

F6880

Digital Network Analyzer

DETECT AND ADDRESS ISSUES IN IEC 61850 NETWORK TRAFFIC



특징 및 이점

- 가볍고 컴팩트하여 쉽게 휴대 가능
- 다양한 현장 및 실험실의 애플리케이션
대면 및 원격 사용
- 캡처된 내용을 상세하게 분석하기 위한 소프트웨어 (이벤트 및 네트워크 성능 평가)
- PCAP(시스템 이벤트 섹션 캡처)
다양한 네트워크 분석 도구를 통한 분석
- 시스템 상태를 실시간으로 관찰
- 빠른 설정 및 직관적인 데이터 분석 가능

Doble F6880 디지털 네트워크 분석기 [DNA]는 보호엔지니어와 릴레이테스트기술자가 IEC 61850 네트워크 트래픽의 문제를 신속하게 해결하는데 필수적인 세부정보를 보여줍니다.

작고 가벼운 장비는 IED 통신을 분석하고 실시간으로 진단 및 분석 기능을 제공하는 강력한 소프트웨어와 결합 됩니다.

DNA는 실시간 오실로그래픽, 페이지 및 표데이터를 통해 IEC 61850 샘플링값(SV) 및 GOOSE 메시지를 표시할 수 있는 휴대용 디지털 변전소 멀티미터입니다.

또한 사용자 정의가능한 트리거를 통해 이벤트를 캡처하고 사용자가 전압강하, 고조파 왜곡 및 저 주파수와 같은 네트워크 성능 및 전력시스템 이상형상을 확인하고 평가가능한 분석 보고서를 생성하는 시스템 이벤트 저장 장치이기도 합니다.

F6880은 SCL파일의 SV 및 GOOSE 정보를 현재 네트워크 트래픽과 비교하여 누락 및 중복 또는 알수없는 메시지와 같은 시스템 구성 오류문제도 식별합니다.

DNA는 오랜기간 동안 변전소에 연결된 상태로 원격 액세스 및 제어를 제공할 수 있습니다.

CONNECT

Assign ports to process bus, station bus and control networks and save along with other setup configurations for sharing and future plug-and-play efficiency.



Display
Firmware Version
IP Address

2 x SFP Ports
Copper/Fiber
1 Gbps each

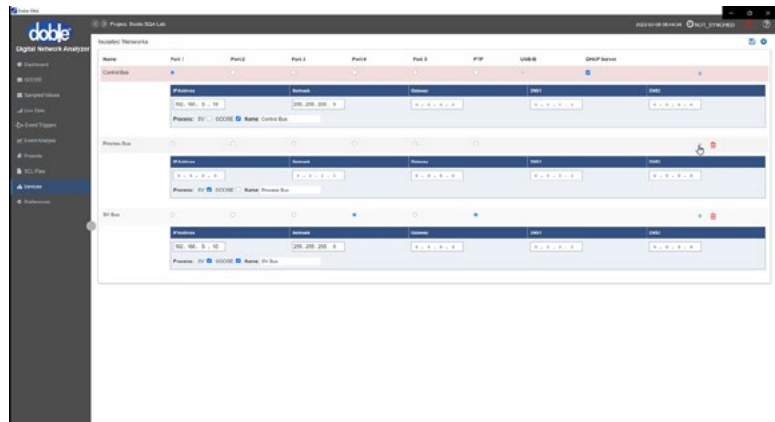
3 x RJ-45 Ports
10/100/1000 Mbps each

USB 3.0 Type B
Control

USB 3.0 Type A
Future Use

SUBSCRIBE

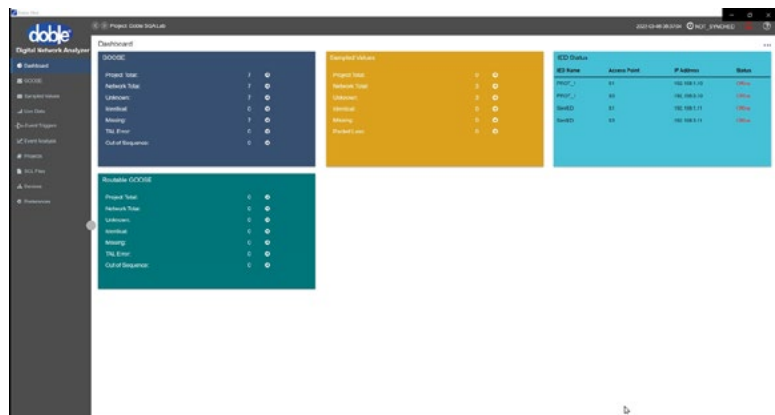
Import SCL files to find baseline IED parameters. Create up to 3 networks to filter SV and GOOSE from Process/Station buses. Synchronize with PTP grandmaster clocks to achieve sub-microsecond network time synchronization.



Assign ports to isolated networks to monitor multiple subnetworks simultaneously.

MONITOR

Select individual GOOSE and SV control blocks to analyze. The DNA can sample and display 16 sampled values streams simultaneously.



The Dashboard combines a high-level aggregate view with quick navigation to present key information about the networks being monitored.

FUNCTIONAL SPECIFICATIONS

IEC 61850	(all editions and amendments, unless otherwise noted) IEC 61850-6 (SCL files) IEC 61850-8-1 (GOOSE over Ethernet) IEC 61850-9-2 (SV over Ethernet) IEC 61869-9 (Digital interface for instrument transformers) IEC 61850-90-5 (Routable GOOSE)
Industry Guidelines	Implementation Guideline for Digital Interface to Instrument Transformers Using IEC 61850-9-2
Time Synchronization	RFCs 5905 and 4330 (Network Time Protocol/ Simple Network Time Protocol) IEEE 1588 (Precision Time Protocol), with support for PTP profiles: IEC/IEEE 61850-9-3:2016 IEEE C37.238-2011 IEEE C37.238-2017
Dashboard	IED Online/Offline status Missing/Identical/Unknown GOOSE/R-GOOSE/SV stream identification SV lost packet(s) indication GOOSE packets Out of Sequence indication GOOSE Time Allowed to Live Exceeded indication
Live Data	16 SV streams 128 GOOSE messages
Event Triggers	Custom, combinatorial logic-based trigger functionality, with the ability to trigger on and record up to — 3 SV streams, triggering on: Symmetrical Components RMS/peak-to-peak Phase Frequency ROCOF 10 GOOSE messages, triggering on: Floating point magnitude Boolean Quality
Event Analysis	Record 1 to 20 seconds of pre-trigger/post-trigger event information 1 PCAP file generated per each SV, GOOSE, and R-GOOSE stream COMTRADE file generated according to IEEE C37.111-2013 Packet Variation Delay (or "Jitter") Analysis of each SV stream System Power Analysis (requires SV streams with at least 3 TCTR and 3 TVTR)
Data Visualization	SV Analog Scope SV Phasor Diagram Symmetrical Components GOOSE Digital Scope GOOSE Tabular Graph

GENERAL SPECIFICATIONS

Memory	240 GB Non-volatile memory (SSD)
Cyber Security	Access supervision and logging TLS Encrypted Control Bus Full Network Isolation
OLED Display	IP Address of Control Bus Firmware Version
Software	Windows PC application
Firmware	Package upgrade via PC application
Dimensions	Length: 8 in (20.32 cm) Width: 5.5 in (13.97 cm) Height: 3 in (7.62 cm) Weight: 3 lb (1.36 kg)
Power	12 V DC (back of device) 2 A
Power Connector	DC Barrel Jack, center pin positive Ø 2.5 × 5.5 × 9 mm Ø 0.098 × 0.217 × 0.35 in
Certifications	ROHS FCC Class A CE IEC 60529 IP2X CFR 47 FCC Part 15 Subpart B Class A (EMI Emissions) EN 61326-1:2013 (EMI Emissions) IEC 61010-1:2010 (EMI Emissions)
Operating Temperature	32° to 131° F (0° to 55° C)
Storage Temperature	-4° to 176° F (-20° to 80° C)
Includes	1 x F6880 Digital Network Analyzer 1 x Power supply 1 x Power cable 1 x Cat6 cable 1 x USB flash drive (2 Gb) 1 x USB-A to USB-B cable 2 x SFP transceivers (1000BASE-T) 1 x Hard shell case with form cut foam interior padding 1 x F6880 User Manual (software based) 10 x Software user seats

The performance of the recording system is largely dependent on the simultaneous use and the combination of: the number and types of monitored signals; the number of signals used for on-line visualizations; the number and types of visualizations; and the number and types of recording triggers used. The numbers stated here are typical and should provide satisfactory performance. If these numbers are exceeded, possible degraded performance can be expected.



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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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