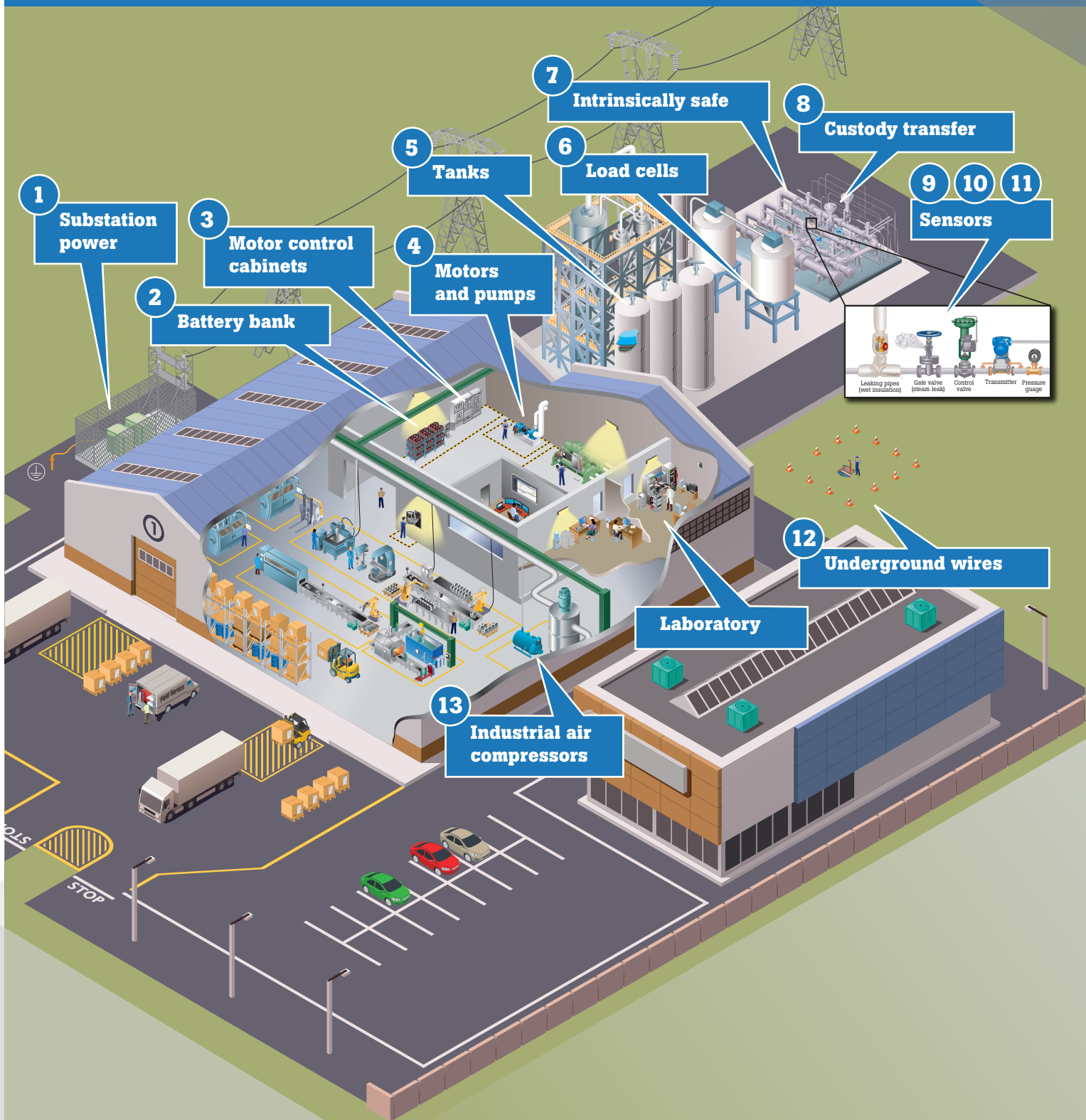


Industrial automation maintenance, inside and out





1. Substation Power

(Ti450 SF6, Amprobe TIC300PRO, 1000 V ac and 1500 V dc rated insulated hand tools)

Pain: Compliance fines for excess SF6 gas discharge and costs (state and local). 1000 volts and safety

Solution: Safely view gas discharge from bushings and piping using a special purpose IR camera without equipment shutdown; detect and identify presence of 1kv to 122kv from a distance



2. Battery Bank

(BT521, BT520, BT510, 1000 V ac and 1500 V dc rated insulated hand tools)

Pain: Backup power unavailable for mission critical facilities, emergency lighting and ventilation, over/under-charging, loose terminal, an entire string of batteries may fail due to one bad battery, explosion

Solution: Safely measure, record battery performance and determine health of battery string; compliance with NFPA 70e



3. Motor Control Cabinets – Inspection and Root Cause

(IR camera/IR windows and PQ window/power quality, 1000 V ac and 1500 V dc rated insulated hand tools)

Pain: Intermittent outages caused by hot spots, transients, or unbalanced loads

Solution: Safely view using Fluke IR Cameras through an IR Window and PQ Analyzers with PQ Windows to measure and log all 3 phases simultaneously and to inspect waveforms



4. Industrial Motors and Pumps

(Power quality, mobile and semi-permanent vibration and alignment tool, 1000 V ac and 1500 V dc rated insulated hand tools)

Pain: Unexpected bearing wear and motor failure, increased power consumption and maintenance, and the cost of 3rd party experts

Solution: Mobile and semi-permanent vibration measurement to monitor, record, and see trends in performance and align motors and pumps



5. Tanks

(IR camera and 75x/77x series, 1000 V ac and 1500 V dc rated insulated hand tools)

Pain: Resource allocation - too much or too little product for the process; EPA/ OSHA concerns with air/water table contamination and personnel safety

Solution: Safely from a distance, measure liquid level using an IR Camera and verify sensor calibration and signal values to the PLC



6. Load Cells

(715, 789, 754, 1000 V ac and 1500 V dc rated insulated hand tools)

Pain: Unable to measure and verify the mv/V sensor signal value separately from the PLC and HMI Interface.

Solution: Measure, calibrate, and source read mv signals



7. Intrinsically Safe

(707Ex, 718Ex, 721Ex, 725Ex, 28II Ex, 568 Ex, FL-45 Ex, FL-120 Ex, FL-150 Ex, HL-200Ex, 1000 V ac and 1500 V dc rated insulated hand tools)

Pain: Measurement and/or calibration in a hazardous environment without properly rated intrinsically rated equipment may violate safety, policy, and government compliance codes

Solution: Fluke intrinsically safe product line



8. Gas Custody

(721 with 720 temperature probe, 1000 V ac and 1500 V dc rated insulated hand tools)

Pain: Inability to confirm gas mass at transfer of ownership

Solution: Visual confirmation from the dual pressure measurement meter with optional temperature probe



9. HART Sensors

(154 and 753, 709H, 729, or 754, 1000 V ac and 1500 V dc rated insulated hand tools)

Pain: Require calibration from 3rd party. Most calibration communicators don't provide 24VDC loop power or 4-20 mA feedback, and are not NIST traceable

Solution: Parallel connection to a live system, so the Fluke instrument can communicate, configure, and calibrate HART sensors from a single platform



10. 4-20ma Sensors

(Generic, flow meters, level sensors - 77x series, 1000 V ac and 1500 V dc rated insulated hand tools)

Pain: Unable to measure and verify the sensor signal value separately from the PLC and HMI interface

Solution: Measure mA signals without breaking the loop using detachable clamp with extension cable



11. Temperature, Humidity, Pressure and Vacuum Sensors

71x, 72x, 787B/789, 754, 750 Pressure Modules, 1000 V ac and 1500 V dc rated insulated hand tools)

Pain: Unable to read the sensor measurement without a connection to the PLC/HMI

Solution: Measure and source up 17 T/C types - 13 RTD types and volts and ohms with sourcing; Automatically generate pressure (729); 787B/789 is also a 1000 V DMM



12. Underground Wires

(UAT600 series, 1000 V ac and 1500 V dc rated insulated hand tools)

Pain: Accidental physical contact with utility/powering wires, power disruption, process shutdown, ground faults

Solution: Safely find energized underground wires utilizing a CAT IV 600 V locator kit

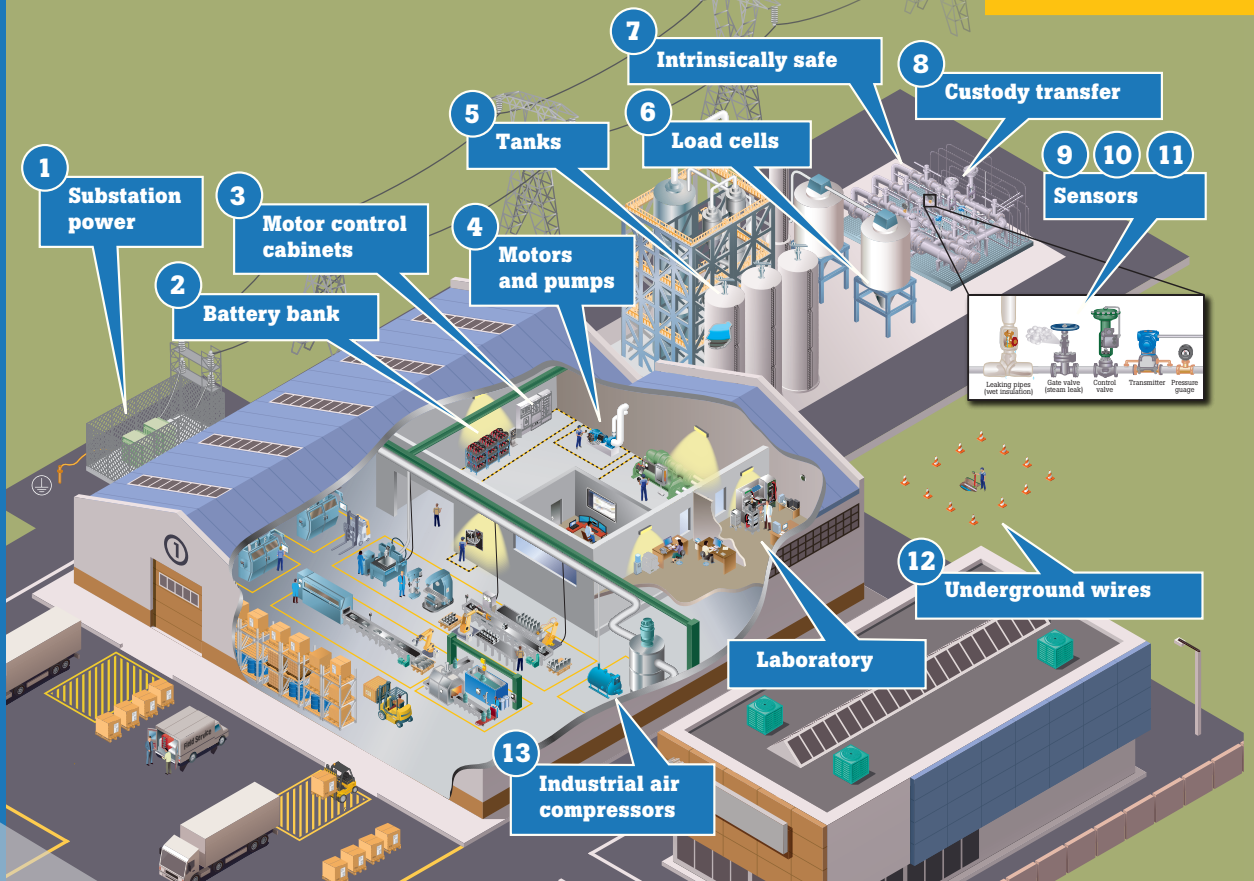


13. Industrial Air Compressors

(ii900 Sonic Industrial Imager, 1000 V ac and 1500 V dc rated insulated hand tools)

Pain: Companies without an air leak management system lose on average 30% -50% of their compressed air production and spend over \$30k in wasted electrical energy

Solution: Use SoundMap to visualize both the audible and ultrasonic blended image for the detection of compressed air, gas, and vacuum leaks



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Fluke Corporation
 PO Box 9090,
 Everett, WA 98206 U.S.A.

Fluke Europe B.V.
 PO Box 1186, 5602 BD
 Eindhoven, The Netherlands

For more information call:
 In the U.S.A. (800) 443-5853 or Fax (425) 446-5116
 In Europe/M-East/Africa +31 (0) 40 2675 200 or Fax +31 (0) 40 2675 222
 In Canada (800)-36-FLUKE or Fax (905) 890-6866
 From other countries +1 (425) 446-5500 or Fax +1 (425) 446-5116
 Web access: <http://www.fluke.com>