

3M[™] Sensored Cable Accessories (SCA) Series: QX-2.0

Monitoring

The penetration of Distributed Generation (DG) and changes in load dynamics with emerging EV charging infrastructure require high precision monitoring in the medium voltage distribution grid.

Monitoring Voltage and Current

Historically utilities mainly monitor the current and restore the network in case of short circuit interruptions, but Distributed Generation as well as the fast charging of electrical vehicles provide new challenges to the medium voltage grid, including:

- Over Voltage
- Increase current and short circuit levels
- Alters the power flow direction

To manage the power flow direction and power quality, it is required to monitor Voltage and Current accurately, enabling phasor measurements and zero sequence calculations. This provides the parameters voltage (V), current (I), load flow direction ($B\downarrow$ or $A\uparrow$), power factor (cos ϕ), power (P, Q, S), energy (E) and frequency (f).

3M Sensored Cable Accessories provide the possibility to easily retrofit into existing and new medium voltage secondary substations, to monitor these parameters without the need of any calibration. Connected to a new generation IED (Intelligent Electronic Device) or RTU (Remote terminal unit), this will provide the solution to monitor the grid precisely and if needed in real time.

Benefits for grid management:

- Manage the control of reverse power flow
- Reduction in OPEX and maintenance costs
- Potential reduction of penalties due to service interruption (CML's)
- Improvement of SAIDI index (System Average Interruption Duration Index), the reliability indicator for power utilities.



Electrical Market Division 3M United Kingdom PLC 3M Centre Bracknell Berkshire RG12 8HT Web: www.3M.co.uk/SCA

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