifecycle support.
- Single supplier for both your vibration monitoring system and overspeed/ESD.
- Compact, bulkhead mount, package enabling convenient and flexible installation.
- Compliance with industry standards – API 670 (5th Ed), API 612, IEC 61508.
- Can be supplied as a component to be integrated with the customer's overall safety shutdown system or along with a complete upgrade of your safety shutdown system.
- Global sales, services, and technical support, 24/7, with regional coverage and response time that only GE Bently Nevada can offer.

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