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| 1. GENERAL DATA AND INFORMATION:  |  |  |  |  |  | | --- | --- | --- | --- | --- | | Panel No. | **RD.BF3 – D11** |  | Designation | U10.5001 (50+62BF-2A) | | Serial No. | **32210406/07/12** | Rated Voltage | 125 VDC | | Make |  | Aux. Voltage | 110 – 250 VAC/DC | | DWG. & SH. No. | CD-268491/11 | Frequency | 50 – 60 Hz | | CT Ratio | 1200/1A |  |  |  2. MECHANICAL CHECKS AND VISUAL INSPECTION:  |  |  |  | | --- | --- | --- | | ITEM | DESCRIPTION | CHECKED | | 1 | Inspect for physical damage / defects. | OK | | 2 | Verify Connections as per approved drawings. | OK | | 3 | Check tightness of all connections. | OK | | 5 | Check apparatus lists. | OK | | 6 | Check ferrules | OK | | 7 | Test Switch checked for correct function. | OK | | 8 | Check case earthing. | OK | | 9 | Watchdog contact (F11& F12): | OK |  3. ELECTRICAL TESTS: With relay energized condition  |  |  |  | | --- | --- | --- | | ITEM | DESCRIPTION | CHECKED | | 1 | Measured auxiliary supply. | OK | | 2 | Clock set at local time. | OK | | 3 | Time maintained when auxiliary supply removed. | OK | | 5 | Relay healthy (green) LED working. | OK | | 6 | Trip (red) LED working. | OK |  3.1 OPERATING DC SUPPLY CURRENT:  |  |  |  |  | | --- | --- | --- | --- | | DC Volt (V) | DC Current  Without Fault (mA) | DC Current  During Fault (mA) | Calculated WATT (W) | | 125Vdc |  |  |  |   **(Relays /energized):** approx. 11 W Technical Data page: 17- 132 4. INPUTS AND OUTPUTS TESTS: **INPUT OPTO-ISOLATORS CHECKS (With Relay Energized):**  Test Procedure:  Go to Commissioning Test,  Test mode (test mode),  then go to system data (Opto I/P Status)  to check the status of the binary inputs.   |  |  |  |  | | --- | --- | --- | --- | | **OPTO INPUT NO.** | **TEST METHOD**  **(Energize only one at a time with 125V DC Station Battery voltage)** | **RESULT**  **Display 0 to 1** | **REMARKS** | | OPTO 1 | ENERGIZE TB NO. D2-D1 |  | **CBF INITIATION** | | OPTO 2 | ENERGIZE TB NO. D4-D3 |  | SPARE | | OPTO 3 | ENERGIZE TB NO. D6- D5 |  | SPARE | | OPTO 4 | ENERGIZE TB NO. D8-D7 |  | SPARE | | OPTO 5 | ENERGIZE TB NO. D10-D9 |  | SPARE | | OPTO 6 | ENERGIZE TB NO. D12-D11 |  | SPARE | | OPTO 7 | ENERGIZE TB NO. D14-D13 |  | SPARE | | OPTO 8 | ENERGIZE TB NO. D16-D15 |  | SPARE | | OPTO 9 | ENERGIZE TB NO. B2-B1 |  | SPARE | | OPTO 10 | ENERGIZE TB NO. B4-B3 |  | SPARE | | OPTO 11 | ENERGIZE TB NO. B6-B5 |  | SPARE | | OPTO 12 | ENERGIZE TB NO. B8-B7 |  | SPARE |   **OUTPUT RELAYS CHECKS (With Relay Energized):**  Test Procedure:  Go to Commissioning Test,  Test mode (Contacts blocked),  Test Pattern mode  and select each relay to be tested  and Apply Contact Test,  after test; apply remove test to de-energize the relay   |  |  |  |  | | --- | --- | --- | --- | | **OUTPUT RELAY No.** | **TEST METHOD**  **(Energize only one relay at a time by**  **‘Contact Test in ‘Apply Test Mode’)** | **RESULT**  **Contact Checked**  **≤ 0.2Ω** | **REMARKS** | | RL1 | CONTACT OPERATED E1-E2 (N/O) |  | **CBF OPTD(86CBF)** | | RL2 | CONTACT OPERATED E3-E4 (N/O) |  | **CBF OPTD(86CBF)** | | RL3 | CONTACT OPERATED E5-E6 (N/O) |  | **CBF OPTD(FR)** | | RL4 | CONTACT OPERATED E9-E8,E7 (C/O) |  | SPARE | | RL5 | CONTACT OPERATED E12-E11, E10  (C/O) |  | SPARE | | RL6 | CONTACT OPERATED E 15-E14, E13 (C/O) |  | SPARE | | RL7 | CONTACT OPERATED E18-E17, E16 (C/O) |  | SPARE | | RL8 | CONTACT OPERATED B9-B10 (N/O) |  | SPARE | | RL9 | CONTACT OPERATED B11-B12 (N/O) |  | SPARE | | RL10 | CONTACT OPERATED B15-B14, B13 (C/O) |  | SPARE | | RL11 | CONTACT OPERATED B18-B17, B16 (C/O) |  | SPARE |   **INDICATION LED TEST**  **LED Checks:**  Go to hardware test 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 |  | SPARE | | 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 | | 0.1In |  |  |  |  | | 0.5In |  |  |  |  | | 1 In |  |  |  |  | | 1.5In |  |  |  |  |   **Limits:** Current: 0.05 … 3 In Accuracy: ± 1.0% of reading  **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 |  | 80ms |  | | Y |  |  |  |  | | B |  |  |  |  | | R | 8% In |  |  | 100 ms |  | 150ms |  | | Y |  |  |  |  | | B |  |  |  |  | | R | 10% |  |  | 200ms |  | 250ms |  | | Y |  |  |  |  | | B |  |  |  |  |   **Limits:**  I > Pick-up: Setting ±5% or 20 mA  I > Drop-off: 100%of setting ±5% or 20 mA  Timers: ± 2% or 50 ms whichever is greater  refer to manual page : 26/132   |  |  |  | | --- | --- | --- | | 1 | Communication with PC |  | | 2 | Event Record Check |  | | 3 | Disturbance Record Check |  | |