

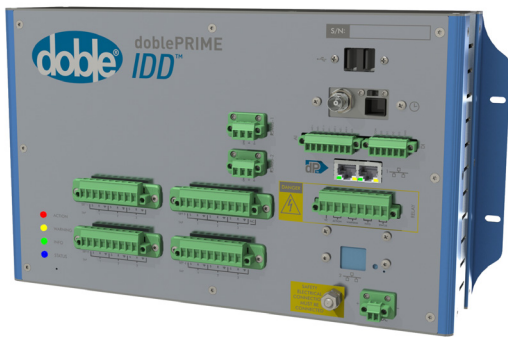
DOBLE ON-LINE MONITORING

doblePRIME IDD

Bushing Monitor

FOR ON-LINE MONITORING OF BUSHINGS AND CURRENT TRANSFORMERS

The unparalleled doblePRIME IDD Bushing Monitor detects deterioration in bushings, finding abnormalities in the insulation and issuing actionable alerts. Over almost 20 years of successful monitoring Doble has identified two distinct failure modes—rapid onset and graceful decay—and have cases of averting bushing failures in both modes. The doblePRIME IDD Bushing Monitor provides leakage current, phase and harmonic analyses for up to 12 bushings, measuring parameters for each bushing individually and together. This intelligent device also uses an embedded expert System to provide you with notifications and alarms based on comparisons between off-line and calculated on-line data. Designed to fit your monitoring program, the doblePRIME IDD Bushing Monitor can operate as a standalone device or as part of a doblePRIME Condition Monitoring Platform.



Above shows 7 days of individual leakage current rms values recorded at 15 minute intervals for a set of 3 bushings. doblePRIME IDD stores over 2 years of data. Individual phase angles, power factor and capacitance values are also available.

FEATURES

- Capture bushing current waveforms in real time
- Calculates values for power factor and capacitance for each bushing
- Records data at user specified intervals, or ad hoc to reflect likely failure modes and industry experience
- Displays alerts locally and remotely; alerts at three levels for all measured or derived data
- Intelligent Expert System learns what is normal for your bushings
- Built in Alert State Machine analyzes data trends and variations to identify bushing deterioration
- Available in three versions: 12 current, 6 current, or 6 current and 3 voltage reference with one reference per phase
- Optional armored cables & junction boxes for optimal performance in harsh environments
- Provides a sum current value for each bushing set

BENEFITS

- Save costly equipment by quickly reacting to rapid deterioration warnings
- Identify problem bushings and diagnose the severity of the situation
- Plan for bushing replacements in a proactive, risk management approach
- Monitor up to 12 bushings, either individually or in sets of three
- View data, alerts and analyses though local or remote connection via cell phone, tablet or laptop, within your organization's security/cyber policy
- Use as a standalone product, networked to existing SCADA system, or as part of a doblePRIME Condition Monitoring Platform
- Records both raw waveforms and derived values to allow for deep analysis
- Alerts based on latest analysis techniques—and built on Doble's decades of experience in the field

doblePRIME IDD TECHNICAL SPECIFICATIONS

DATA ACQUISITION

Inputs	6 channel options (models DPID 101 and DPID 102) 12 channel option (model DPID 100)
Connector	Screw terminal
Measurement method	Leakage current raw waveform and relative phase
Tap Current Range	1 - 200 mA
Bushings Monitored	Up to 4 sets of 3 bushings
Bushing-Bushing Isolation	>2500 V
Bushing-Host Isolation	>2500 V
Magnitude Accuracy	± 1% of reading
Phase Accuracy	0.01 Degrees
Resolution	0.1% of input signal peak
Voltage reference	3x instrument transformer input (model 101 only)
Core CPU	ARM Cortex 180MHz
Memory	32MB RAM, 16MB flash

PRIME GATEWAY

CPU, MEMORY AND BUSES

Host CPU	ARMv8 1.2GHz
Memory	1 GB RAM, 4GB Flash

STORAGE

32GB for application and data storage

PERIPHERALS

USB 2.0
2x Isolated RS485 (Modbus, DNP3)
10/100 BaseT Ethernet (DNP3, Modbus, HTTP)
GPS 1PPS time sync (Fibre/IRIG)
Alert LED (Status, Info, Warning, Action)
Status Relay, 240VAC 5A (Status, Info, Warning, Action)

ENVIRONMENTAL

Humidity	0-95% non-condensing
Operating temperature	-20°C to +50°C
Storage temperature	-20°C to +70°C
Available Doble enclosure includes climate control to extend range to -40°C	

MECHANICAL DATA

Height	200mm / 7.9 in
Width	330mm / 13.0 in
Depth	82mm / 3.2 in
Weight	2kg / 4.4 lbs
Construction	Anodized aluminium

POWER SUPPLY

External supply	24 V DC @ 1 A
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An optional power adapter can be supplied to suit global mains voltage

Detect Slow or Rapid Failures

Bushings can fail slowly, giving you time to plan for replacement; they can also fail rapidly, leaving little time to act. Doble Engineering has documented cases of bushing saves where detection of bushing deterioration allowed for appropriate intervention and the resulting 'save' of transformers. With intelligent monitoring from Doble Engineering Company, you can proactively manage risks associated with either failure mode and act on intervention plans in a timely manner.

Safety Starting at Installation

The doblePRIME IDD uses multiple redundant safety systems & ground paths, including transorbs & sparkgaps, to ensure anytransients are safely conducted to ground. The safety systems have been tested under overvoltage impulse to demonstrate functionality. During an installation, the bushing cap is replaced with the IDD bushing adapter, ensuring grounding is maintained in service. For harsh environments, armored cables are available, meeting full military specification protection. For high criticality applications, and for those in areas with significant switching transients, protection remote from the bushing is available.

Cybersecurity

The doblePRIME IDD works completely within your organization's cyber security, not requiring access to the cloud for data storage or analysis.

Scalability

The doblePRIME IDD works completely within your organization's cyber security, not requiring access to the cloud for data storage or analysis.



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Specifications are subject to change without notice.
Doble is an ISO 9001 & ISO/IEC 17025 & 17034 Certified Company.
Doble is an ESCO Technologies Company.
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