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| 1. GENERAL DATA AND INFORMATION:  |  |  |  |  |  | | --- | --- | --- | --- | --- | | Panel No. |  |  | Designation |  | | Serial No. |  | Rated Voltage | 125 VDC | | Make |  | Aux. Voltage | 48 – 250 VAC/DC | | DWG. & SH. No. |  | Frequency | 50 – 60 Hz | | CT Ratio | 1200/1A |  |  |  2. MECHANICAL CHECKS AND VISUAL INSPECTION:  |  |  |  | | --- | --- | --- | | ITEM | DESCRIPTION | CHECKED | | 1 | Inspect for physical damage / defects. |  | | 2 | Verify Connections as per approved drawings. |  | | 3 | Check tightness of all connections. |  | | 5 | Check apparatus lists. |  | | 6 | Check ferrules |  | | 7 | Test Switch checked for correct function. |  | | 8 | Check case earthing. |  |  3. ELECTRICAL TESTS: With relay energized condition  |  |  |  | | --- | --- | --- | | ITEM | DESCRIPTION | CHECKED | | 1 | Measured auxiliary supply. |  | | 2 | Clock set at local time. |  | | 3 | Time maintained when auxiliary supply removed. |  | | 5 | Relay healthy (green) LED working. |  | | 6 | Trip (red) LED working. |  |  3.1 OPERATING DC SUPPLY CURRENT:  |  |  |  |  | | --- | --- | --- | --- | | DC Volt (V) | DC Current  Without Fault (mA) | DC Current  During Fault (mA) | Calculated WATT (W) | | 125 VDC |  |  |  |   **(Relays /energized):** < 12.0 W (**nominal**)/< 18.0 W (**max**) Technical Data page: 809 4. INPUTS AND OUTPUTS TESTS: **INPUT OPTO-ISOLATORS CHECKS (With Relay Energized):**  Test Procedure:  Go to CONFIGURATION - MONITORING,  I/O STATUS,  then go to BINARY INPUTS VALUES ( X120 (AIM) – X110 (BIO) )  to check the values after giving pulse on each BI.   |  |  |  |  | | --- | --- | --- | --- | | **OPTO INPUT NO.** | **TEST METHOD**  **(Energize only one at a time with**  **125V DC Station Battery voltage)** | **RESULT**  **Display FALSE to TURE** | **REMARKS** | | **X120** | | | | | BI 1 | ENERGIZE TB NO. X120 : 1 – 2C |  | SPARE | | BI 2 | ENERGIZE TB NO. X120 : 3 – 2C |  | SPARE | | BI 3 | ENERGIZE TB NO. X120 : 4 – 2C |  | SPARE | | BI 4 | ENERGIZE TB NO. X120 : 5 – 6 |  | SPARE | | **X110** | | | | | BI 1 | ENERGIZE TB NO. X110 : 1 – 2 |  | **CBF INITIATION** | | BI 2 | ENERGIZE TB NO. X110 : 3 – 4 |  | SPARE | | BI 3 | ENERGIZE TB NO. X110 : 5 – 6C |  | SPARE | | BI 4 | ENERGIZE TB NO. X110 : 7 – 6C |  | SPARE | | BI 5 | ENERGIZE TB NO. X110 : 8 – 9C |  | SPARE | | BI 6 | ENERGIZE TB NO. X110 : 10 – 9C |  | SPARE | | BI 7 | ENERGIZE TB NO. X110 : 11 – 12C |  | SPARE | | BI 8 | ENERGIZE TB NO. X110 : 13 – 12C |  | SPARE |   **OUTPUT RELAYS CHECKS (With Relay Energized):**  Test Procedure:  Go to IED CONFIGURATION,  TESTS, IED TEST, TEST MODE : ON,  then go to BINARY OUTPUTS-CHANGE THE POSITION OF EACH BO FROM FULSE TO TURE FROM HMI,  then check contact resistance.   |  |  |  |  | | --- | --- | --- | --- | | **OUTPUT RELAY No.** | **TEST METHOD**  **(Energize only one relay at a time by**  **Test ON in ‘IED TEST’)** | **RESULT**  **Contact Checked**  **≤ 0.2Ω** | **REMARKS** | | **X100** | | | | | PO1 | CONTACT OPERATED X100 : 6 – 7 (N/O) |  | **CBF OPTD(86CBF)** | | PO2 | CONTACT OPERATED X100 : 8 – 9 (N/O) |  | **CBF OPTD(86CBF)** | | SO1 | CONTACT OPERATED X100 : 10 – 11 /10 - 12 (C/O) |  | SPARE | | SO2 | CONTACT OPERATED X100 : 13 – 14 (N/O) |  | **CBF OPTD(FR)** | | PO3 | CONTACT OPERATED X100 : 16 – 17 (N/O) |  | SPARE | | PO4 | CONTACT OPERATED X100 : 21 – 22 (N/O) |  | SPARE | | IRF | CONTACT OPERATED X100 : 3 – 4 (N/O) |  | WATCHDOG | | **X110** | | | | | SO1 | CONTACT OPERATED X110 : 14 – 16 /14 - 15 (C/O) |  | SPARE | | SO2 | CONTACT OPERATED X110 : 17 – 19 /17 - 18 (C/O) |  | SPARE | | SO3 | CONTACT OPERATED X110 : 20 – 22 /20 - 21 (C/O) |  | SPARE | | SO4 | CONTACT OPERATED X110 : 23 – 24 (N/O) |  | SPARE |   **INDICATION LED TEST**  **LED Checks:**  Go to MONITORING,  PROGRAMMABLE LEDS to view the physical position of the LED.   |  |  |  | | --- | --- | --- | | **OPTO Input Number** | **Result Display On or Off** | **Function** | | LED 1 |  | CBF INITIATION | | LED 2 |  | CBF OPTD | | LED 3 |  | DIST. TRIGGERED | | LED 4 |  | SPARE | | LED 5 |  | SPARE | | LED 6 |  | SPARE | | LED 7 |  | SPARE | | LED 8 |  | SPARE |  5. MEASUREMENTS ACCURACY CHECKS:  |  |  |  |  |  | | --- | --- | --- | --- | --- | | Applied Value | Expected Value ( A ) | Displayed value ( A ) | | | | R | Y | B | | 0.1 In | 120 |  |  |  | | 0.5 In | 600 |  |  |  | | 1 In | 1200 |  |  |  | | 1.5 In | 1800 |  |  |  |     **6. BREAKER FAILURE PROTECTION (50+62BF) PICK UP & DROP OFF**   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | Phase | Current ( A ) | | | Stage 1 | | Stage 2 | | | Set | Pickup | Drop-off | Set | OPTD (ms) | Set | OPTD (ms) | | R | 5% In |  |  | 50 ms |  | 100 ms |  | | Y |  |  |  |  | | B |  |  |  |  | | R | 15% In |  |  | 100 ms |  | 200 ms |  | | Y |  |  |  |  | | B |  |  |  |  | | R | 20% In |  |  | 200ms |  | 400 ms |  | | Y |  |  |  |  | | B |  |  |  |  |   **Operation accuracy:**  ±1.5% of the set value or ±0.002 x In Technical Data page : 499  **Operate time accuracy:**  ±1.0% of the set value or ±20 ms Technical Data page : 499  refer to manual page : 26/132   |  |  |  | | --- | --- | --- | | 1 | Communication with PC |  | | 2 | Event Record Check |  | | 3 | Disturbance Record Check |  | |