



# DWatch

## The Smart Operating Mechanism

In the digital era, the DWatch mechanism is the logical evolution of the traditional CMM mechanism, combining advanced software with the hardware characteristics and benefits of the original.

### Intelligent Disconnecter Monitoring and Control

DWatch performs permanent real time monitoring of the operational parameters of disconnectors and records all operating curves locally.

The DWatch also controls the speed of the live part during opening and closing in a specific and programmable manner for all disconnector types. These profiles can be easily set by internal dip-switches. Such control helps in always having a constant operating time in different conditions of power supply and load.

Secured on-line communications easily integrate into customer IT architectures to deliver relevant data to Maintenance Managers, Asset Managers and Network Operators.

The DWatch mechanism provides an exhaustive real time condition assessment of critical disconnectors with incipient failure detection features to reduce the chances of catastrophic equipment failure and preserve network performance.

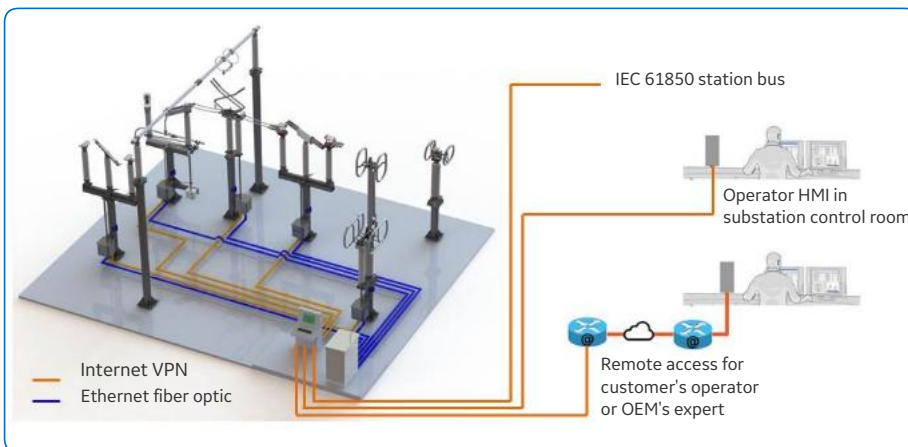
DWatch records information coming from the sensors installed on the disconnector and analyses it with standard models programmed into the system.

## The new digital DWatch

renders all disconnectors inside the substation more intelligent and is fully compliant with IEC 61850.

## Customer Benefits

- Continuous on-line monitoring and control of mechanical parts and live part temperature
- Early detection of excessive wear and tear according to actual health
- Flexible configuration
- Improved reliability, extended lifetime and predictive maintenance
- Scalable solution



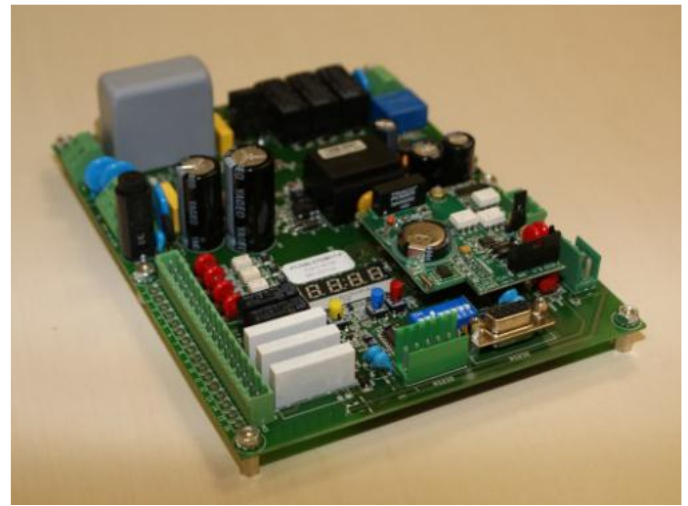
Technical center architecture

## DWatch Mechanism Features

Stainless steel box	✓
Irreversible gearbox	✓
IP55	✓
Emergency crank	✓
Padlockable front door	✓
Digital communication plug	✓

## DWatch Mechanism Characteristics

Robust design for all environmental conditions	✓
Easy wiring	✓
Reduced maintenance costs	✓
Variable speed during operations	✓
Suits any motor supply voltage	✓
Time operation not voltage supply dependent	✓
Modularity to suit all installations	✓
Lubricated for life	✓



DWatch Electronic Board



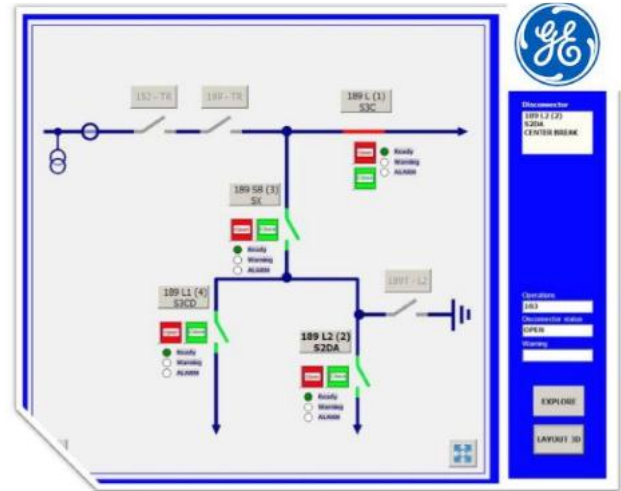
Typical installation of DWatch mechanism - external view



DWatch mechanism with DWatch proxy and fiber optic option



SPVL disconnecter type with DWatch mechanism installed



Example of Control Dashboard with DWatch

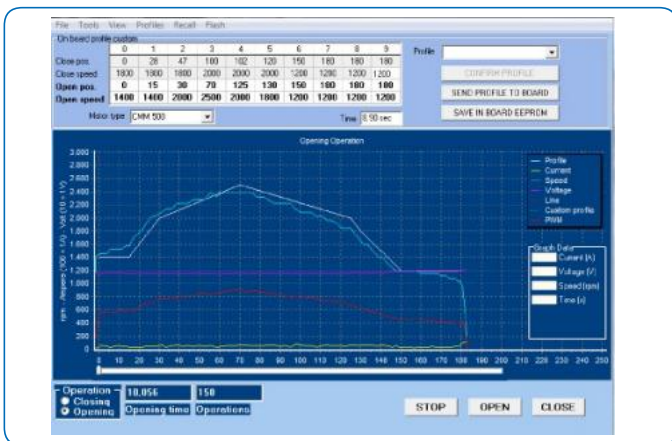
### Digital Communication

Many sensors are integrated in the disconnecter which communicate with the substation in digital standard IEC 61850 via fiber optics.

- The patented US 9,071,190 B2 solution also offers the possibility to propose a remote substation diagnostics service.

### Benefits

Disconnecter maintenance planned in advance as necessary and early detection of eventual malfunctions. In fact, the disconnecter only requires maintenance due to its effective load level, with the consequent benefits in terms of costs as well as optimizing overload management of the electrical network.



DWatch HMI local

Last opening operation (p3, 3, 2)

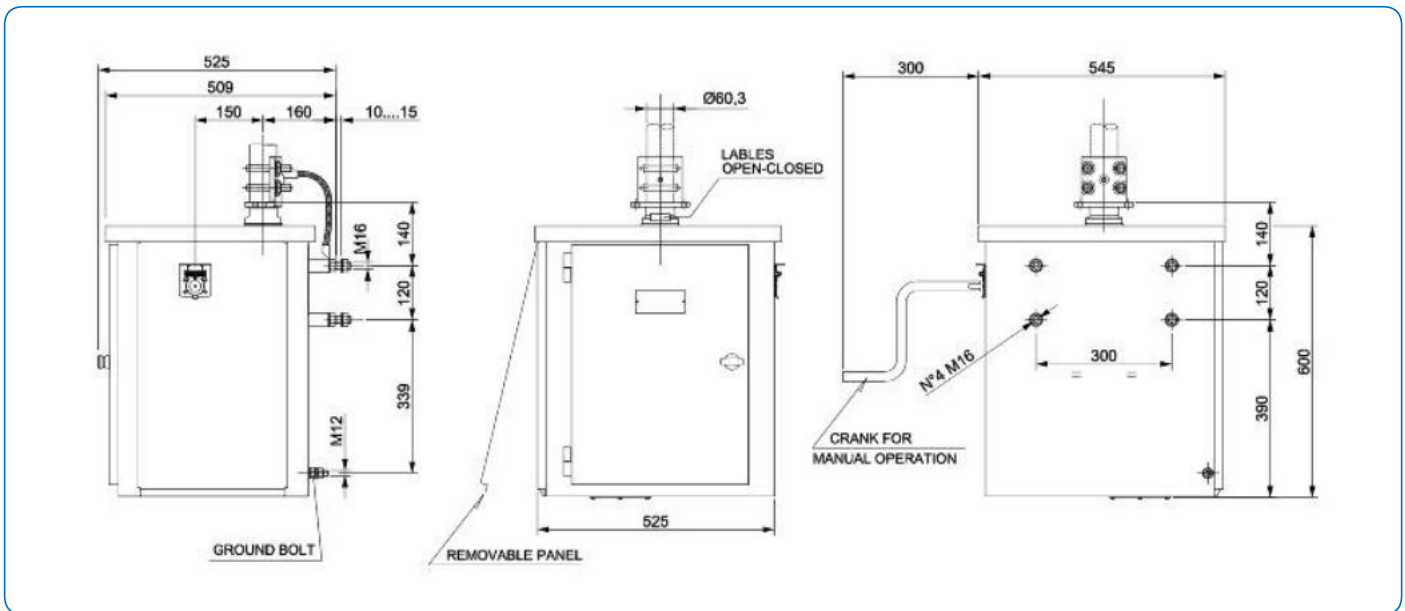
	DWatch1	DWatch2	DWatch3
Operations counter	896	896	896
Date	Start Row 2 13:40:03 2010	Start Row 2 13:40:03 2010	Start Row 2 13:40:03 2010
Profile number	6	6	6
Number of operations to maintenance	210	210	210
Operation time	7.990 s	7.990 s	7.990 s
Mean voltage	130 V	130 V	130 V
Minimum voltage	126 V	126 V	126 V
Mean current	8.754 A	8.754 A	8.754 A
Maximum current	9.038 A	9.038 A	9.038 A
Mean torque	8.161 N.m	8.161 N.m	8.161 N.m
Maximum torque	21.152 N.m	21.152 N.m	21.152 N.m
Maximum torque position	87	87	87
Board temperature	71.9°C	71.7°C	71.9°C
Alarms			
Insufficient voltage	OK	OK	OK
Excessive current	OK	OK	OK
Encoder error	OK	OK	OK
High voltage error	OK	OK	OK
Low voltage error	OK	OK	OK
Excessive operation time	ERROR	ERROR	ERROR
Maintenance required	ERROR	ERROR	ERROR
Board temperature	OK	OK	OK
Order origin	Remote	Remote	Remote

DWatch HMI web based



## DWatch Technical Specifications

Voltage input			
Power supply	Vdc/Vac[V]		70-250/50-400
Auxiliary supply	Vdc/Vac[V]		60-375/85-265
Environmental condition			
	Tmin/Tmax[°C]		-40/+55
Optional relay output			
	n°/Imax		5/5
Mechanical data			
	Interface		120x300
	Weight		80 kg
	Main dimensions (bxhxd) [mm]		550x750x550
Equipment reliability			
	MTTF[yr]		60
Interfaces			
	Digital	Analog (typ)	RS-232/RS-485/IEC 61850 8na+8nc
EMC			
	IEC 62271-102 par 5.18		
Software			
	1 x client license		
PC requirement			
	Operating system		WIN XP or better
Web server			
	Embedded (opt)		Configurable



Standard dimensions. Different sizes available upon request.

For more information please contact  
GE Grid Solutions

### Worldwide Contact Center

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imagination at work