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Table of Contents - Universal Transmitter Technical Manual Safety Information: - Page 5 contains warnings and cautions (7) Sensor Mounting and Location: - Page 28 explains mounting the XNX transmitter Product Description: - Page 10 describes the product, including its outputs and connections With the Same Cartridge Type ������������105 6�4�5 XNX Catalytic Bead and IR Replacement Sensor Cartridges ��154 4�2�2 Replacing with a Different Cartridge Type ▪ ������������106 6�4�6 Accessories/Spares ▪ ������������������������155 5 Warnings and Faults 7 Control Drawings 5�1 Warning Messages ������������108 7▪1 XNX UL/INMETRO ������������160 5▪2 Fault Messages ������������113 7▪2 XNX UL/CSA/FM ▪ ������163 5▪3 Informational Messages ▪ ������124 7▪3 Remote Sensor Mount ������166 6 Specifications Appendix A - HART Protocol ®... Page 6 XNX Universal Transmitter Table of Contents Table of Contents... XNX Universal Transmitter The sensor must be earthed/grounded for Intrinsic Safety, electrical safety and to limit the effects of radio frequency interference. Read and understand this manual before installing, operating or maintaining the XNX Transmitter. Pay particular attention to the warnings and cautions below. Take care when handling EC sensor cells as they may contain corrosive solutions. Do not tamper or disassemble the sensor cells. Installation must be in accordance with recognized standards. To avoid reporting actual gas events, ensure Inhibit Mode is only used for testing and maintenance. Limit use to Zone 1 locations and exit Inhibit Mode after activities are complete. Install junction boxes according to local codes and manufacturer's requirements. Perform periodic bump tests (every 30 days or as per site procedures) on sensors to ensure proper operation and compliance with functional safety ratings. Be cautious during installation, avoiding ignition hazards due to impact or friction. When installed in Zone 1 locations, ensure remote sensor enclosures contain proper operation. As some test gases are hazardous, exhaust flow housing outlets to a safe area. Power off transmitters before changing S3 or S4 and set switches in either Source or Sink prior to applying power. Do not use the XNX Universal Transmitter in oxygen-enriched atmospheres as electrical safety is minimal. Set minimum and maximum controller alarm levels carefully to avoid false alarms. The HART Barrier intrinsically safe circuits have special conditions for safe use, including limiting exposure to toxic gases. Verify correct operation of transmitters after resetting overrange or alarm. Hazardous Location Installation Requirements must be followed, with any doubts resolved by contacting Honeywell Analytics. Honeywell Analytics can be contacted regarding this document at the provided contact information on the back cover. Honeywell Analytics reserves the right to modify or update the information in this document without prior notice. For additional information, contact your local distributor/agent or Honeywell Analytics. XNX Universal Transmitter is a registered trademark of Honeywell International. HART and Foundation are registered trademarks of their respective foundations. Modbus is a registered trademark of Schneider Automation Inc. FOUNDATION is a trademark of the Fieldbus Foundation. 1. Introduction to XNX Universal Transmitter The XNX Universal Transmitter Technical Manual is part of this document, along with Figure 1 describing electrochemical sensors with Hot Swap technology for toxic and oxygen sensing through an Intrinsic Safe barrier. There are three main types of gas hazards: flammable, toxic, and asphyxiant. A flammable gas hazard poses a risk of fire or explosion, while a toxic gas hazard poses a risk of poisoning from gases like carbon monoxide or hydrogen sulfide. An asphyxiant hazard involves a lack of oxygen. The XNX Universal Transmitter relies on 4-20mA output signals refreshed every two seconds. 2. Communications Protocol The transmitter uses HART over 4-20mA as the standard communication protocol, with additional options available including Modbus and Digital Communication. These can be configured for Sink or Foundation Fieldbus interfaces with dedicated option boards. 3. Installation Requirements Installation requirements are outlined in this document. Each communication option has a Source (3-Wire) or Isolated (4-Wire) electrical interface based on the dedicated option board. 4. Output Description and Notes The 20mA current loop output provides an analog indication of gas concentration, with over-range indication and proportionality to gas concentrations per the table below. In Class I, Division 1 environments, there is a simultaneous alarm and fault for XNX-UT Versions classified as UL listed and CSA approved. 5. Patents Patent information is included in this document. The XNX Universal Transmitter is a device that comes in Stainless Steel or Aluminum, with threaded ports for cables and conduits. It's explosion-proof and suitable for use in temperatures ranging from -40°F to +149°F. The enclosure has a 5-coat marine finishing process for high corrosion protection. The device accepts various sensors and interfaces, including Relays, Modbus, and Foundation Fieldbus. The relay option provides three SPDT contacts for alarm and fault indication, with a remote reset input. The Modbus interface allows connection to a bus of devices and transmission of data to PLCs or controllers. The Foundation Fieldbus option is also available, with connections made through a pluggable terminal block on the circuit board. The device has various ports and connectors, including 3/4” NPT, M25, and others. It's designed for use in harsh environments and comes with a locking screw for positive closure. The XNX Universal Transmitter is used for gas detection and monitoring, and it requires calibration and maintenance to ensure accurate readings. Calibration Foundation Fieldbus is a digital communication system that supports various message types. Unlike traditional systems, it doesn't require separate wires for each device. The XNX EC includes stainless steel ceiling mount brackets, bolts, and nuts. A Remote Gassing Kit (1226A0354) enables remote gas application for functional response checks. The kit consists of Teflon tubing, a mounting bracket, and tube adapters. The XNX Universal Transmitter uses magnetic switches to enable non-intrusive operation. To activate the switch, hold the magnetic end of the screwdriver near the glass window and slowly swipe it over the shaded area. A decal illustrating proper actuation is placed on each transmitter's POD. The Front Panel Weather Protector (SPXCDWP) protects sensors from environmental conditions in outdoor applications. The XNX Transmitter has a switch actuation visual indicator, alarm LED (red), and a General Status Screen that displays warning information when triggered. When entering a passcode to access the transmitter's menus, it's crucial to reset the factory-set codes to prevent unauthorized access. To do this, swipe the magnetic switch over the General Status display and follow the prompts to enter the correct code. Once authenticated, you can navigate to the Main Menu, which offers various options such as displaying current settings, testing the transmitter, or configuring language and date/time preferences. The Main Menu also allows users to access settings for configuring the transmitter and connected devices, test simulation modes, and display information about sensors and relays attached to the unit. Additionally, you can view event history, alarm status, and fault reset options from this menu. Enter Span Gas Concentration (Oxygen) Force mA Output Enter Span Gas Concentration (Not Oxygen) Select Current: 0 to 22 mA Bump Test Accept mA Output Calibration Force Relay Adjust 4 mA Output Select Relay 1 Adjust 20 mA Output Select Relay 2 Soft Reset Align Excel Select Relay 3 Accept Alarm/Fault Simulation Alarm 1 Simulation Alarm 2 Simulation Warning Simulation Fault Simulation Section 1 - Introduction... Page 28 XNX Universal Transmitter Change mA for Warning Change mA for Overrange Change mA for Low Signal Change mA for Blocked Beam Set Calibration Interval Configuration Mode Accept New Sensor Type Select Language Information screen identifying previous sensor and Set Date & Time new sensor Set Date Format Screen displays new type and old type Set Year, Month, Day Set Beam Block Set Hours, Minutes, Seconds Select Beam Block Threshold Section 2 - Installation and Operation... Page 31 Local HART Option XNX Electrochemical Sensor - Local/Remote MPD, 705 Series, Sensepoint Series Searchpoint Optima Plus A or E Searchline Excel Typically C Figure 27. Optional pipe and ceiling mounts Remote Sensor Connection (except EC) Any remaining Searchpoint Optima Plus - Remote Any remaining Modbus Any remaining Relays Any remaining Power Any remaining Wiring the XNX Transmitter Caution: Before wiring the transmitter, confirm that the correct sensor technologies or personality options are installed. Each of the personalities use dedicated interface boards with pluggable terminal blocks for easy connection and service. The XNX Universal Transmitter's behavior is determined by various factors, including wiring-induced voltage drops, transient electrical noise, and differences in earth ground. The sensor type attached to the XNX interface also plays a crucial role in determining the transmitter's behavior. In designing and installing the system, considering potential drift and zero deviation values is imperative. A table illustrating three XNX transmitter configurations helps to better understand the options available. The simplest type of installation consists of a single power source, depending on the limitations of the device for the generic XNX transmitter installation per power source. However, using high inrush or inductive loads may affect the performance of the transmitter. When considering distance considerations for installation, advantages include providing maximum distance between the power source and transmitter while minimizing power requirements. Conversely, disadvantages include larger power sources being needed to support multiple monitoring points, and failure of a power source can cause multiple transmitters to fail. The XNX Universal Transmitter can be connected in a "daisy-chain" configuration, consisting of two or more transmitters installed in a line. The power connections are typically installed as an extension of HART over 4-20mA HART. When selecting the wire for connections, it is essential to consider the type of wire used, as it can affect the distance of installation due to voltage drop. In a daisy-chain configuration with three transmitters, calculating distances can be challenging due to various factors, including distance from the control room to the first transmitter, distance between transmitters, and sensor types. Given article text here Mounting the Remote Sensor Junction Box and Wiring Connections for XNX Universal Transmitter Ensure sufficient room below to mount the sensor and weatherproof cover. Refer to control drawing 3000E3157 in Section 7.2 for specific mounting information. Attach the cable to the remote terminal box via the gland provided (Step 8). Make wiring connections as shown in Figure 43 (Step 9). Fit the Terminal box lid, plug the sensor into the socket at the bottom of the terminal box (Steps 11 and 12), and secure it with the locking screw. Calibrate the sensor following the procedure in Section 3.2.1. Connections: Pin # Color Sensor Cartridge Green Blue White Sensor Retainer Black Weatherproof Cap Sensor Caution: Do not force the POD into the enclosure, as this may result in damage to the wiring or the POD. Ensure proper cabling and dressing of wires to avoid contact with switches 1-2 on the back of the POD. Honeywell Analytics recommends maintaining an 8” (203 mm) service length for wiring. Verify that the mV sensor has compatible threads (3/4 NPT or M25). Read Section 2.2, which defines the XNX power and 4-20mA output connections common to all personalities. Connections from the mV Sensor to XNX are made via a single pluggable terminal block for ease of installation and service. Verify that wires for 4-20mA outputs are routed away from sources of noise such as relay wires. The accessory kit for the remote terminal housing should be installed according to the instructions shown in Figure 48. The internal ground lug A provides a mounting base for the sensor, which does not use the power connections. The installation wiring enters the terminal housing through conduit and connects to the XNX Universal Transmitter. For the remote junction box, connect the wires from the transmitter to the 3-way terminal block, making sure that the black and red wires are properly isolated from live connections. The transmitter provides a 4-20mA output reflecting the input received and offers diagnostic information or data via HART or other communication options. It is essential to ensure that the enclosures of remotely mounted 705HT sensors do not contain aluminum, as this can cause ignition hazards in Zone 1 locations. Also, power off the transmitter before changing switches S3 or S4, and set both All cable port devices and blanking elements in either Source or Sink prior to applying power. The terminal box lid should be fitted carefully to avoid damage to the wiring or the POD. If resistance is felt when fitting the sensor, wires may be preventing the POD from being seated properly. The XNX Universal Transmitter can be installed up to 100 feet (33 meters) away using 0.75 mm (18 AWG) wire minimum. Note: A second screwdriver is provided for use on terminal blocks 2 and 4. Set S3 and S4 to the same output type as the mA Device, typically labeled on the white wire exiting the Searchpoint Optima Plus or Flow Searchline Excel. Searchline Excel Junction Boxes for XNX Universal Transmitter Available - Installation Guidelines For remote installations, refer to the Searchpoint Optima Plus or Searchline Excel Technical Handbook (2104M0506) or Searchpoint Optima Plus Operating Instructions (2104M0508). Contact your Honeywell Analytics representative for more information. Wiring Recommendations for Remote Applications: Adhere to ANSI/TIA/EIA-485-A standard guidelines with the following additions: 1. Mount Searchline Excel or Searchpoint Optima Plus in a dedicated separate conduit, running wiring connections between each unit and the XNX transmitter. 2. Use 18 AWG twisted shielded cable for RS485 connection between Excel or Optima and XNX, ensuring the shield is grounded to earth and XNX ground on one end only. 3. Avoid running wiring near main cables or other high voltage equipment. 4. Do not apply 120 ohm terminating resistors, as they are not required due to low data rates. HART Interface and Multidrop Mode: The HART protocol uses a communication technology with smart process instrumentation providing two-way digital power. For short distances, use multidrop mode, requiring only a single pair of wires, safety barriers, and an auxiliary power source if applicable. Minimum conductor size is 0.51mm diameter (#24 AWG) for up to 8 field devices, with all process values transmitted digitally over cable runs of less than 5,000 ft (1,524m). In multidrop mode, addresses are >0, and the current through each device is fixed at a minimum value (typically 4 mA). Most installations are within the 10,000 ft (3,000 m) limit for HART communication, but cable capacitance and connected devices can affect maximum allowable cable length. Refer to the table below for guidance. Warning: Power is externally supplied; disconnect at source. Relay Contact Ratings: 250 VAC 5 amps terminal blocks 2 and 4. A second, black-handled screwdriver is included for servicing prior to opening. To integrate into TB4 terminal connections, the XNX transmitter features three relays: Relay 1 for alarm level 2.3.3 Modbus 1, Relay 2 for alarm level 2, and Relay 3 for faults and special states. The optional Modbus interface allows monitoring of local states via user interface functions and parameter settings. Honeywell Analytics recommends using the fault relay for all transmitted data. The XNX Universal Transmitter Technical Manual provides calibration information for users. To reset any faults that appear on the transmitter's display, follow the instructions. When configuring or communicating with the transmitter, ensure you exit all menus and return to the General Status menu manually. Note that no time-outs are invoked. To configure the XNX Universal Transmitter, use the front panel menus available in the Configure Menu. For information on accessing and navigating the menus, refer to Section 1-4-1. The available languages for the XNX transmitter include English, Italian, French, German, Spanish, Russian, Mandarin, and Portuguese. The Configure Menu offers various functions with specific security levels required to change them. Use the Set Date selection to set the current date by selecting the year, month, and day using the switches. To set the desired date, select the checkbox. To set the mV sensor type, navigate to the Set mV Sensor Type screen and use the switches to decrement or increment the values until the desired value appears. Select to save the changes. If you do not select to save, no changes will be retained. The available mV sensor type selections include MPD-IC1 (5% Vol), MPD-IV1 (5% Vol), and MPD-IV1 (100% LE). When setting the mV sensor type, note that this configuration option is not available for XNX transmitters with EC sensors. The first screen displays the currently configured sensor. To select a new gas or sensor, use the switches to scroll through the list and select a sensor or discard the sensor selection. The Set mA Sensor Type feature allows users to configure the target gas for sensors capable of detecting multiple gases. The available gases for each capable sensor are determined by the device connected to the XNX transmitter. Changing the gas or units name is possible when "Other mA Sensor" has been selected as the sensor type. Given text analysis, the Gas Name editing display is opened to highlight the first letter of the current selection. The available gas selections vary with different types of sensors and include those listed with a “-2” suffix, which are compliant with 60079-20-1 LEL levels. The following tables show the transmitter's programmable alarm limits based on mV sensor type: | Gas Selection | Lower Alarm Limit (% Vol) | Upper Alarm Limit (% Vol) | | --- | --- | --- | | MPD-IC1 (5%V) | - | - | | Carbon Dioxide | 30.0% Vol | 100.0% Vol | | MPD-CB1 (100% LEL) | - | - | | Hydrogen | 3.8% LEL | 10.6% LEL | | Methane-2 | 5.9% LEL | 17.0% LEL | When the Range option is highlighted, use the switches to decrement or increment the value and accept the displayed value to move to the next field. The settings accepted screen will appear after all settings have been made, indicating that the alarm limits selection sets the alarm trigger level for both rising and falling gas concentrations. If “Other mA Sensor” has been chosen as the sensor type, the transmitter's output can be displayed in one of three numeric formats. To set these settings, navigate to the Ranges & Alarms menu and select the switch to concentrations of H S. Set the control unit to latch at overrange and alarms will be latching in standalone configuration. To verify correct operation, open the Range menu and select the switch twice to reset the overrange or alarm. Then, display the Range Lower Limit menu and select the switch twice again to open the first Numeric Format menu. Here, you can control whether Alarms 1 and 2 and faults will latch alarms using Latching / Non-Latching. You can also set Alarm 2 and Faults by following the same procedure. When all settings have been made, use to navigate to the on the display. Then, use to accept settings. To change the units, use the switches to highlight the units icon and select it or discard the selection. After making changes, move to the ‘ü’ and use on the front panel to accept and save ✓ the settings. If ‘ü’ is not selected, none of the changes will be saved. You can also set a desired interval for sensor calibration using the mA Levels Menu. Use the switches to decrement or increment the value until the desired value appears. This interval allows a desired time period for sensor calibration to be set for sensors attached to the transmitter. When replacing EC cells or mV sensors, use Accept New Sensor Type to ensure the highest level of safety. Set Time to Fault sets the minimum time the beam is blocked before generating a fault. If the infrared beam from the Excel transmitter is blocked or inhibited, causing its intensity to drop below a readable threshold, a warning will be generated by the XNX transmitter. The user can select the Beam Block Fault Time option and adjust it using the switches to define the maximum period for signal loss before generating a warning. To set this value, use the switches to move to the desired setting and confirm it with the ✓ button. The user can also define the low signal percentage threshold using this feature. Once these settings are adjusted, use the switch to highlight the 'ü' on the right side of the display and then use the ✓ button to accept the changes. The XNX Universal Transmitter also allows users to set a unique Unit ID for each device. The Edit ID menu enables modification of the assigned ID from its factory default. The user can select up to 18 characters, including letters, numbers, and special characters, to create a distinct identification for each transmitter. In addition, the XNX Universal Transmitter offers features such as setting relay states (Energized or De-energized) and configuring Fieldbus Options, including HART address and Modbus baud rate. 1. Once activated, the HART/Modbus screen allows selection of protocols to be configured or changed. 2. If XNX is configured without HART or Modbus, only installed options are visible. 3. After setting the HART address and Mode, navigate to the 'ü' switch and select it to access the XNX Universal Transmitter configuration. 4. To set the Fieldbus Address, use the switches to move to the desired position and press 'Use' to select it. 5. Configure Security is used to set or reset the level 1 and level 2 passcodes, allowing administrator control of access levels. 6. The test menu allows assignment of new passcodes for Level 1 and/or Level 2 access. 7. Use the switches to decrement or increment the value until the desired level appears. 8. Repeat this process to assign new passcodes and move to the next setting. 9. Inhibit mode can be activated by selecting 'Inhibit On' and will cancel the choice if 'Select Levels' is pressed. 10. The 'mA Output' menu allows adjustment of relay conditions, including Force mA Output and Alarm/Fault Simulation. 11. Any relay conditions set in this menu will revert to their safety device settings upon exiting the test menu. 12. Use the magnetic switch on the front panel to change the condition of the relay and set the new value. 13. The XNX transmitter must be thoroughly tested using all menu choices, including Force Relays sections (Force mA Output and Force Relays) with Alarm and Fault simulation. When exiting the Test Menu on your XNX Universal Transmitter, you'll be prompted to confirm your settings. For more information on setting relay options for normal operation, see Page 84. To simulate an alarm or fault, select an option from the menu (Figure 158). If you choose to reset alarms, faults, or warnings generated by the simulation, select the corresponding icon (Figure 162). Caution: Relays and LEDs will return to their initial states after simulations are completed unless faults and alarms are set to latching. To simulate a warning or fault from the transmitter, select an appropriate icon from the menu (Figure 159). A confirmation screen will appear (Figure 160), allowing you to verify that your settings are correct. After completing simulations, return to the Alarm/Fault Status 2.6.2 Information Menu screen. The Information Menu displays current status information for various parameters, including Date & Time, Gas Data, Transmitter Data, and more (Figure 165). The Date and Time screens show the date and time formats currently set on the transmitter (Figure 166). For option boards added or changed, refer to Section 2 - Installation and Operation. For sensor data, gas data, and mA level settings, see Figures 172-184. The XNX Universal Transmitter's settings can be viewed in the Searchpoint Optima, showing the current state of its optional relays. If these relays are not present, the transmitter will report a fault code from either the Searchline Excel or Searchpoint Optima. To change the relay settings, refer to the Relay Options section. The transmitter stores up to 1280 events in a circular buffer, with new events replacing older ones when the limit is reached. The Event History screen displays all events that match the transmitter's settings, including resets, alarms, warnings, faults, and informational messages. These events are listed in chronological order, starting from the latest occurrence, with five types of browsing modes available: viewing all events by time of occurrence, hour, day, alarm events only, or fault events only. Additionally, events can be viewed grouped by date or hour. The transmitter also features five cable/conduit ports for wiring and mounting sensors. This section details the process for calibrating the XNX Universal Transmitter's sensors. Prior to initial calibration, allow the sensor to stabilize for 30 minutes after applying power. During zero and span calibration modes, current output from the sensor is inhibited to prevent false alarms. Calibration procedures vary depending on the type of sensor being used. For example, when using a compressed gas cylinder with PTFE tubing and rubber tubes, it minimizes adhesion to the tube surface and allows for more accurate gas flow measurement. When calibrating the zero point, allow the transmitter to calculate the adjustment after 3 minutes, while span calibration involves entering the concentration of the span gas by selecting digits using switches. If zero calibration is successful, the transmitter will display a "Span Passed" screen; otherwise, it will show a "Span Failed" screen. Calibration flow rates can be adjusted during this process. Long-term exposure to concentrations exceeding the full-scale range of H2S sensors can cause them to lose sensitivity, requiring re-calibration with verification of gas absence before proceeding. Additionally, refer to Type 705 Operating Instructions for complete calibration and configuration information. Given article text here Recalibrate if the temperature has varied by more than ±15°C from the calibration temp. For complete calibration info, see Hydrogen Sulfide sensor handbook (P/N: 2106M0502). A sudden change in humidity can cause a short-term positive drift in instrument reading. Begin span calibration by entering concentration value of calibration gas. Select to choose first digit, use +/- to increment/decrement values. Use calibration cover P/N 2108B0272 for span calibration at 1 LPM. If not required, select return to calibration menu. Perform zero calibration when concentration values are stable. Select for XNX to calculate zero adjustment. Continue until all three digits have been entered. Select ‘✔’ returns to Gas Calibration menu. If calibrations are not successful, user will be prompted to exit and turn alarm/fault inhibit off or leave transmitter in inhibit mode. Caution: Extended exposure to combustible gases may affect sensor sensitivity. Verify sensor performance by frequent calibration. Before initial calibration, allow sensor to stabilize for 30 minutes. When in zero/span calibration modes, current output from sensor is inhibited (default 2mA) to avoid false alarms. Connect flow housing (P/N: 1226A0411) to sensor, which may be locally or remotely located. Required equipment includes flow housing and gas pipe. Sensors should be calibrated at concentrations representative of those to be measured. It is always recommended that sensor be calibrated with target frequency and amount of gas exposure. The toxic sensor's lifespan can range from 12 months for ammonia, hydrogen chloride, and hydrogen to 24 months for chlorine dioxide and other toxic sensors. It is crucial to ensure the sensor and its surroundings are clear of calibration gas before proceeding. If calibration fails, replace the cartridge with a new one. However, oxygen-deficient atmospheres may result in inaccurate readings and performance. To perform functional gas testing (bump testing), follow these steps: If the difference between the reading and applied gas concentration is outside acceptable limits, zero and calibrate the sensor accordingly. If accuracy remains an issue, replace the sensor. After completing the bump test successfully, the transmitter will exit the calibration procedure. Before returning to the Gas Calibration menu, ensure the user exits and turns off the alarm and fault inhibit mode. It is recommended to frequently perform functional gas tests to verify sensor performance. Different sensor types may require more frequent maintenance based on environmental conditions and gases present. The weatherproof cover has a spigot for attaching tubing from a gas cylinder, which can be used for simple functional testing. Calibrating mA output is essential for proper transmitter operation. An F165 fault will be reported if 4-20 mA calibration fails. Soft Reset Procedure for Searchline Excel and Searchpoint Optima Plus Sensors The Soft Reset feature on Searchline Excel and Searchpoint Optima Plus sensors restarts the device, eliminating the need to physically remove it from power. This procedure is used to recalibrate or replace sensors. To perform a Soft Reset: 1. Follow the guidelines for declassifying the area or disconnecting equipment from the supply circuit. 2. Remove the sensor cap and pull out the old cell without twisting it. 3. Verify that the new cell is compatible with the existing device. 4. Insert the new cell into the sensor, aligning the pins carefully. 5. Reattach the sensor retainer, tightening the locking screw, and replace the weatherproof cover. Additional Fault Messages: * "Fault 151" - This condition will resolve itself after reconfiguring the XNX unit for a new cell/target gas. * "WARM-" - The device will enter sensor warm-up mode. Warning Messages: * Latching / Non-Latching Event History Data Action For Resolution - Check the wire of the 24V power supply to the XNX unit, as well as the operating voltage. * W001 Non-latching 2 seconds Supply Bad voltage x1000 - Fit the device with a sunshade or other protection to prevent heat sources. * W002 Non-latching 2 seconds Change location of XNX - Check the temperature in Info->Transmitter Status. XNX Universal Transmitter Issues Various error messages can occur, affecting resolution sensors. XNX periodically checks the sensor every 2 seconds. If a fault is detected, warnings are issued for Optima or Excel systems. Checks involve verifying power supply to XNX and wiring between XNX and Optima/Excel units. Issues may stem from faulty sensors, incorrect wiring, or external interferences affecting the IR path. Other problems include low optical signal levels, dirty sensor windows, misaligned beams, and malfunctioning safety critical RAM blocks in EEPROM. Error codes for Excel beam blockage, personality board malfunctions, option board issues, interrupt integrity test failures, ECC & mV errors, main loop issues with Optima or unexpected sensors, XNX temperature anomalies, supply voltage problems, and cable loop impedance mismatches can also occur. The XNX Universal Transmitter checks the sensor every 2 seconds for various faults and issues such as latching or non-latching diagnostic frequencies, faulty cartridges, lost communication with sensors, and more. It also monitors internal circuits like 4-20 mA monitoring and watchdog error modules. The device is designed to provide diagnostic information and perform actions to resolve these problems. Users are advised to contact Honeywell Analytics' Service Department for further assistance in case of issues such as communications errors, ECC failures, or option part number mismatches. The XNX Universal Transmitter also features a digital-to-analog converter (DAC) and an analog-to-digital converter (ADC) which can indicate 4-20 mA calibration failures or loop resistances. Additionally, it includes SPI (Serial Peripheral Interface) notes with various event bits that describe decimal values representing different status conditions such as starting TX transmissions, port openings, responses, missing data, or ECC no responses. Warnings/Faults: * CRC error in safety critical RAM block * Error reloading safety critical RAM block from EEPROM * Error loading data from Personality board * Excel signal level has been below the low signal level threshold for at least 24 hours * Excel beam blocked * Personality board error code > 0 * Option board error code > 0 * Fault 2: IR mA input > 1 mA and < 3.4 mA or IR forced 10 mA not within +/-1 mA * Event Bits: IR mA input < 1.0 mA, 1024 gains from PGA don't match local copy, 2048 error reading or writing EEPROM, etc. Optima and Excel fault and warning codes are displayed in the Event History data field. I2C error reading or writing EEPROM; GALPAT RAM test failure; Program memory CRC failure; Opcode test failure; ECC Fault; Can’t adjust PGA or EEPROM value doesn't match digital; Subtypes: RAM safety variable failure, Interrupts integrity failure, Stack overflow/underflow failure Relay Option Board Error Status: * Didn’t receive STX or ETX * Received undefined command * Exceeded maximum data bytes * Write collision or buffer overrun * CRC error in SPI packet * Stack overflow or underflow * Program memory CRC error * Galpat RAM test failure Informational Messages: * Alarms configured non-latching * Unused alarm relays configured normally * Energized * Force relay mode started * Bitpattern for relays (E.G. 7.0 ==All) Specifications: * Electrical: EC/mV, IR * User Interface: Standard Custom Backlit LCD, magnetic wand access * Operating Voltage: 16V to 32V (24V nominal) * Power Consumption: w