Low voltage products

SACE Tmax VF and Emax VF
Low voltage circuit-breakers for variable frequency applications

ABB has always paid special attention to generation of renewable energy, constantly collaborating alongside the major wind turbine manufacturers, sensing the need ahead of others to protect plants with variable frequency.

ABB SACE presents its innovative solution for protecting plants with variable frequency for applications in the wind, mini-hydroelectric, wave and traction power sectors.
Once again ABB SACE is ahead of trends and, as a first on the market, comes out with circuit-breakers able to operate in a range of frequencies from 1 to 200Hz.
The major benefits of this new range of circuit-breakers for applications at variable frequency are:

- Optimal protection of generators and users against overload and short-circuit over the whole range of frequencies from 1 to 200Hz;
- Compatibility with all types of generators, even in over-speed running, thanks to the high rated voltage of the circuit-breakers (up to 1000V);
- Standardisation of switchboard design, regardless of the end market, and optimization of stock management thanks to dual IEC/UL circuit-breaker marking.

SACE VFT®
Variable Frequency Technology

By means of SACE VFT (Variable Frequency Technology) the Tmax VF and Emax VF circuit breakers can operate in an extended range of frequencies: from 1Hz up to 200Hz. The new family of trip units together with optimized current sensors ensures high precision of the protection functions for an extended frequency range. Whilst improved arcing chamber and main contacts guarantee high performances in terms of breaking capacity over the whole frequency range, keeping the same dimensions of the standard circuit breakers.

Automatic circuit-breaker for Low Frequency applications

		T6 VF	E2 VF	E3 VF
Performance level		**L**	**N**	**H**
Number of poles		3	3	3
Operating Frequency	[Hz]	1…60	1…60	1…60
Version [Fixed (F), Drawout (W)]		F, W	F, W	F, W
Operating temperature	[°C]	-25…+70	-25…+70	-25…+70
Storage temperature	[°C]	-40…+70	-40…+70	-40…+70
Reference standards		IEC 60947-2 UL 489	IEC 60947-2 -	IEC 60947-2 -
Rated uninterrupted current **Iu**	[A]	800	1200 1600	2000 2500
Trip units for variable frequency applications		Thermomagnetic	PR122/VF	PR122/VF

Automatic circuit-breaker for High Frequency applications

		T6 VF	E2 VF	E3 VF	E4 VF	E6 VF
Performance level		**L**	**N**	**H**	**H**	**H**
Number of poles		3	3	3	3	3
Operating Frequency	[Hz]	20…200	20…200	20…200	20…200	20…200
Version [Fixed (F), Drawout (W)]		F, W	F, W	F, W	F, W	F, W
Operating temperature	[°C]	-25…+70	-25…+70	-25…+70	-25…+70	-25…+70
Storage temperature [°C]	[°C]	-40…+70	-40…+70	-40…+70	-40…+70	-40…+70
Reference standards		IEC 60947-2 UL 489	IEC 60947-2 UL 1066	IEC 60947-2 UL 1066	IEC 60947-2 UL 1066	IEC 60947-2 UL 1066
Rated uninterrupted current **Iu**	[A]	800	1200 1600	2000 2500	3600	5000
Trip units for variable frequency applications		PR222/VF	PR111/VF	PR111/VF	PR111/VF	PR111/VF

Switch disconnector for variable frequency applications

		T6D/VF	E2N/VF MS	E3H/VF MS	E4H/VF MS	E6H/VF MS
Number of poles		3	3	3	3	3
Operating Frequency	[Hz]	1…200	1…200	1…200	1…200	1…200
Version [Fixed (F), Drawout (W)]		F, W	F, W	F, W	F, W	F, W
Operating temperature	[°C]	-25…+70	-25…+70	-25…+70	-25…+70	-25…+70
Reference standards		IEC 60947-3 -	IEC 60947-3 UL 1066	IEC 60947-3 UL 1066	IEC 60947-3 UL 1066	IEC 60947-3 UL 1066
Rated uninterrupted current **Iu**	[A]	800	1200 1600	2000 2500	3600	5000

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