



GE VERNOVA

MiCOM P40 Agile

5th Generation P44, P54 and P84

Version History

Hardware Version: Up to Q

Firmware Version: Up to AB

Publication Reference: P54x1Z-VH-EN-4.2



1 HARDWARE AND SOFTWARE VERSION HISTORY

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
40	A	K	4 May 2006	Release of P543, P544, P545 & P546 without distance protection ▪ CTS ▪ Definitive time directional negative sequence overcurrent I2> ▪ GPS synchronization of current differential in all models ▪ P543 and P545 now facilitate in zone transformer-feeder applications ▪ All models support ABC and ACB phase rotation ▪ Standard and Inverted CT polarity setting for each set of CTs in the relay ▪ User interface with tri colored LED and function keys ▪ InterMiCOM⁶⁴ ▪ Voltage protection ▪ Backwards compatibility mode	Patch for V2.12 V2.13 or later	P54x/EN M/J64
41	C	K	30 July 2006	Release of P543, P544, P545 & P546 without distance protection based on 40A ▪ IEC 61850-8-1 ▪ High break options ▪ Demodulated IRIG-B options ▪ Reduction of distance minimum reach settings to 0.05 ohm ▪ Permissive trip reinforcement ▪ Poledead modifications for Hydro Quebec ▪ CS103/auto-reclose modifications	Patch for V2.12 V2.13 or later	P54x/EN M/J74
41	D	K	16 August 2006	Release of P543, P544, P545 & P546 without distance protection based on 41C ▪ Prevents a possible reboot 15 minutes after browsing the front courier port but not making a setting change i.e. browsing using PAS&T ▪ Extended GOOSE enrolment capability ▪ Correction to ICD files, enumeration (value) and fixed data mapping	Patch for V2.12 V2.13 or later	P54x/EN M/J74
41	E	K	14 November 2006	Release of P543, P544, P545 & P546 without distance protection based on 41D ▪ Prevent a reboot in 61850 builds when NIC link is inactive and avalanche of DDB activity ▪ Correctly report a fatal error generated by the sampling call-back ▪ Correct the operation of the GOOSE messaging and a problem with the download of an IED Configuration file ▪ Correct the operation of the check sync ▪ Correct the operation of the overcurrent reset curves ▪ Removed check on the 14th position of model number	Patch for V2.12 V2.13 or later	P54x/EN M/J74

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
41	E	K	14 November 2006	Fixed Telegrams for public inf. 64-67	Patch for V2.12 V2.13 or later	P54x/EN M/J74
41	F	K	15 May 2007	Release of P543, P544, P545 & P546 without distance protection based on 41E - Prevent a fatal error from an incorrect DNP address in not using DNP evolutions platform - Default setting for 450B 'I< Current Set' reduced to 50mA - French translations for DDBs 1368-1371 corrected - Fun & INF values related to CS103 Command Blocking corrected - Angle for negative sequence phase overcurrent setting corrected - Corrected operation when using MiCOM S1 is used to activate settings group by right clicking on the group - Corrected the latching of Function Key DDB signals on relay power up - Corrected disturbance recorder scaling to prevent high current levels into 5A CT causing the disturbance recorder to saturate - Restricting defaults appears not to change the 1/5A CT selection - Corrected the performance of the IM64 direct mode - CB control via direct access does not work with 2CB versions of P540D - Auto-reclose dead time/close cycle continues even if AR switched out of service - Ch2 Statistics may not be displayed	Patch for V2.12 V2.13 or later	P54x/EN M/J74
41	G	K	May 2007	P543, P544, P545 & P546 non 61850 builds without distance protection based on 41F was approved for release but withdrawn before release Corrections to enable/disable of auto-reclose	Patch for V2.12	P54x/EN M/J74
41	H	K	4 July 2007	Release of P543, P544, P545 & P546 without distance protection based on 41G Corrections to enable/disable of auto-reclose	Patch for V2.12	P54x/EN M/J74
41	I	K	14 January 2010	Release of P543, P544, P545 & P546 non 61850 builds without distance protection based on 41H - Prevented the differential protection inhibiting in three terminal schemes when GPS is enabled and loopback mode selected - Improvements to the GPS code - Improvements in the clock recover circuits used by the differential comms - Correction to P545/P541 compatibility when used in transformer compensation mode - Correction to the way latched LED/Relays are cleared - Corrections to the Current Differential Inhibit when the GPS synchronization is disabled	Patch for V2.12	P54x/EN M/J74

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
41	I	K	14 January 2010	▪ Corrections to menu text ▪ Correction to auto-reclose operation for switch on to fault condition ▪ Corrected some French and German text ▪ Prevented CB Operating Time displaying 4.295Ms ▪ Fixed Inhibit CB Fail Protection in P544/6 ▪ Improved co-processor error reporting ▪ Fixed a SOTF problem	Patch for V2.12	P54x/EN M/J74
41	J	K	5 October 2010	Release of P543, P544, P545 & P546 non 61850 builds without distance protection based on 41J ▪ Fixed a problem with the co-processor stack check which could cause a re-boot	Patch for V2.12	P54x/EN M/J74
42	A	K	May 2007	Release of P543, P544, P545 & P546 without distance protection ▪ Chinese interface ▪ Replacing the existing DNP3.0 with the DNP3.0 evolutions ▪ Replacement of existing negative sequence overcurrent with multi-stage (2 IDMT + 2 DT) negative sequence overcurrent. ▪ Addition of IDG curve, commonly used in Sweden, to Earth Fault & Sensitive Earth Fault (involves moving settings) ▪ Reduction of all TMS step sizes to 0.005 ▪ Addition of Channel propagation delay statistics and alarms ▪ Changes to CTS so both techniques can be selected together ▪ Regrouping of CTS settings ▪ Addition of four stages of under frequency protection and two stages of overfrequency protection ▪ Addition of df/dt protection ▪ Changes to under and overvoltage to enable each stage to be independently set ▪ Extensions to the check sync VT position setting ▪ Changes to Permissive Inter Trip (PIT) logic to enable the user to select either local or remote current to be used ▪ Includes local time zone settings for date & time ▪ Reduced minimum setting for IN> I2pol Set ▪ Addition of propagation delay times to Fault Record ▪ Default setting for 450B 'I< Current Set' reduced to 50mA ▪ Enhancement to self-checking of output relays ▪ Change tunnelled courier address to follow the 1st Rear Port's KBUS or CS103 address	Patch for V2.14	P54x/EN M/J74 + Addendum P54x/EN AD/J84

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
42	B	K	4 July 2007	Release of P543, P544, P545 & P546 without distance protection based on 42A - Improvements to VTS - Corrections to enable/disable of auto-reclose - Resolved a problem relating to CT Ratio's not being restored when restoring default settings - Resolved a problem with the Disturbance Recorder which saturates for high current levels into 5A CT	Patch for V2.14	P54x/EN M/J74 + Addendum P54x/EN AD/J84
42	D	K	17 December 2007	Release of P543, P544, P545 & P546 without distance protection based on 42B - Fixed a number of 61850/Goose problems - Minor correction to fault record - Corrections to over voltage stage 2 inhibit - Fixed the max. prop alarm - Corrected some DDB German text	Patch for V2.14	P54x/EN M/J74 + Addendum P54x/EN AD/J84
42	E	K	14 May 2008	Release of P543, P544, P545 & P546 without distance protection based on 42D - Fixed a number of 61850 problems - Improved co-processor error reporting - Fixed Inhibit CB Fail Protection in P544/6	Patch for V2.14	P54x/EN M/J74 + Addendum P54x/EN AD/J84
42	F	K	-	Not released to production. Based on 42E - Correction to auto-reclose operation for switch on to fault condition - Prevented CB Operating Time displaying 4.295Ms - Bug fixes	Patch for V2.14	P54x/EN M/J74 + Addendum P54x/EN AD/J84
42	G	K	28 October 2008	Release of P543, P544, P545 & P546 without distance protection based on 42F Correction to the distance cross polarizing when the memory expires	Patch for V2.14	P54x/EN M/J74 + Addendum P54x/EN AD/J84
42	H	K	21 September 2009	Release of P543, P544, P545 & P546 without distance protection based on 42G - Corrected some menu translations - Corrected Breaker Fail - WI Aided1 trips so they can be disabled via setting "WI Prot Reset" - Timestamp in fault record adjusted for the local time setting - Corrected P543 default PSL - Corrections to the Current Differential Inhibit when the GPS synchronisation is disabled - Corrected Thermal State measurement via DNP3.0 - Correction to the way latched LED/Relays are cleared - Correction to negative sequence overcurrent settings when 5A input used	Patch for V2.14	P54x/EN M/J74 + Addendum P54x/EN AD/J84

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
42	H	K	21 September 2009	- Correction to P545/P541 compatibility when used in transformer compensation mode - Improvements to the GPS code - Prevented CTS generating events when CTS is disabled - Prevent Z5 from setting slow swing when PSB is disabled - Fixed problem which prevented residual overvoltage from initiating CB Fail - Various improvements to DNP3.0, CS103 & IEC 61850 protocols - Bug fixes	Patch for V2.14	P54x/EN M/J74 + Addendum P54x/EN AD/J84
42	I	K	6 December 2010	Release of P543, P544, P545 & P546 without distance protection based on 42H - Fixed a 61850 issue which blocked clients when one was disconnected - Rebranded as Alstom. Minor change to software number plus changes to 61850 (New ICD files required) - Bug fixes	Patch for V2.14	P54x/EN M/J74 + Addendum P54x/EN AD/J84
42	K	K	12 September 2014	Release of P543, P544, P545 & P546 without distance protection based on 52J - Current Differential communications are not stopped temporarily when navigating the default display - CT Supervision can be operated in P543 42K software. - CB Fail trip can be operated under faults with DC transient offsets. - Bug fixes Release of P543 & P545 with distance protection based on 42J - Disconnection of one of IEC 61850 Client causes other IEC 61850 Connections being Lost - The disturbance record list does not show the most recent DR - P145 reboots periodically when IEC 61850 comms active and SNTP active - Discrepancy in the DR analogue signals magnitudes if the CT and VT ratios (primary/secondary) are not integers - Incorrect behaviour of the latched LED		
44	A	K	18 March 2008	Release of P543, P544, P545 & P546 without distance protection based on 42D - Positional information added to PSL - DNP 3.0 Over Ethernet protocol added - Extended I/O - status inputs increased from 24 to 32 - Compensated overvoltage protection added - IEC-103 Generic Services Measurements added - Set/Reset Latch Logic Gates added to PSL - Fault record to include current differential currents recorded at the time of the current differential trip in addition to the existing data from 1 cycle later - Fault record increased max. number of fault records to 15	Patch for V2.14 First release of Studio	P54x/EN M/J74 + Addendum P54x/EN AD/J94

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
44	A	K	18 March 2008	- GPS Alarm modifications - DNP enhancements for SSE - Bug fixes	Patch for V2.14 First release of Studio	P54x/EN M/J74 + Addendum P54x/EN AD/J94
44	B	K	25 June 2008	Release of P543, P544, P545 & P546 without distance protection based on 44A - Fixed a number of 61850 problems - Improved co-processor error reporting - Fixed Inhibit CB Fail Protection in P544/6 - Corrected some French and German text - Prevented CB Operating Time displaying 4.295Ms - Fixed a problem which prevented extraction of DNP3.0 setting files from DNP3.0 over Ethernet variants	Patch for V2.14 First release of Studio	P54x/EN M/J74 + Addendum P54x/EN AD/J94
44	D	K	20 January 2009	Release of P543, P544, P545 & P546 without distance protection based on 44B - Corrections to the Current Differential Inhibit when the GPS synchronisation is disabled - Corrected Thermal State measurement via DNP3.0 - Timestamp in fault record adjusted for the local time setting - Corrected Breaker Fail - WI Aided1 trips so they can be disabled via setting "WI Prot Reset"	Patch for V2.14 First release of Studio	P54x/EN M/J74 + Addendum P54x/EN AD/J94
44	E	K	20 March 2009	Release of P543, P544, P545 & P546 without distance protection based on 44D - Prevents the loss of IEC 61850 messages and fixed the handling of the ACD flag during GI - Improved the Ethernet card boot code	Patch for V2.14 First release of Studio	P54x/EN M/J74 + Addendum P54x/EN AD/J94
44	F	K	21 September 2009	Release of P543, P544, P545 & P546 without distance protection based on 44E - Corrected some menu translations - Corrected P543 default PSL - Correction to the way latched LED/Relays are cleared - Correction to negative sequence overcurrent settings when 5A input used - Correction to P545/P541 compatibility when used in transformer compensation mode - Improvements to the GPS code - Prevented CTS generating events when CTS is disabled - Fixed problem which prevented residual overvoltage from initiating CB Fail - Various improvements to DNP3.0, CS103 & IEC 61850 protocols - Bug fixes	Patch for V2.14 First release of Studio	P54x/EN M/J74 + Addendum P54x/EN AD/J94

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44	G	K	19 October 2010	Release of P543, P544, P545 & P546 without distance protection based on 44F - Fixed a 61850 issue which blocked clients when one was disconnected - Improvements to Fault record display over Courier and DNP3.0 - Bug fixes	Patch for V2.14 First release of Studio	P54x/EN M/J74 + Addendum P54x/EN AD/J94
44	H	K	11 January 2011	Release of P543, P544, P545 & P546 without distance protection based on 44G Rebranded as Alstom. Minor change to software number plus changes to 61850 (New ICD files required)	Patch for V2.14 First release of Studio	P54x/EN M/J74 + Addendum P54x/EN AD/J94
45	B	K	30 March 2009	Release of P543, P544, P545 & P546 without distance protection and P841-A based on 44E Auto-redose, Check Sync and CB Monitoring added to P544 & P546	Patch for V2.14 Studio FTP server	P54x/EN M/KA4
45	C	K	15 May 2009	Release of P543, P544, P545 & P546 without distance protection and P841-A based on 45B - Improvements to the Ethernet card start-up and configuration - Correction to negative sequence overcurrent settings when 5A input used - Correction to P545/P541 compatibility when used in transformer compensation mode - Correction to the way latched LED/Relays are cleared - Corrections to menu text - Improvements to the GPS code - Bug fixes	Patch for V2.14 Studio FTP server	P54x/EN M/KA4
45	D	K	28 October 2009	Release of P543, P544, P545 & P546 without distance protection and P841-A based on 45C - Improvements to the GPS code - Improvements in the clock recover circuits used by the Differential Comms. - Bug fixes	Patch for V2.14 Studio FTP server	P54x/EN M/KA4
45	E	K	11 January 2011	Release of P543, P544, P545 & P546 without distance protection and P841-A based on 45D Rebranded as Alstom. Minor change to software number plus changes to 61850 (New ICD files required)	Patch for V2.14 Studio FTP server	P54x/EN M/KA4
45	F	K	15 June 2012	Release of P543, P544, P545 & P546 without distance protection and P841-A based on 45E - Fixed dnp3 control of CB2 - Improved the distance performance for cross country faults - Enhanced the OST feature to make it more stable when currents are low - Time stamping and status of IEC 61850 Data attribute sofPSOF1.ST.general.Op improved	Patch for V2.14 Studio FTP server	P54x/EN M/KA4

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45	F	K	15 June 2012	- Improvements to Fault record display over courier and dnp3 - Fixes to Autoreclose - Improvements to co-processor SRAM checking - Fixed PJT - Several fixes to IEC 61850 problems - Added Frequency trips to P445 default PSL - Fixed an issue where Disturbance recorder could get out of sync	Patch for V2.14 Studio FTP server	P54x/EN M/KA4
47	A	K	-	Release of P543, P544, P545 & P546 without distance protection and P841-A based on 45D - IEC 61850 phase 2 and 2.1 implemented - Application for Inzone Transformers (2nd and 5th Harmonic Blocking/restraint) - Differential Highset can be disabled when Inrush protection is enabled - Restricted Earth Fault Protection (REF) - Modification to Char Mod timer functionality - Separate measurements for each set of CT's - Interrupt Driven InterMicom in all models - Read only mode	Patch for V2.14 Studio FTP server	P54x/EN M/KA4 + Addendum P54x/EN AD/KB4
47	B	K	10 February 2010	Release of P543, P544, P545 & P546 without distance protection and P841-A based on 47A - Prevented the differential protection inhibiting in three terminal schemes when GPS is enabled and loopback mode selected - Fault locator measurements in ohms corrected when 5A CT used or displayed in primary - Frequency measurement in DNP3.0 fault record corrected	Patch for V2.14 Studio FTP server	P54x/EN M/KA4 + Addendum P54x/EN AD/KB4
47	D	K	15 October 2010	Release of P543, P544, P545 & P546 without distance protection and P841-A based on 47B - Enhancement to GOOSE performance - Fixes to 61850 - Fixed protection comms. address problem in three ended scheme selected - Fixed DNP3.0 control of CB2 - Incorrect mapping of XCBR(n).CBOPCap.stVal data attribute corrected - Improvements to fault record display over Courier and DNP3.0	Patch for V2.14 Studio FTP server	P54x/EN M/KA4 + Addendum P54x/EN AD/KB4
47	E	K	11 January 2011	Release of P543, P544, P545 & P546 without distance protection and P841-A based on 47D Rebranded as Alstom. Minor change to software number plus changes to 61850 (New ICD files required)	Patch for V2.14 Studio FTP server	P54x/EN M/KA4 + Addendum P54x/EN AD/KB5

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47	F	K	9 August 2012	Release of P543, P544, P545 & P546 without distance protection and P841-A based on 47E - Improvements to CB Fail reset times - Several fixes to IEC 61850 problems - Improved the co-processor SRAM checking - Fixed an issue relating to Permissive Intertripping - Improvement to disturbance recorder - Bug fixes	Patch for V2.14 Studio FTP server	P54x/EN AD/Lb4 + P54x/EN M/La4
47	H	K	5 August 2015	Release of P543, P544, P545 & P546 without distance protection and P841-A based on 47F - Correction to Error code "0x0C160013" related with the SRAM - Fix an issue with P445 AutoReclose where local override by DDB was not allowed - Improvement of the CB Fail operation under faults with DC transient offsets - Fix a of a differential issue where the relay sometimes could reboot if working with IEE C37.94 and N=12 - Other minor bug fixes	Patch for V2.14 Studio FTP server	P54x/EN AD/Lb4 + P54x/EN M/La4
50	A	K	4 May 2006	Release of P543, P544, P545 & P546 with distance protection and P443 based on Distance P443 SW 33 (Different hardware) - Distance protection from P443 - DEF from P443 - Aided distance & DEF schemes from P443 - CTS - Definitive time directional negative sequence overcurrent I2> - GPS synchronization of current differential in all models (N/A P443) - P543 and P545 now facilitate in zone transformer-feeder applications - All models support ABC and ACB phase rotation - Standard and inverted CT polarity setting for each set of CTs in the relay - User interface with tri-colored LED and function keys - InterMiCOM⁶⁴ - Voltage protection - Backwards compatibility mode	Patch for V2.12 V2.13 or later	P54x/EN M/I64
51	C	K	30 July 2006	Release of P543, P544, P545 & P546 with distance protection and P443 based on 50A - IEC 61850-8-1 - High break options - Demodulated IRIG-B options - Reduction of distance minimum reach settings to 0.05 ohm	Patch for V2.12 V2.13 or later	P54x/EN M/J74

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
51	C	K	30 July 2006	■ Permissive trip reinforcement (N/A P443) ■ Poledead modifications for Hydro Quebec ■ CS103/auto-reclose modifications ■ Out of step tripping	Patch for V2.12 V2.13 or later	P54x/EN M/J74
51	D	K	16 August 2006	Release of P543, P544, P545 & P546 with distance protection and P443 based on 51C ■ Prevents a possible reboot 15 minutes after browsing the front courier port but not making a setting change i.e. browsing using PAS&T ■ Extended GOOSE enrolment capability ■ Correction to ICD files, Enumeration (value) and fixed data mapping	Patch for V2.12 V2.13 or later	P54x/EN M/J74
51	E	K	14 November 2006	Release of P543, P544, P545 & P546 with distance protection and P443 based on 51D ■ Prevent a reboot in 61850 builds when NIC link is inactive and avalanche of DDB activity ■ Correctly report a fatal error generated by the sampling call-back ■ Correct the operation of the GOOSE messaging and a problem with the download of an IED configuration file ■ Correct the operation of the check sync ■ Correct the operation of the overcurrent reset curves ■ Removed check on the 14th position of model number ■ Fixed Telegrams for public inf. 64-67	Patch for V2.12 V2.13 or later	P54x/EN M/J74
51	F	K	15 May 2007	Release of P543, P544, P545, P546 and P443 non 61850 builds with distance protection based on 51E ■ Prevent a fatal error from an incorrect DNP3.0 address in not using DNP3.0 evolutions platform ■ Default setting for 450B 'I< Current Set' reduced to 50mA ■ French Translations for DDBs 1368-1371 corrected ■ Dependencies for cells 3242 & 3245 corrected ■ Fun & INF values related to CS103 Command Blocking corrected ■ Angle for negative sequence phase overcurrent setting corrected ■ Corrected operation when using MiCOM S1 is used to activate settings group by right clicking on the group ■ Corrected the latching of Function Key DDB signals on relay power up ■ Corrected disturbance recorder scaling to prevent high current levels into 5A CT causing the Disturbance Recorder to saturate ■ Restring defaults appears not to change the 1/5A CT selection ■ Corrected the performance of the IM⁶⁴ direct mode ■ CB control via direct access does not work with 2CB versions of P540D ■ Auto-reclose dead time/close cycle continues even if AR switched out of service	Patch for V2.12 V2.13 or later	P54x/EN M/J74

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
51	F	K	15 May 2007	- Distance setting are not updated in simple setting mode in setting groups other than the active one - Ch2 Statistics may not be displayed	Patch for V2.12 V2.13 or later	P54x/EN M/J74
51	G	K	-	Release of P543, P544, P545, P546 and P443 non 61850 builds with distance protection based on 51F was approved for release but withdrawn before release Corrections to enable/disable of auto-reclose	Patch for V2.12	P54x/EN M/J74
51	H	K	4 July 2007	Release of P543, P544, P545, P546 and P443 non 61850 builds with distance protection based on 51G - Corrected power swing detection when both distance and current differential enabled - Corrections to enable/disable of auto-reclose	Patch for V2.12	P54x/EN M/J74
51	I	K	14 January 2010	Release of P543, P544, P545, P546 and P443 non 61850 builds with distance protection based on 51H - Prevented the differential protection inhibiting in three terminal schemes when GPS is enabled and loopback mode selected (N/A P44y) - Improvements to the GPS code (N/A P44y) - Improvements in the clock recover circuits used by the Differential Comms. (N/A P44y) - Correction to P543/P545 compatibility when used in transformer compensation mode - Correction to the way latched LED/Relays are cleared - Corrections to the Current Differential Inhibit when the GPS synchronization is disabled (N/A P44y) - Correction to the distance cross polarizing when the memory expires - Corrections to menu text - Correction to auto-reclose operation for switch on to fault condition - Fix for DEF reverse operation - Corrected some French and German text - Prevented CB Operating Time displaying 4.295Ms - Fix to Blocking scheme - Fixed Inhibit CB Fail Protection in P544/6 - Improved co-processor error reporting - Fixed a SOTF problem	Patch for V2.12	P54x/EN M/J74

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
51	J	K	5 October 2010	Release of P543, P544, P545, P546 and P443 non 61850 builds with distance protection based on 51I - Fixed a problem with the co-processor stack check which could cause a re-boot - Enhanced the OST feature to make it more stable when currents are low - Improved the distance performance for 2ph-g and also cross country faults	Patch for V2.12	P54x/EN M/J74
52	A	K	-	Release of P543, P544, P545 & P546 with distance protection and P443 based on SW 51E - Chinese interface - Replacing the existing DNP3.0 with the DNP3.0 evolutions - Addition of a current but no volts trip option to Switch on to Fault and Trip on Reclose feature (SOTF/TOR) - Replacement of existing negative sequence overcurrent with multi-stage (2 IDMT + 2 DT) negative sequence overcurrent - Addition of IDG curve, commonly used in Sweden, to Earth Fault & Sensitive Earth Fault (involves moving settings) - Reduction of all TMS step sizes to 0.005 - Addition of channel propagation delay statistics and alarms (N/A P44y) - Changes to CTS so both techniques can be selected together (N/A P44y) - Regrouping of CTS settings - Addition of four stages of under frequency protection and two stages of overfrequency protection - Addition of df/dt protection - Changes to under and overvoltage to enable each stage to be independently set - Extensions to the Check Sync VT position setting - Replacing fixed Trip on Close (TOC) Delay with a setting - Improvements to slow power swing detection - Changes to distance count strategy to restore the same operating time when phase differential protection is enabled - Changes to Permissive Inter Trip (PIT) logic to enable the user to select either local or remote current to be used (N/A P44y) - Includes local time zone settings for date & time - Addition of flexible settings for distance quadrilateral top line - Reduced minimum setting for IN> I2pol Set - Addition of propagation delay times to Fault Record - Default setting for 450B 'I< Current Set' reduced to 50mA - Enhancement to self-checking of output relays - Change tunnelled courier address to follow the 1st Rear Port's KBUS or CS103 address	Patch for V2.14	P54x/EN M/J74 + Addendum P54x/EN AD/J84

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
52	B	K	4 July 2007	Release of P543, P544, P545 & P546 with distance protection, P547 and P443 based on 52A - Phase comparison protection P547 added to range - Improvements to VTS - Improvements to slow power swing detection - Corrected power swing detecting when both distance and current differential enabled (N/A P44y) - Corrections to enable/disable of auto-reclose - Resolved a problem relating to CT Ratio's not being restored when restoring default settings - Resolved a problem with the Disturbance Recorder which saturates for high current levels into 5A CT	Patch for V2.14	P54x/EN M/J74 + Addendum P54x/EN AD/J84
52	C	K	31 July 2007	Release of P543, P544, P545 & P546 with distance protection, P547 and P443 based on 52B - Tilt angle of ground quadrilateral characteristic corrected - Minor correction to fault record - Corrections to over voltage stage 2 inhibit	Patch for V2.14	P54x/EN M/J74 + Addendum P54x/EN AD/J84
52	D	K	17 December 2007	Release of P543, P544, P545 & P546 with distance protection, P547 and P443 based on 52C - Fixed a number of 61850/Goose problems - Fixed a problem in P547 related to the transient starters - Fixed the max prop alarm (N/A P44y) - Corrected some DDB German text - Fixed a problem with weak infeed inhibit - Fixed a SOTF problem when there is a short duration pre-fault - Fixed a primary scaling issue relating to Zone 5 & 6	Patch for V2.14	P54x/EN M/J74 + Addendum P54x/EN AD/J84
52	E	K	14 May 2008	Release of P543, P544, P545 & P546 with distance protection, P547 and P443 based on 52D - Fixed a number of 61850 problems - Improved co-processor error reporting - Fix to Blocking scheme - Fixed Inhibit CB Fail Protection in P544 and P546	Patch for V2.14	P54x/EN M/J74 + Addendum P54x/EN AD/J84
52	F	K	-	Release of P543, P544, P545 & P546 with distance protection and P443 based on 52E - Correction to auto-reclose operation for switch on to fault condition - Prevented CB Operating Time displaying 4.295Ms - Bug fixes	Patch for V2.14	P54x/EN M/J74 + Addendum P54x/EN AD/J84

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
52	G	K	28 October 2008	Release of P543, P544, P545 & P546 with distance protection, P547 and P443 based on 52F Correction to the distance cross polarizing when the memory expires	Patch for V2.14	P54x/EN M/J74 + Addendum P54x/EN AD/J84
52	H	K	21 September 2009	Release of P543, P544, P545 & P546 with distance protection, P547 and P443 based on 52G - Corrected some menu translations - Corrected Breaker Fail - WI Aided1 trips so they can be disabled via setting "WI Prot Reset" - Timestamp in fault record adjusted for the local time setting - Corrections to the Current Differential Inhibit when the GPS synchronization is disabled - Corrected Thermal State measurement via DNP3.0 - Correction to the way latched LED/Relays are cleared - Correction to negative sequence overcurrent settings when 5A input used - Correction to P545/P541 compatibility when used in transformer compensation mode - Improvements to the GPS code - Prevented CTS generating events when CTS is disabled - Prevent Z5 from setting slow swing when PSB is disabled - Resolved problem in P543/P545 which prevent correct reporting of fault record over 61850 - Fixed problem which prevented residual overvoltage from initiating CB Fail - Various improvements to DNP3.0, CS103 & IEC 61850 protocols - Bug fixes	Patch for V2.14	P54x/EN M/J74 + Addendum P54x/EN AD/J84
52	I	K	6 December 2010	Release of P543, P544, P545 & P546 with distance protection and P443 based on 52H - Time stamping and status of IEC 61850 data attribute softSOF1.ST.general.Op improved - Fixed a 61850 issue which blocked clients when one was disconnected - Enhanced the OST feature to make it more stable when currents are low - Improved the distance performance for cross country faults - Rebranded as Alstom. Minor change to software number plus changes to 61850 (New ICD files required) - Bug fixes	Patch for V2.14	P54x/EN M/J74 + Addendum P54x/EN AD/J84

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
52	J	K	19 December 2013	Release of P543, P544, P545 & P546 with distance protection and P443 based on 52I - Improvements to CB Fail reset times - Several fixes to IEC 61850 problems - Improved the co-processor SRAM checking - Fixed an issue relating to Permissive Intertripping - Improvement to disturbance recorder - Corrected the OST current sensitivity - Bug fixes	Patch for V2.14	P54x/EN M/J74 + Addendum P54x/EN AD/J84
52	K	K	12 September 2014	Release of P543, P544, P545 & P546 with distance protection and P443 based on 52J - Current Differential communications are not stopped temporarily when navigating the default display - CT Supervision can be operated in P543 52K software - CB Fail trip can be operated under faults with DC transient offsets - Bug fixes		
54	A	K	18 March 2008	Release of P543, P544, P545 & P546 with distance protection, P443 and P445 based on 52D - Positional information added to PSL - DNP3.0 Over Ethernet protocol added - Extended I/O - status inputs increased from 24 to 32 - Compensated overvoltage protection added - IEC-103 Generic Services Measurements added - Set/Reset Latch Logic Gates added to PSL - Improved Sensitivity Range for DEF - Fault record to include current differential currents recorded at the time of the current differential trip in addition to the existing data from 1 cycle later - Fault record increased max. number of fault records to 15 - GPS Alarm modifications (N/A P44y) - Scheme Delta from P443 included (N/A P445) - DNP3.0 enhancements for SSE - Bug fixes	Patch for V2.14 First release of Studio	P54x/EN M/J74 + Addendum P54x/EN AD/J94
54 35 (P445)	B	K J (P445)	25 June 2008	Release of P543, P544, P545 & P546 with distance protection, P443 and P445 based on 54A - Fixed a number of 61850 problems - Improved co-processor error reporting	Patch for V2.14 First release of Studio	P54x/EN M/J74 + Addendum P54x/EN AD/J94

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
54 35 (P445)	B	K J (P445)	25 June 2008	- Fix to Blocking scheme - Fix for DEF reverse operation - Fixed Inhibit CB Fail Protection in P544/6 - Corrected some French and German text - Prevented CB Operating Time displaying 4.295Ms - Fixed a problem which prevented extraction of DNP3.0 setting files from DNP3.0 over Ethernet variants - Bug fixes	Patch for V2.14 First release of Studio	P54x/EN M/J74 + Addendum P54x/EN AD/J94
54 35 (P445)	C	K J (P445)	25 June 2008	Release of P543, P544, P545 & P546 with distance protection, P443 and P445 based on 54B Correction to auto-reclose operation for switch on to fault condition	Patch for V2.14 First release of Studio	P54x/EN M/J74 + Addendum P54x/EN AD/J94
54	D	K	20 January 2009	Release of P543 and P544, with distance protection and P443 based on 54C - Correction to the distance cross polarizing when the memory expires - Corrections to the Current Differential Inhibit when the GPS synchronization is disabled (N/A P44y) - Corrected Thermal State measurement via DNP3.0 - Timestamp in fault record adjusted for the local time setting - Corrected Breaker Fail - WI Aided1 trips so they can be disabled via setting "WI Prot Reset"	Patch for V2.14 First release of Studio	P54x/EN M/J74 + Addendum P54x/EN AD/J94
54 35 (P445)	E	K J (P445)	20 March 2009	Release of P543, P544, P545 & P546 with distance protection, P443 and P445 based on 54D - Prevents the loss of IEC6 1850 messages and fixed the handling of the ACD flag during GI - Improved the Ethernet card boot code	Patch for V2.14 First release of Studio	P54x/EN M/J74 + Addendum P54x/EN AD/J94
54 35 (P445)	F	K J (P445)	21 September 2009	Release of P543, P544, P545 & P546 with distance protection, P443 and P445 based on 54E - Corrected some menu translations - Correction to the way latched LED/Relays are cleared - Correction to negative sequence overcurrent settings when 5A input used - Correction to P545/P541 compatibility when used in transformer compensation mode - Improvements to the line differential GPS code (N/A P44y) - Prevented CTS generating events when CTS is disabled - Prevent Z5 from setting slow swing when PSB is disabled - Resolved problem in P543/P545 which prevent correct reporting of fault record over 61850	Patch for V2.14 First release of Studio	P54x/EN M/J74 + Addendum P54x/EN AD/J94

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
54 35 (P445)	F	K J (P445)	21 September 2009	- Fixed problem which prevented residual overvoltage from initiating CB Fail - Various improvements to DNP3.0, CS103 & IEC 61850 protocols - Bug fixes	Patch for V2.14 First release of Studio	P54x/EN M/J74 + Addendum P54x/EN AD/J94
54 35 (P445)	G	K J (P445)	19 October 2010	Release of P543, P544, P545 & P546 with distance protection, P443 and P445 based on 54F - Time stamping and status of IEC 61850 data attribute softSOF1.5T.general.Op improved - Fixed a 61850 issue which blocked clients when one was disconnected - Enhanced the OST feature in the models with distance protection to make it more stable when currents are low (no applicable P445) - Improved the distance performance for cross country faults - Improvements to fault record display over Courier and DNP3.0 - Bug fixes	Patch for V2.14 First release of Studio	P54x/EN M/J74 + Addendum P54x/EN AD/J94
54 35 (P445)	H	K J (P445)	11 January 2011	Release of P543, P544, P545 & P546 with distance protection, P443 and P445 based on 54G Rebranded as Alstom. Minor change to software number plus changes to 61850 (New ICD files required)	Patch for V2.14 First release of Studio	P54x/EN M/J74 + Addendum P54x/EN AD/J94
55 36 (P445)	B	K J (P445)	30 March 2009	Release of P543, P544, P545 & P546 with distance protection, P547, P443, P445, P446 and P841, based on 54D. This is a major release because in the P540D range, the P446 model was added - Auto-redose, Check Sync and CB Monitoring added to P544 & P546 - Improved Ethernet card boot code - Introduction of new model P446	Patch for V2.14 Studio FTP server	P54x/EN M/KA4
55 36 (P445)	C	K J (P445)	15 May 2009	Release of P543, P544, P545 & P546 with distance protection, P547, P443, P445, P446 and P841, based on 55B - Improvements to the Ethernet card start-up and configuration - Correction to negative sequence overcurrent settings when 5A input used - Correction to P545/P541 compatibility when used in transformer compensation mode - Correction to the way latched LED/Relays are cleared - Corrections to menu text - Improvements to the differential GPS code - Bug fixes	Patch for V2.14 Studio FTP server	P54x/EN M/KA4

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
55 36 (P445)	D	K J (P445)	28 October 2009	Release of P543, P544, P545 & P546 with distance protection, P547, P443, P445, P446 and P841 based on 55C - Improvements to the differential GPS code (N/A P44y) - Correction to slow power swing configuration for ph-ph Quads only (N/A P445) - Improvements in the clock recover circuits used by the Differential Comms. - Prevent Z5 from setting slow swing when PSB is disabled - Bug fixes	Patch for V2.14 Studio FTP server	P54x/EN M/KA4
55 36 (P445)	E	K J (P445)	11 January 2011	Release of P543, P544, P545 & P546 with distance protection, P547, P443, P445, P446 and P841 based on 55D Rebranded as Alstom. Minor change to software number plus changes to 61850 (New ICD files required)	Patch for V2.14 Studio FTP server	P54x/EN M/KA4
55 36 (P445)	F	K J (P445)	14 June 2012	Release of P543, P544, P545 & P546 with distance protection, P443, P445, P446 and P841 based on 55E - Fixed dnp3 control of CB2 (Only for models with 2 CB) - Improved the distance performance for cross country faults - Enhanced the OST feature to make it more stable when currents are low (N/A P445) - Time stamping and status of IEC 61850 Data attribute sofPSOF1.ST.general.Op improved - Improvements to Fault record display over courier and dnp3 - Fixes to Autoreclose - Improvements to co-processor SRAM checking - Fixed PJT - Several fixes to IEC 61850 problems - Added Frequency trips to P445 default PSL - Fixed an issue where Disturbance recorder could get out of sync	Patch for V2.14 Studio FTP server	P54x/EN M/KA4
55	G	K	18 December 2014	Release of P545 based on 55F - PX40PL-33 Error code "0x0C160013" issue - Several fixes to IEC 61850 and IEC-103 problems - Other Bug fixes	Patch for V2.14 Studio FTP server	P54x/EN M/KA4
57 37 (P445)	A	K J (P445)	December 2009	Release of P543, P544, P545 & P546 with distance protection, P547, P443, P445, P446 and P841 based on 55D - IEC 61850 phase 2 and 2.1 implemented - Application for in zone Transformers (2nd and 5th Harmonic Blocking/restraint) for line diff. (N/A P44y, P544 and P546)) - Differential High set can be disabled when Inrush protection is enabled (N/A P44y) - Restricted Earth Fault Protection (REF)	Patch for V2.14 Studio FTP server	P54x/EN M/KA4 + Addendum P54x/EN AD/KB4

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
57 37 (P445)	A	K J (P445)	December 2009	- Modification to Char Mod timer functionality for line diff. (N/A P44y) - Separate measurements for each set of CT's (Only for models with 2 CB's) - Interrupt Driven InterMiCOM in all models - Read Only Mode	Patch for V2.14 Studio FTP server	P54x/EN M/KA4 + Addendum P54x/EN AD/KB4
57 37 (P445)	B	K J (P445)	10 February 2010	Release of P543, P544, P545 & P546 with distance protection, P547, P443, P445, P446 and P841 based on 57A - Prevented the differential protection inhibiting in three terminal schemes when GPS is enabled and loopback mode selected (N/A P44y) - Fault locator measurements in ohms corrected when 5A CT used or displayed in primary - Frequency measurement in DNP3.0 fault record corrected - Other bug fixes	Patch for V2.14 Studio FTP server	P54x/EN M/KA4 + Addendum P54x/EN AD/KB4
57	C	K	5 May 2010	Release of P543 based on 57B - Enhancement to GOOSE performance - Fixes to 61850 - Fixed protection comms. address problem in three ended schemes selected - Fixed DNP3.0 control of CB2 (although models no released) - Fixed a small issue with the detection of slow swings	Patch for V2.14 Studio FTP server	P54x/EN M/KA4 + Addendum P54x/EN AD/KB4
57 37 (P445)	D	K J (P445)	15 October 2010	Release of P543, P544, P545 & P546 with distance protection, P547, P443, P445, P446 and P841 based on 57C (which had a very limited release for one model) - Incorrect mapping of XCBR(n).CBOPCap.stVal data attribute corrected - Time stamping and status of IEC 61850 Data attribute sofPSOF1.ST.general.Op improved - Enhanced the OST feature to make it more stable when currents are low (N/A P445) - Improved the distance performance for cross country faults - Fixed the inrush restraint feature in P547 - Improvements to fault record display over Courier and DNP3.0 - Other bug fixes	Patch for V2.14 Studio FTP server	P54x/EN M/KA4 + Addendum P54x/EN AD/KB4
57 37 (P445)	E	K J (P445)	11 January 2011	Release of P543, P544, P545 & P546 with distance protection, P547, P443, P445, P446 and P841 based on 57D Rebranded as Alstom. Minor change to software number plus changes to 61850 (New ICD files required)	Patch for V2.14 Studio FTP server	P54x/EN M/KA4 + Addendum P54x/EN AD/KB5

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
57 37 (P445)	F	K J (P445)	9 August 2012	Release of P543, P544, P545 & P546 with distance protection, P547, P443, P445, P446 and P841 based on 57E - Improvements to CB Fail reset times - Several fixes to IEC 61850 problems - Improved the co-processor SRAM checking - Fixed an issue relating to Permissive Intertripping (N/A P44y) - Improvement to disturbance recorder - Corrected the OST current sensitivity (N/A P445) - Bug fixes	Studio FTP server	P54x/EN AD/Lb4 + P54x/EN M/La4
57	G	K	13 December 2012	Release of P547 with distance protection based on 57F - Addition of PSL based phase selection for P547 - Fixed an issue where the carrier was not muted when it should have been - Bug Fixes	Studio FTP server	P54x/EN AD/Lb4 + P54x/EN M/La4
57 37 (P445)	H	K J (P445)	5 August 2015	Release of P543, P544, P545 & P546 with distance protection, P547, P443, P445, P446 and P841 based on 57G and 57F - Correction to Error code "0x0C160013" related with the SRAM - Fix an issue with P445 AutoReclose where local override by DDB was not allowed - Improvement of the CB Fail operation under faults with DC transient offsets - Fix a of a differential issue where the relay sometimes could reboot if working with IEE C37.94 and N=12. (N/A P44y) - Other minor bug fixes	Patch for V2.14 Studio FTP server	P54x/EN AD/Lb4 + P54x/EN M/La4
57	I	K	15 July 2021	Release of P543 & P545 with distance protection and P443 based on 57H - Improvement of Distance protection algorithm for Phase to Phase to ground remote faults - Other minor bug fixes	Patch for V2.14 Studio FTP server	P54x/EN AD/Lb4 + P54x/EN M/La4
60	A	M	1 February 2011	Release of P546 without distance protection based on 57D - Cyber Security - Main processor board replaced by ZN0069 001 - Final Assembly for P546 GN0364 changed to issue F - New sheet 3 & 4 of Final Assembly User Interface GN0341 added	MiCOM S1 studio v3.3 or later	P54x/EN M/KA4 + P54x/EN AD/KB4
61	A	M	1 August 2011	Release of P543, P544, P545 & P546 without distance protection and P841-A based on SW 47E - Cyber security phase 1 - Separate CT ratios for models with 2 sets of CTs - Option to use 2nd Check Sync VT as a measured VT input for earth fault protection - Increase the number of available protection scheme addresses from 20 to 32	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
61	A	M	1 August 2011	- Single End Testing operation - Stub Bus logic enhancement - CB Fail improvements - Common auto-reclose, check sync and CB status for P540D products - Check sync stage 2 enhancements - Inhibit SEF feature added - Enhanced disturbance recorder - Increase in number of event records - Increase PSL timers to 32 - User Programmable Curves feature added - Improvements to GOOSE performance - IEC 870-5-103 fault location added to ASDU4 - Bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M
61	B	M	9 August 2012	- Release of P543, P544, P545 & P546 without distance protection and P841-A based on SW 61 A - Fix to the alternative basic scheme to cover changing faults - Several fixes to IEC 61850 problems - Fixed an issue relating to restoring user curves - Improved the co-processor SRAM checking - Optimized the start-up of 61850 models - Fixed an issue relating to Permissive Intertripping - Bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M
61	C	M	12 September 2012	- Release of P543, P544, P545 & P546 without distance protection and P841-A based on SW 61 B - Fixed several IEC 61850 problems - Corrected the password required to clear alarms - Fixed a DR problem - Bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M
61	D	M	24 September 2013	- Release of P543, P544, P545 & P546 with distance protection and P841-A based on SW 1 B - Improved MMI response when events are being generated - Fixed an evolving fault issue in the Auto-reclose Logic - Fixed a number of IEC 61850 issues - Fixed a number of DNP3.0 issues	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
61	D	M	24 September 2013	- Resolved a setting change issue which caused the co-processor to reconfigure unnecessarily - Bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M
61	F	M	20 January 2015	Release of P543, P544, P545 & P546 without distance protection and P841-A. This software is based on 61D software which is the last full release but also incorporating the P446 71E changes - P540D Goose/Bandwidth Code Optimisation - Bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M
61	G	M	28 August 2015	Release P545 without distance protection. This release is mainly to solve a mal operation of current differential protection when CIT<->NCIT mixed mode scheme. Is based on SW 71F - Fixed several bugs related to IEC 61850 issues - Fixed a SNTP configuration performance - Other minor bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M
61	I	M	17 January 2017	Release of P543, P544, P545 & P546 with distance protection, P547, P443, P446 and P841-B. The main reason for this release is to include the changes that were made /fixed in version G - Code optimisation - Changes to CB fail function to include External DDB reset inputs - Fixed several bugs related to IEC 61850 issues - Fixed bug related to measurements - Fixed bug: CS1 and CS2 do not work independently when CB Comp enabled for CS2 - Other minor bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M
61	J	M	21 December 2017	Release of P546 without distance protection, based on software version P540D 61/71. This version was released only for one particular customer	MiCOM S1 Agile v1.3 or later	
61	K	M	28 February 2018	Release of P546 without distance protection, based on software version P540D 61/71. This version was released only for one particular customer, to include the threshold for the undercurrent of pole dead as fix threshold of 5%In	MiCOM S1 Agile v1.3	
63	A	M	4 September 2012	Release of P543 & P545 High Break versions without distance protection based on 61B or 71B Sub Cycle Differential Protection Note: This version is not compatible with any other P540	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M + P543&5/EN RN/A

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
65	A	M	14 January 2013	Release of P543, P544, P545 & P546 without distance protection and P841-A based on SW 61C ▪ CB Fail enhancements ▪ 2nd Harmonic Blocking Based on SEF Input ▪ Addition of Polish, Italian and Portuguese languages ▪ Addition of Checksync Voltage Diff Measurement ▪ Improvements to GOOSE ▪ Ethernet Failover ▪ SNTP Alarm ▪ Minimum setting value of CheckSync UV [48 8B] changed to 10V ▪ Fixed several bugs related to IEC 61850 issues ▪ Other minor bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-001
65	B	M	21 March 2013	Release of P543, P544, P545 & P546 without distance protection and P841-A based on SW 65A ▪ Improved MMI response when events are being generated ▪ Fixed reporting of power swing blocking over IEC 61850 ▪ Fixed an evolving fault issue in the Auto-reclose Logic ▪ Fixed a number of IEC 61850 issues ▪ Fixed a number of DNP3.0 issues ▪ Fixed an issue with the Delta Direction count state ▪ Other minor bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-001
65	C	M	5 December 2013	Release of P543, P544, P545 & P546 without distance protection and P841-A based on SW 65B ▪ Resolved a setting change issue which caused the co-processor to reconfigure unnecessarily ▪ Additional English/Italian/Polish/Portuguese language option (7) ▪ Other minor bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-001
65	D	M	9 December 2013	Release of P546 without distance protection based on SW 65C with only IEC 61850 protocol. This version was released only for one customer	MiCOM S1 Agile v1.3 or later	
66	A	M	5 December 2013	Release of P543, P544, P545 & P546 without distance protection an P841-A, based on SW 65B including all bug fixes of SW 75C ▪ Addition of starters to Current Differential protection ▪ Addition of Current Differential Supervision ▪ Additional English/Italian/Polish/Portuguese language option (7) ▪ Correction of stamping issues involving 61850	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-001

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
66	A	M	5 December 2013	- Fixed the CB open echo feature in POR scheme for 2 CB - Other minor bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-001
66	B	M	9 May 2014	Release of P543, P544, P545 & P546 without distance protection and P841-A based on SW 66 A - Code optimisation - Improved CB fail algorithm to avoid incorrect operation under faults with DC transient offsets - Fixed bug: Frequent changes in data causes IEC 61850 application to stop - Fixed bug: Vn Measured is not measured following a power cycle of relay - Other minor bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-001
66	C	M	22 January 2015	Release of P543, P544, P545 & P546 without distance protection and P841-A based on SW 66 B - Goose/Bandwidth Code Optimisation. - Fixed bugs related to IEC 61850 and IEC103 protocols - Fixed bug that occurs when using a Dual Redundant IEE C37.94 Differential Scheme with N=12: if one leg of the communications path was broken, the relay could reboot - Other minor bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-001
66	D	M	12 February 2015	Release of P543, P544, P545 & P546 without distance protection and P841-A based on SW 66 C Fixed an issue with IEC 61850 models: Digital Inputs, Virtual Inputs and PSL validity could be recognised at a different time	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-001
66	G	M	24 January 2017	Release of P546 without distance protection based on 76E - Fixed a number of IEC 61850 issues - Other minor bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-001
66	H	M	15 February 2017	Release of P546 without distance protection based on 66F - Fixed bug: Current of phase A is not the sum of currents in CT1 and CT2 in the corresponding phase - Fixed bug: CS1 and CS2 do not work independently when CB Comp enabled for CS2 - Other minor bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-001

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
66	I	M	31 March 2017	Release of P543, P544, P545 & P546 without distance protection and P841-A. This release includes all bug fixes of SW 66G and SW 66H	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-001
66	J	M	12 January 2017	Release of P543, P544, P545 & P546 without distance protection and P841-A based on SW 76I. This release is to include 3 new options (R, S, T) in the CORTEC related to the IRIG B as follows: ▪ R - Redundant Ethernet PRP/HSR/RSTP, 2 multi-mode fibre ports + Modulated/Un-Modulated IRIG-B ▪ S - Redundant Ethernet PRP/HSR/RSTP, 2 copper ports RJ45 + Modulated/Un-Modulated IRIG-B ▪ T - Single Ethernet, 1 multi-mode fibre ports + Modulated/Un-Modulated IRIG-B This release is not a general release but for particular customers	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-001
66	K	M	21 December 2017	Release of P546 without distance and for only one model: IEC 61850 + 103 based on 66J Particular customer ▪ Fixed bug: Reboot of IEDs after Maintenance Records	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-001
66	L	M	29 March 2018	Release of P546 without distance protection based on 66K ▪ Threshold for the undercurrent of pole dead as fix threshold of 5%In ▪ Minor bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-001
69	A	M	25 May 2018	Release of P543, P544, P545, P546 without distance protection, and P841-A based on based on 66I ▪ Additional Comms mode added to allow 128 kbps comms ▪ In models with current differential, additional IM64 option can be selected between 8 or 32 'IM64' bits per channel ▪ In models with distance , additional IM64 option can be selected between 8 or 24 'IM64' bits per channel ▪ Settable hysteresis for overvoltage ▪ Other minor bug fixes	MiCOM S1 Agile v1.3 or later	P543&51Z-EN-TM-N P543&51NZ-EN-TM-N P544&61Z-EN-TM-N P544&61NZ-EN-TM-N
69	C	M	27 September 2018	Release of P543, P544, P545, P546 without distance protection, and P841-A based on 69B (Interim SW not released to production) ▪ Fixed bugs related to IEC 61850		

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
69	D	M	8 January 2019	Release of P543, P544, P545 & P546 without distance protection and P841-A based on SW 79C - Threshold for undercurrent of pole dead changed has been fixed to 5% - Fixed bugs related to IEC 61850	MiCOM S1 Agile v1.3 or later	
71 41 (P445)	A	M P (P445)	1 August 2011	Release of P543, P544, P545 & P546 with distance protection, P547, P443, P445, P446 and P841 based on SW 57E - Cyber security phase 1 - Separate CT ratios (Only for models with 2 set of CT's) - Option to use 2nd Check Sync VT as a measured VT input for earth fault protection (Only for models with 2 VT's) - Neutral Differential Protection Element (N/A P44y) - Phase Differential Transient Bias (N/A P44y) - Increase the number of available protection scheme addresses from 20 to 32 (N/A P44y) - Single End Testing operation (N/A P44y) - Improvements to distance protection - DEF Virtual Current Polarizing option - OST/PSB improvements (N/A P445) - Stub Bus line diff logic enhancement (N/A P44y) - CB Fail improvements - Common auto-reclose, check sync and CB status for P540D Products - Check sync stage 2 enhancements - Inhibit SEF feature added - Enhanced disturbance recorder - Increase in number of event records - Increase PSL timers to 32 - User Programmable Curves feature added - Improvements to GOOSE performance - IEC 870-5-103 fault location added to ASDU4 - Bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M
71 41 (P445)	B	M P (P445)	9 August 2012	Release of P543, P544, P545 & P546 with distance protection, P547, P443, P445, P446 and P841 based on SW 71 A - Fix to the alternative basic scheme to cover changing faults - Several fixes to IEC 61850 problems - Fixed an issue relating to restoring user curves - Improved the co-processor SRAM checking	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
71 41 (P445)	B	M P (P445)	9 August 2012	- Optimized the start-up of 61850 models - Bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M
71 41 (P445)	C	M P (P445)	12 September 2012	Release of P543, P544, P545 & P546 with distance protection, P547, P443, P445, P446 and P841 based on SW 71 B - Corrected language translations for some distance settings - Fixed several IEC 61850 problems - Corrected the password required to clear alarms - Fixed a DR problem - Bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M
71 41 (P445)	D	M P (P445)	24 September 2013	Release of P543, P544, P545 & P546 with distance protection, P547, P443, P445, P446 and P841 based on SW 71 C - Improved MMI response when events are being generated - Fixed reporting of power swing blocking over IEC 61850 - Fixed an evolving fault issue in the Auto-reclose Logic - Fixed a number of IEC 61850 issues - Fixed a number of DNP3.0 issues - Fixed an issue with the Delta Direction count strategy - Resolved a setting change issue which caused the co-processor to reconfigure unnecessarily - Fixed the CB open echo feature in POR scheme (Only for models with 2 CB's) - Bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M
71	E	M	9 December 2013	Release of P446 based on SW 71 D - Fixed bug related to the Vn measurement - Fixed other minor bug related to df/dt function	MiCOM S1 Agile v1.3 or later	
71 41 (P445)	F	M P (P445)	20 January 2015	Release of P543, P544, P545 & P546 with distance protection, P547, P443, P445, P446 and P841. This software is based on 71D and 61D software but also incorporating the P446 71E changes - Goose/Bandwidth Code Optimisation - Bug fixes related to IEC 61850 - Fix bug: CB Control Interlocking Fail - Fixed bug: When using a Dual Redundant IEE C37.94 Differential Scheme with N=12, if one leg of the communications path is broken the relay can reboot (N/A P44y) - Fix other minor bugs	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
71	G	M	28 August 2015	Release P545 with distance protection. This release is mainly to solve the mal operation of current differential protection when CIT<->NCIT mixed mode scheme. Is based on SW 71F ■ P540 NCIT and CIT combination trips for some external fault ■ Fixed an issue with IEC 61850 models: Digital Inputs, Virtual Inputs and PSL validity could be recognised at a different time ■ Other minor bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M
71	H	M	14 October 2015	Release of P545 with distance protection and P443 based on 71G ■ Fix bug when reporting of complex data points (ACD/ACT) on IEC 61850 ■ Fix other minor issues related to IEC 61850 and 103 protocols	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M
71 41 (P445)	I	M P (P445)	17 January 2017	Release of P543, P544, P545 & P546 with distance protection, P547, P443, P445, P446 and P841 based on SW 71F and including the changes that were made/fixed in versions 71G and 71H	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M
71	J	M	21 December 2017	Release of P546 with distance protection, based on software version P540D 61/71I. This version was released only for one particular customer	MiCOM S1 Agile v1.3 or later	
71	K	M	28 February 2018	Release of P546 with distance protection, based on software version P540D 61/71I. This version was released only for one particular customer , to include the threshold for the undercurrent of pole dead as fix threshold of 5%In	MiCOM S1 Agile v1.3	
71	L	M	22 October 2020	Release of P443 distance protection, based on software version P540D 61/71K. This version was released only for one particular customer	MiCOM S1 Agile v1.3	
71	M	M	16 August 2023	Release of P545 with distance protection and P443 Distance protection, based on software version P540D 61/71I. This version was released only for one particular customer , to improve the phase selection	MiCOM S1 Agile v1.3	
72	A	M	29 June 2012	Release of P546 with distance protection, P446 and P841-B based on SW 70A ■ Support of 9-2 LE ■ GOOSE performance improvement ■ Replace of analogue CT/VT board with 9-2LE board ■ Update the 80TE case for 9-2 relay ■ Bug fixes	MiCOM S1 Agile v1.3 or later	P54x/EN AD/Lb4 + P54x/EN M/La4 Px4x_92LE-TM-EN-002
72	B	M	13 July 2012	Release of P546 with distance protection, P446 and P841-B based on SW 72A ■ NCIT version of P546 sometimes reboots with error code 0xE0050004 following a setting change ■ Use ASE2000 send 'Device Attribute' command to P546 DNP3 builds, relay reboot. ■ Bug fixes	MiCOM S1 Agile v1.3 or later	- P54x/EN AD/Lb4 + P54x/EN M/La4 Px4x_92LE-TM-EN-002

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
74	B	M	24 January 2013	Release of P546 with distance protection, P446 and P841-B based on 72B ▪ VT selection ▪ Addition of Checksync Voltage Diff Measurement ▪ Improvements to GOOSE ▪ Ethernet Failover ▪ SNTP Alarm ▪ Bug fixes	MiCOM S1 Agile v1.3 or later	P54x/EN AD/Lb4 + P54x/EN M/La4 Px4x_92LE-TM-EN-002
74	C	M	24 June 2014	Release of P546 with distance protection, P446 and P841-B based on 74B ▪ All protection functions are not blocked for IEC 61850-9-2LE IEDs if the secondary current exceeds 64A ▪ Current Differential communications are not stopped temporarily when navigating the default display ▪ Goose/Bandwidth Code Optimisation ▪ CB Fail trip can be operated under faults with DC transient offsets ▪ IEC 61850 Application is not stopped when frequent changes in data are caused ▪ Bug fixes	MiCOM S1 Agile v1.3 or later	P54x/EN AD/Lb4 + P54x/EN M/La4 Px4x_92LE-TM-EN-002
74	D	M	29 September 2016	Release of P546 with distance protection based on 74C ▪ Fixed a number of IEC 61850 issues ▪ Bug fixes	MiCOM S1 Agile v1.3 or later	P54x/EN AD/Lb4 + P54x/EN M/La4 Px4x_92LE-TM-EN-002
75 45 (P445)	A	M P (P445)	14 January 2013	Release of P543, P544, P545 & P546 with distance protection, P443, P445, P446 and P841 based on SW 71C ▪ CB Fail enhancements ▪ 2nd Harmonic Blocking Based on SEF Input ▪ Addition of Polish, Italian and Portuguese languages ▪ Addition of Checksync Voltage Diff Measurement ▪ Improvements to GOOSE ▪ Ethernet Failover ▪ SNTP Alarm ▪ Other minor bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-00
75 45 (P445)	B	M P (P445)	21 March 2013	Release of P543, P544, P545 & P546 with distance protection, P547, P443, P445, P446 and P841 based on SW 75A ▪ Improved MMI response when events are being generated ▪ Fixed reporting of power swing blocking over IEC 61850 ▪ Fixed an evolving fault issue in the Auto-reclose Logic ▪ Fixed a number of IEC 61850 issues	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-001

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
75 45 (P445)	B	M P (P445)	21 March 2013	- Fixed a number of DNP3.0 issues - Fixed an issue with the Delta Direction count state - Other minor bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-001
75 45 (P445)	C	M P (P445)	5 December 2013	Release of P543, P544, P545 & P546 with distance protection, P547, P443, P445, P446 and P841 based on SW 75B - Resolved a setting change issue which caused the co-processor to reconfigure unnecessarily - Additional English/Italian/Polish/Portuguese language option (7) - Other minor bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-001
75	D	M	9 December 2013	Release of P546 with distance protection based on SW 65C with only IEC 61850 protocol. This version was released only for one particular customer	MiCOM S1 Agile v1.3 or later	
76	A	M	5 December 2013	Release of P543, P544, P545 & P546 with distance protection based on 75C - Addition of starters to Current Differential protection - Addition of Current Differential Supervision - Additional English/Italian/Polish/Portuguese language option (7) - Correction of stamping issues involving 61850 - Fixed the CB open echo feature in POR scheme (Only for models with 2 CB's) - Other minor bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-001
76 46 (P445)	B	M P (P445)	9 May 2014	Release of P543, P544, P545 & P546 with distance protection, P547, P443, P445, P446 and P841 based on SW 76 A - Code optimisation - Improved CB fail algorithm to avoid incorrect operation under faults with DC transient offsets - Fixed bug: Frequent changes in data causes IEC 61850 application to stop - Fixed bug: Vn Measured is not measured following a power cycle of relay - Other minor bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-001
76 46 (P445)	C	M P (P445)	22 January 2015	Release of P543, P544, P545 & P546 with distance protection, P547, P443, P445, P446 and P841 based on SW 76 B - Goose/Bandwidth Code Optimisation - Fixed bugs related to and IEC103 protocols - Fixed bug that occurs when using a Dual Redundant IEE C37.94 Differential Scheme with N=12 : if one leg of the communications path was broken, the relay could reboot (N/A P44y) - Other minor bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-001

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
76 46 (P445)	D	M P (P445)	12 February 2015	Release of P543, P544, P545 & P546 with distance protection, P547, P443, P445, P446 and P841 based on SW 76 B Fixed an issue with IEC 61850 models: Digital Inputs, Virtual Inputs and PSL validity could be recognised at a different time	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-001
76	E	M	12 October 2015	Release of P443 based on SW 76 D Fixed an issue related to P443 InterMiCOM	MiCOM S1 Agile v1.3 or later	
76	F	M	24 August 2016	Release of P546 only for model P54681KA6N0760M based on SW 76 D Fixed bug: Periodic loss of GOOSE subscription	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-001
76	G	M	24 January 2017	Release of P546 with distance protection based on 76E - Fixed a number of IEC 61850 issues - Fixed bug: For Power swing, the relay is not using angle " Alpha cell 3D.49 " of Power Swing settings but angle " Blinder angle cell 3D.2C " of Out of Step setting - Other minor bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-001
76	H	M	15 February 2017	Release of P546 with distance protection based on 76F - Fixed bug: Current of phase A is not the sum of currents in CT1 and CT2 in the corresponding phase - Fixed bug: CS1 and CS2 do not work independently when CB Comp enabled for CS2 - Other minor bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-001
76 46 (P445)	I	M P (P445)	31 March 2017	Release of P543, P544, P545 & P546 with distance protection, P547, P443, P445, P446 and P841. This release includes all bug fixes of SW 76G and SW 76H	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-001
76 46 (P445)	J	M P (P445)	12 January 2017	Release of P543, P544, P545 & P546 with distance protection, P547, P443, P446 and P841-B based on SW 76 I. This release is to include 3 new options (R,S,T) in the CORTEC related to the IRIG B as follows: - R - Redundant Ethernet PRP/HSR/RSTP, 2 multi-mode fibre ports + Modulated/Un-Modulated IRIG-B - S - Redundant Ethernet PRP/HSR/RSTP, 2 copper ports RJ45 + Modulated/Un-Modulated IRIG-B - T - Single Ethernet, 1 multi-mode fibre ports + Modulated/Un-Modulated IRIG-B This release is a restricted release for particular customers	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-001

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
76	K	M	21 December 2017	Release of P546 with distance and for only one model: IEC 61850 + 103 based on 76J for a Particular customer Fixed bug: Reboot of IEDs after Maintenance Records	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-001
76	L	M	29 March 2018	Release of P546 with distance protection based on 76K - Threshold for the undercurrent of pole dead as fix threshold of 5%In - Minor bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-001
76	M	M	10 August 2018	Release of P544 with distance protection for all communication protocols and P546 IEC 61850 models. SW based on 76L. SW strictly limited to some users Some bug fixes related to IEC 61850 and DNP	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-001
			28 March 2019	Release of P543, P544, P545 & P546 with distance protection P443, P446 and P841-B based on SW 76L. Include all the protocols Some bug fixes related to IEC 61850 and DNP		
76	P	M	10 August 2018	Release of P544 with distance protection for all communication protocols and P546 IEC 61850 models. SW based on 76L Some bug fixes related to IEC 61850 and DNP	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P544&6/EN M/M + P540D-RNC1-TM-EN-001
			15 July 2021	Release of P443 for all communication protocols and P546 IEC 61850 models. SW based on 76L Some bug fixes related to IEC 61850 and DNP		
77	A	M	2 December 2015	Release of P546 with distance protection and P446 based on 76E - Add new function for IRIG-B local time - The IM input CT can be used as IN measured for earth fault function (residual E/F) - The IM input CT can be used as IN measured for Aided DEF function - Updated set range of stage2 of earth fault in case of DT - Measured IN always include the IEC 61850, CS103 and DNP protocols	MiCOM S1 Agile v1.3 or later	P54x2-TM-EN-1
78	A	M	16 April 2015	Release of P443 based on 77A - Added a new distance zone Q - Delink of power swing and DeltaZ - Modify RAW comparator for the isolated or compensated earthing system - Added option of Measure the residual voltage through the check sync input channel		

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
78	A	M	16 April 2015	- Added new indication for all elapsed timers of distance zones - Minor bug fixes		
78	B	M	22 May 2015	Release of P443 based on 78A Minor bug fixes		
79 49 (P445)	A	M P (P445)	25 May 2018	Release of P543, P544, P545 & P546 with distance protection, P547, P443, P445, P446 and P841 based on 76I - Additional Comms mode added to allow 128 kbps comms - In models with current differential or the relay working with differential function enabled, additional IM64 option can be selected between 8 or 32 'IM64' bits per channel. (N/A P44y) - In models with distance, or the relay NO working in differential mode, additional IM64 option can be selected between 8 or 24 'IM64' bits per channel - Settable hysteresis for overvoltage - Other minor bug fixes THIS VERSION REQUIRES SPECIAL SOFTWARE TO BE INSTALLED IN THE RELAY (FPGA)	MiCOM S1 Agile v1.3 or later	P543&51Z-EN-TM-N P543&51NZ-EN-TM-N P544&61Z-EN-TM-N P544&61NZ-EN-TM-N
79 49 (P445)	C	M P (P445)	27 September 2018	Release of P543, P544, P545 & P546 with distance protection, P547, P443, P445, P446 and P841-B based on 79B (Interim SW which was not released to production) Fixed bugs related to IEC 61850 THIS VERSION REQUIRES SPECIAL SOFTWARE TO BE INSTALLED IN THE RELAY (FPGA)	MiCOM S1 Agile v1.3 or later	
79 49 (P445)	D	M P (P445)	6 December 2018 for P543 and P545 8 January 2019 for P544, P546, P547, P443, P445, P446 and P841	Release of P543, P544, P545 & P546 with distance protection, P547, P443, P446 and P841-B based on SW 79C - Threshold for undercurrent of pole dead changed has been fixed to 5% - Bug fixes THIS VERSION REQUIRES SPECIAL SOFTWARE TO BE INSTALLED IN THE RELAY (FPGA)	MiCOM S1 Agile v1.3 or later	
79 49 (P445)	E	M P (P445)	7 May 2020	Release of P543, P545, P544 & P546 with distance protection, P445 and P446 based on SW 79D - Fixed bugs related to the platform - Distance IM64 propagation delay measurement error fixed - Improvements to Current diff starters. (N/A P44y) THIS VERSION REQUIRES SPECIAL SOFTWARE TO BE INSTALLED IN THE RELAY (FPGA)	MiCOM S1 Agile v1.3 or later	

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
79 49 (P445)	F	M P (P445)	21 August 2020	Release of P543, P544, P545 & P546 with distance protection, P547, P443, P445 and P446 and P841-B based on SW 79E ▪ Added setting VTS V> Under SUPERVISION. This was a fixed value (30 V) in previous versions ▪ Fixed a minor indication bug related the VTS THIS VERSION REQUIRES SPECIAL SOFTWARE TO BE INSTALLED IN THE RELAY (FPGA)	MiCOM S1 Agile v1.3 or later	
80	A	M	9 October 2014	Release of P546 with distance protection, P446 and P841B sample values relays based on 74B ▪ IEC 61850 Ed.2 platform integration ▪ Logical nodes extensions ▪ Minimum I/O boards with 40TE front panel for P540D post intelligent relay ▪ Bug fixes	MiCOM S1 Agile v1.3 or later	P40L-AD-ED2-EN
80	B	M	19 December 2014	Release of P546 with distance protection, P446 and P841B sample values relays based on 80A ▪ IEC 61850 Ed.2 platform integration ▪ Logical nodes extensions, Editable Logic Nodes ▪ Minimum I/O boards with 40TE front panel for P540D post intelligent relay ▪ FAST GOOSE Solution ▪ Bug fixes	MiCOM S1 Agile v1.3 or later	P40L-AD-ED2-EN
80	C	M	28 August 2015	Release of P546 with distance protection, P446 and P841B sample values relays based on 80B ▪ Fix bug: NCIT and CIT combination trips for external fault. ▪ Fix bugs when using IEC 61850 models, Digital Inputs, Virtual Inputs and PSL validity are recognised at different times ▪ Some other bugs related to IEC 61850	MiCOM S1 Agile v1.3 or later	P40L-AD-ED2-EN
82	A	M	24 September 2015	Release of P543, P544, P545 & P546 with distance protection P443, P446 and P841-B based on SW 76B ▪ IEC 61850 Ed.2 platform integration ▪ Logical nodes extensions ▪ FAST GOOSE Solution ▪ Other bug fixes	MiCOM S1 Agile v1.3 or later	P54x1Z TM EN
82	C	M	26 November 2020	Release of P546 with distance protection P443, P446 and P841-B based on SW 82A ▪ Interim release not for wide distribution. ▪ Support software for new Ethernet board ▪ Other bug fixes	MiCOM S1 Agile v1.3 or later	P54x1Z TM EN

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
82	D	M	04 March 2021	Release of P543, P544, P545 & P546 with distance protection P443, P446 and P841-B based on SW 82C ▪ The IM input CT can be used as IN measured for earth fault function (residual E/F) ▪ The IM input CT can be used as IN measured for Aided DEF function. ▪ Other bug fixes	MiCOM S1 Agile v1.3 or later	P54x1Z TM EN
83	A	M	13 March 2015	Release of P543 & P545 without distance protection based on 63A . This is the relay with Sub Cycle Differential Protection ▪ IEC 61850 Ed.2 platform integration ▪ Logical nodes extensions, Editable Logic Nodes ▪ GOOSE Bandwidth Optimisation ▪ FAST GOOSE Solution ▪ Other Bug fixes	MiCOM S1 Agile v1.3 or later	P543&5/EN M/M P543&5/EN RN/A
84	A	M	28 June 2016	Release of P546 with distance protection and only IEC 61850 plus 103 protocol based on 82A ▪ Allow control inputs to be set as enabled/disabled in the setting file ▪ New DDB's inputs to be able to reset CB failure externally ▪ Other bug fixes	MiCOM S1 Agile v1.3 or later	P544&6/EN M
84	B	M	31 August 2016	Release of P546 with distance protection and only IEC 61850 plus 103 protocol based on 84A ▪ Check sync options improvement allowing possible check sync between busbars ▪ Scheme Logic Column visible in setting file when Distance & DEF disabled	MiCOM S1 Agile v1.3 or later	P544&6/EN M
85	A	M	19 January 2017	Release of P543 & P545 with distance protection and P443, based on SW 82 A ▪ Add a new distance zone Q ▪ Delink Delta I power swing and slow power swing ▪ Include option to use distance relays with phase preference logic for isolated compensated system ▪ Measure the residual voltage through the check sync input channel ▪ Add new indication for all elapsed timers of distance zones ▪ Add Transient Ground Fault (TGFD) ▪ Rebranded to GE ▪ Other bug fixes	MiCOM S1 Agile v1.3 or later	P54x1-TM-EN-1 P54x2-TM-EN-1
86	A	M	12 January 2018	Release of sample values relays P5469CNA6R0860P and P8419CNC6R0860P only based on SW 80C ▪ Auto reclose reclaim time extended logic ▪ Auto reclose new DDB's signals for dead time is complete & enable and CB in service	MiCOM S1 Agile v1.3 or later	P546SV-TM-EN-1

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
86	A	M	12 January 2018	▪ New system split function ▪ Addition of differential starters and differential supervision ▪ Self-reset alarms have been increased from 4 to 8 and manual reset alarms have been increased from 4 to 20 ▪ Main VT location control for use with check synchronism and auto recloser ▪ Other bug fixes	MiCOM S1 Agile v1.3 or later	P546SV-TM-EN-1
86	B	M	27 February 2018	Release of sample values relays P5469CNA6R0860P and P8419CNC6R0860P only based on SW 86A ▪ System split function new DDB's for CB1 & CB2 SS to enable SS from PSL besides setting	MiCOM S1 Agile v1.3 or later	P546SV-TM-EN-1
86	E	M	5 July 2018	Release of P546 with distance protection, P446 and P841B sample values relays based on 86B ▪ Support for new Ethernet board (ZN0087) ▪ Inclusion of Duplicate GOOSE feature ▪ IRIG-B Type setting ▪ Rebranded SW to GE ▪ Other bug fixes	MiCOM S1 Agile v1.4 or later	P546SV-TM-EN-1
87	A	M	7 September 2018	Release of P543 & P545 with distance protection and P443 based on SW 85A ▪ 6 Fully Directional Distance Zone (all zones 100% reverse reach) ▪ Distance Protection "Force No Memory" option via DDB ▪ 4 stages of Directional Power Protection (each stage configurable as under/over Power) ▪ Separate UnderCurrent setting for Pole Dead and CBFail ▪ Inclusion of Duplicate GOOSE feature ▪ IEC 61850 Modelling of Sensitive Earth fault ▪ Other bug fixes	MiCOM S1 Agile v1.4 or later	P54x1i-TM-EN-2
87	B	M	2 November 2020	Release of P543 & P545 with distance protection and P443 based on SW 87A ▪ Fix of TEFD Wrong Directional Decision for Low Residual transient Reactive Power ▪ Improvements in "P Swing Detector" indication ▪ Other bug fixes	MiCOM S1 Agile v1.4 or later	P54x1i-TM-EN-2
87	C	M	24 June 2021	Release of P543 & P545 with distance protection and P443 based on SW 87B ▪ Improvement of Distance protection algorithm for Phase to Phase to ground remote faults ▪ Other bug fixes	MiCOM S1 Agile v1.4 or later	P54x1i-TM-EN-2

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
91	D	M	21 January 2020	Release of P543 & P545 with distance protection and P443 based on SW 87A ▪ RBAC (Role Base Access Control) including: Device/Server RBAC, Syslog and Multi-client reporting ▪ IEC 61850 Ed1/Ed2 Switching ▪ In models with current differential or the relay working with differential function enabled, additional IM64 option can be selected between 8 or 32 'IM64' bits per channel. (N/A P44y) ▪ In models with distance, or the relay NO working in differential mode, additional IM64 option can be selected between 8 or 24 'IM64' bits per channel ▪ Distance zone phase and ground can be settable as offset ▪ Duplicate GOOSE ▪ Other bug fixes	MiCOM S1 Agile v2.0.1 or later	P54x1Z-TM-EN-2
92	A	M	15 November 2019	Release of P545 with distance protection and P443 based on SW 91D. This release is only for 50Hz applications ▪ Added two additional zones: Zone R and Zone S. They can be reverse, forward or offset ▪ Schemes POR, PUR and blocking for Aided Scheme 1 can now be selected to work with 1 channel per phase i.e., 3 channels or with only one channel ▪ Added three new aided Schemes using a dedicated independent zone "Aided Zone 1 extension" (Different to the existing zone 1 Extension) to keying the channel. They will be equivalent to PUR, POR and Blocking but working with an independent keying zone instead of Zone 2. They work with 1 channel per phase i.e., 3 channels or with only one channel ▪ Zone 1 Extension has two additional settings to extend independently the resistive reach: phase and ground ▪ Load Blinder can be now set independently for phase and ground loops. ▪ Echo delay setting added ▪ Other small bug fixes	MiCOM S1 Agile v2.0.1 or later	P54x1Z-TM-EN-3
92	B	M	12 June 2020	Release of P543 & P545 with distance protection and P443 based on SW 92A. This release is only for 50Hz applications ▪ CB open echo can now be enabled or disabled ▪ CB open Echo delay setting added ▪ New setting to block weak infeed trip if the pole has been dead for a settable time delay ▪ Other small bug fixes	MiCOM S1 Agile v2.0.1 or later	-

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
92	C	M	21 May 2021	Release of P543 & P545 with distance protection and P443 based on SW 92B. This release is only for 50Hz applications. SW strictly limited to some users ▪ The main update in this version is related to compliance to IEC 61850 ED2.1 ▪ Fixed bug related to DE schemes: The scheme was using Z2 instead of AidedZ2 and reversal guard was not being applied to the Aided Distance signal "send" for the schemes that work with 3 channels. ▪ Other small bug fixes	MiCOM S1 Agile v2.0.1 or later	-
				Release of P543 & P545 with distance protection and P443 based on SW 92B. This release is only for 50Hz applications ▪ To make it compliant to IEC 61850 ED2 for new procedures TP2.0 and correction to Germanic Translations ▪ Some other bug fixes		
92	D	M	26 January 2023	Release of P543 & P545 with distance protection and P443 based on SW 92C. This release is only for 50Hz applications ▪ Improvements in phase preference logic ▪ Improvements to TGFD logic	MiCOM S1 Agile v2.0.1 or later	-
AA	K	Q	23 February 2023	First release of MiCOM 5th Generation. Relay models: P54, P44 and P84 are released. This includes models: P443, P446, P543, P546, P841-1CB and P841_2CB with CIT and NCIT. They are based on software 91B and SW 92D. The main changes in this new hardware and software release are as follows: ▪ A 10x performance increase in processing power over the previous Generation (4th Gen) ▪ Colour graphical HMI available as standard, and with native USB support. It includes 1 configurable page, for SLD, measurements and status signals ▪ Simplified ordering options (CORTEC). For instance, distance P44 and line differential P54 can be ordered with models P443 and P543 for single CB applications, or with models P446 and P546 for dual CB applications. They can also be ordered as sub-transmission or sub cycle ▪ Any model can be ordered in the 3 size cases: 40TE (W 203.2 mm or 8"), 60TE (W 304.8 mm or 12") or 80TE (W 406.4 mm or 16"), with a variation in the number of I/O ▪ PRP, HSR and RSTP supported in the same order option ▪ All products are process bus compliant ▪ CyberSentry IEC 62351-8 ▪ 5000 Events, 100 Faults, 1050s Oscillography and 128 Digital Signals ▪ 9 Independently directional distance zones + Z1 extension ▪ Phase segregated aided schemes		P54-TM-EN-1.1 P44-TM-EN-1.1 P84-TM-EN-1.1

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
AA	K	Q	23 February 2023	Adaptive autoreclose to reduce the single pole dead time in case of transient faults, or to block the autoreclose in case of a single fault to ground permanent faults	MiCOM S1 Agile v3.0.1 or later	P54-TM-EN-1.1 P44-TM-EN-1.1 P84-TM-EN-1.1
			29 November 2023	Release of models: P443, P446, P543, P546, P841-1CB and P841_2CB with CIT and NCIT based on software AAK The main reason for this release is to fix a reboot issue and some other bug fixes		
AB	-	Q	August 2024	- Compliance to IEC 61850 Edition 2.1 - Support for IEC 61850 Substitution - data points for status and measurement can be substituted - Time Synchronization modelled in new LN LTIM/LTMS - Support for Alarm Handling new LN CALH - Ethernet port link status via new LN LCCH and new DDBs - Top-down engineering - configuration of P40 including GOOSE from SCD file - Configurable RCB name and GCB name - Multi-level control, new DO MITLev - select local or remote for control. To comply to local and remote requirements - Secure Event Logging aligned to IEC 62351-14 - separate audit log for security operations and Syslog updated to align with IEC 62351-14 - Implementation of secure SSH (Secure Shell) communication to the relay from S1 Agile for configuration over Ethernet - New Ethernet board - 1-2 Station Bus ports + Engineering port (CORTEC Hardware Option U/V/W/Y) - All distance zones settable to non-directional/offset/Fwd/Rev (P44/P54 models) - Fault locator improvements for evolving faults (P44/P54 models) - Process bus not supported in this release	MiCOM S1 Agile v3.0.1 or later	P54-TM-EN-2 P44-TM-EN-2 P84-TM-EN-2

2 SOFTWARE VERSION COMPATIBILITY

IED S/W Version	Setting File Version	Menu Text File Version*8	PSL File Version
40	40, 50*4	40	40, 50*2
41	41, 51*4	41	41, 51*2
50	40*5, 50	50	50
51	41*5, 51	51	51
52	52, 54*3	52	52
54	54	54	54
55	55	55	55
57	57	57	57
61	61, 65*1	61	61, 65*3
65	65, 66*1	65	65, 66*3
66	66	66	66
71	71, 75*1	71	71, 75*3
75	75, 76*1	75	75, 76*3
76	76	76	76
77	77	77	77
79	79	79	79
80	80	80	80
82	82	82	82
83	83	83	83
84	84	84	84
85	85	85	85
86	86	86	86
87	87	87	87
91	91	91	91
92	92	92	92
AA	AA	AA	AA
AB	AA, AB	AA, AB	AA, AB

Notes:

- *1: Compatible except for Disturbance recorder digital channel selection
- *2: Additional functionality added such that setting files from earlier software versions will need additional settings to be made
- *3: Compatible except for Disturbance recorder digital channel selection & settings for additional functionality will be missing
- *4: Compatible except for the Disturbance recorder digital channel selection and the distance settings
- *5: Compatible except for Disturbance recorder digital channel selection & the setting file contains a large number of Distance setting which will each produce an error on download
- *6: Additional DDBs were added such that PSL files from earlier software versions will not be able to access them
- *7: Additional DDB for the Distance protection will not be included
- *8: Menu text remains compatible within each software version but is NOT compatible across different versions



GE VERNOVA