

ABSTRAK

ANALISIS KONDISI PEMISAH 150 KV BERDASARKAN HASIL PENGUJIAN THERMOVISI DI PT. PLN (PERSERO) ULTG BORANG

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Ketersediaan listrik yang penting di era sekarang menuntut keandalan pasokan listrik, terutama pada jaringan distribusi. Pemisah (PMS) merupakan salah satu komponen krusial pada gardu induk yang memerlukan pemantauan temperatur secara rutin dengan metode thermovisi untuk mendeteksi potensi kerusakan dan mencegah gangguan. Penelitian ini bertujuan menganalisis kondisi PMS line 150 kV pada bay Kenten I di PT. PLN (Persero) ULTG Borang berdasarkan standar PT. PLN, NETA-MTS 1997 dan buku “*Standard for Infrared Inspection of Electrical Systems & Rotating Equipment*”. Pengumpulan data meliputi studi literatur, observasi langsung dan wawancara. Kemudian data dianalisa dengan metode kualitatif yaitu menghitung nilai ΔT_1 , ΔT_2 dan $T_{max_{corr}}$, nilai-nilai tersebut kemudian dibandingkan dengan standar yang ada. Kondisi Pemisah 150 KV line bay Kenten I berdasarkan hasil pengukuran dan analisis yaitu ΔT_1 pada klem adalah 0,1°C sampai 0,5°C, ΔT_1 Pada konduktor adalah 0,2°C sampai 0,7°C, ΔT_1 pada pisau 0,5°C sampai 1,5°C ΔT_1 antara klem dan konduktor adalah 1,6°C sampai 2,2°C, ΔT_2 adalah 5°C sampai 7,8°C dan temperatur PMS 39°C sampai 41,8°C, sedangkan nilai $T_{max_{corr}}$ yaitu 34,028°C sampai 34,034°C. Berdasarkan standar-standar yang ada seperti dari PT. PLN, NETA MTS-1997, dan buku Standard for Infrared Inspection of Electrical Systems & Rotating Equipment, nilai-nilai tersebut masih memenuhi kondisi layak untuk PMS beroperasi dan tidak memerlukan tindakan mendesak. Meskipun demikian, ada indikasi kecil ketidaknormalan yang memerlukan investigasi lanjutan secara visual terhadap PMS.

Kata Kunci : Pemisah (PMS), Thermovisi, Pengujian, Gangguan, Temperatur.

ABSTRACT

ANALYSIS 150 KV DISCONNECTION SWITCH (DS) CONDITION BASED ON THERMOVISION MEASUREMENT IN PT. PLN (PERSERO) ULTG BORANG (2025 : xvi + 51 Pages + 39 Pictures + 11 Tables + 9 References)

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The crucial availability of electricity in the current era demands reliable power supply, especially within distribution networks. The disconnecting switch (DS), or Pemisah (PMS) in Indonesian, is a critical component in substations that requires routine temperature monitoring using thermovision methods to detect potential damage and prevent outages. This research aims to analyze the condition of the 150 kV DS on the Kenten I bay at PT. PLN (Persero) ULTG Borang, based on PT. PLN standards, NETA-MTS 1997, and the book "Standard for Infrared Inspection of Electrical Systems & Rotating Equipment." Data collection involved literature reviews, direct observation, and interviews. The collected data was then analyzed using qualitative methods, calculating the values of ΔT_1 , ΔT_2 , and $T_{max_{cor}}$. These values were subsequently compared against existing standards. Based on the measurement and analysis results, the condition of the 150 kV DS on the Kenten I bay showed at the ΔT_1 on clamps is 0.1°C to 0.5°C, ΔT_1 on the conductor: 0.2°C to 0.7°C, ΔT_1 on the blade 0.5°C to 1.5°C, ΔT_1 between clamp and conductor on the same phase is 1.6°C to 2.2°C, DS Temperature is 39°C to 41.8°C meanwhile T_{maxcor} value is 34.028°C to 34.034°C. According to existing standards from PT. PLN, NETA-MTS 1997, and the "Standard for Infrared Inspection of Electrical Systems & Rotating Equipment," these values still indicate that the DS is in an acceptable operating condition and does not require urgent action. Nevertheless, there are minor indications of abnormality that warrant further visual investigation of the DS.

Keywords : Disconnecting Switch (DS), Thermovision, Outages, Measurement, Temperature