



Type Approval Certificate

Germanischer Lloyd

This is to certify that the undernoted product(s) has/have been tested in accordance with the relevant requirements of the GL Type Approval System.

Certificate No.	5065703 HH
Company	ABB Oy Distribution Automation P.O. Box 699 FIN-65101 Vaasa
Product Description	Digital protection relay
Type	REF 541, 543, 545 (Feeder Terminals) REM 543, 545 (Machine Terminals)
Environmental Category	C
Technical Data / Range of Application	Energizing inputs: Current: 0.2A/ 1A/ 5A; Voltage: 100V/ 110V/ 115V/ 120V; Sensor: 9.4V RMS, +/- 13.3VDC Auxiliary power supplies: Input AC: 110/ 120/ 220/ 240V; Input DC: 24/ 48/ 60/110/ 125/ 220V Digital and analogue I/O: RTD/ analogue, Voltage, Current 0...20mA Common functions for REF 541/543/545 and REM 543, 545/ ANSI C37.2: 50/51, 67, 50N, 67N, 59N, 59, 27, 81U/81O, 68, 46, 49M/49G/49T, 27/47/59, Start-up supervision for motors Additional functions REF-Relay/ ANSI C37.2: 51B, 51N, 49F, 79 Additional functions REM -Relay/ ANSI C37.2: 51V, 21, 51G, 32O, 40, 87G, 24, 37, 87N, 87G/87M, 32R/32L, 48/14/66, 46 Communication ports/interfaces shall be used for monitoring purposes only. Protection relay not approved for synchronizing.
Test Standard	Regulations for the Performance of Type Tests (2003) IEC: 60255-5(2000), 60255-6(1988), 60255-11(1979), 60255-22-1(1988), 60255-22-2(1996)
Documents	Test reports: Test summary REF 54_ : 1MRS080792B; Rev.B 16-02-2002 Test summary REM 54_ : 1MRS080847B; Rev.B 19-02-2001 1MRS 752391-MTI; Nemko Test report 1032178
Remarks	None
Valid until	2010-02-23
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File No.	I.L.02
Hamburg, 2005-02-23	

Type Approval Symbol



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W. Voß

T. Hartmann

This certificate is issued on the basis of "Regulations for the Performance of Type Tests, Part 0, Procedure".