GE VERNOVA

MiCOM P40 Agile

P64x

Version History
Transformer Protection IED

Hardware Version: Up to P
Firmware Version: Up to 91
Publication Reference: P64x-VH-EN-8.5

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
01	B	K	October 2008	Original issue for P643	MiCOM S1 V2.14 MiCOM Studio V3.0	P64x/EN M/A11
01	D	J/K	February 2009	▪ Original issue for P642/5 ▪ The REF algorithm was enhanced, so that it can be applied in 1.5 breakers arrangements ▪ The scaling factor used by the REF element is the right one ▪ In the P643, the item “TV” is invisible from the options of the cell “Monit’d winding” when “Winding Config” is set to “HV+LV” ▪ The REF fault record is independent from the Diff fault record. If the Diff is disabled, but the REF is enabled; the REF fault record is available ▪ Is-CTS setting is invisible when CTS is disabled or in indication mode ▪ The settings I>Inhibit and I2>Inhibit in the VTS function are in pu ▪ The extraction of the PSL from the P643 results in a neat diagram	MiCOM S1 V2.14 MiCOM Studio V3.0	P64x/EN AD/A21
02	B	J/K	April 2009	▪ The differential and bias currents of the low impedance REF and differential functions are included in the disturbance recorder ▪ The frequency measurement is included in the disturbance recorder ▪ DNP3.0 over Ethernet ▪ IEC-61850 Phases 2.0 and 2.1 are included ▪ High-break contacts are included depending on the CORTEC option ▪ An option to disable the VTS logic is included ▪ Enhancement of the VTS logic	MiCOM S1 V2.14 MiCOM Studio V3.0	P64x/EN M/A32
02	C	J/K	October 2009	▪ Through fault monitoring function has been amended. The I2t calculation only starts when the current is above TF I> Trigger level and no differential element (87 or 64) has started ▪ Date and time settings have been amended. The settings associated to UTC or SNTP have been included ▪ In the default settings the circuitry fault alarm has been disabled since it is only intended for busbar protection. The cross-blocking function has been enabled. A 100 ms dwell timer has been added to the fault record trigger input in the PSL to avoid triggering the trip Led without generating a fault record when testing the relay ▪ The dependency between the settings in simple and advanced mode has been improved. The relay recalls the settings (reactance, Is-HS1, Zero seq. Filt HV, Zero seq. Filt LV, Zero seq. Filt TV, HV Grounding, LV Grounding, and TV Grounding) when changing from simple to advanced mode and vice-versa ▪ The setting cell 2nd harm blocked has been included. It can be set as either enabled or disabled. This is required in busbar applications where the second harmonic blocking is not needed	MiCOM S1 V2.14 MiCOM Studio V3.1.1	P64x/EN M/A32

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02	C	J/K	October 2009	▪ If the setting cell TOL status is disabled, Hot Spot T and Top Oil T measurements are not displayed ▪ The setting cells Ambient T and Top Oil T can only be set to RTD or CLIO when the hardware is available ▪ The thermal overload function has been improved. The DDB signal TFR De-energized and a corrected top oil time constant have been included ▪ The CT para mismatch logic has been modified	MiCOM S1 V2.14 MiCOM Studio V3.1.1	P64x/EN M/A32
02	D	J/K	March 2010	▪ If the amplitude matching factor of the TV winding is out of range and less than 0.05, the TV winding CT inputs are not considered in the differential calculation (under this condition the CT para mismatch alarm is not asserted, and the differential is not automatically blocked) ▪ It was reported that for P642 model, when 02C software with IEC 61850 protocol was downloaded, an alarm was issued, indicating that NIC software miss-matched the main board software. This issue has been solved in 02D firmware ▪ The latched states of LEDs reflect the current properties of the individual relays and LEDs. The relays and LEDs are updated whenever their properties are changed, i.e. reset when their properties are not latched ▪ IEC 61850, the DDBs values that had not changed since start-up are also reported ▪ Integrity Period of X seconds results in Integrity reports being generated every X+1 second, hence an extra second is being added to the configured Integrity Period ▪ IEC 61850, the appropriate amendments were performed so that when the Integrity Period is set to “x” seconds the Integrity report is generated every “x” second and not “x+1” seconds ▪ NIC no response alarm assertion has been amended ▪ DNP3, the relay failure to respond to a class 1/2/3 poll following a confirmation to another relay has been corrected	MiCOM S1 V2.14 MiCOM Studio V3.1.1	P64x/EN M/A32
02	E	J/K	October 2010	▪ The appropriate amendments have been done to avoid displaying 1/25 of the injected power in 'MEASUREMENTS 2' column ▪ DNP3.0 over Ethernet, appropriate amendments have been done so that when polling an offline analogue signal, the flag “Offline, Local forced” is displayed ▪ Appropriate amendments have been done so that the menu text for setting "% Reactance” is displayed correctly in MiCOM Studio ▪ The DNP3.0 over Ethernet application stack size has been enlarged to avoid asserting the error code 0X662005F8 ▪ IEC 61850, the buffer has been enlarged to avoid loss of communication under heavy BRCB (buffer report circuit breaker) **Note: 02E firmware is only available for the P643**	MiCOM S1 V2.14 MiCOM Studio V3.1.1	P64x/EN M/A32
02	G	J/K	August 2011	▪ Resolved issue of incorrect IEC 61850 Disturbance Records extracted via SISCO AXS4MMS ▪ Resolved issue of Control & Support settings not restored to default when a 'restore all' default setting command is issued and the active setting group is not 1 ▪ Resolved issue of Latched LED not resetting using READ/CLEAR keys	MiCOM S1 V2.14 MiCOM Studio V3.1.1	P64x/EN M/A32

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02	G	J/K	August 2011	▪ DDBs CTS CT1, CTS CT", CTS CT3, CTS CT4 and CTS CT% are made available for when the CT Supervision is in indication mode ▪ Modification of the Differential logic so differential bias START and TRIP may be caused either by the low set differential element or the high set element ▪ Resolved issue of not considering the reactance setting step size of 0.1 in reactance setting recalculation as 1/Is-HS1 if the relay is in advance mode and Is-HS1 is set ▪ Resolved issue of P645 IEC 61850 Logic Node 'XfrDifPHAR1' mapping error: ▪ Resolved issue of generating error for Group 2, 3 and 4 RTD function incompatibility ▪ Resolved issue of incorrect display of F>2 trip in the fault record when F>2 is disabled ▪ Resolved issue of ineffective CT4 ratio when CT4 & CT5 are allocated to LV ▪ Resolved issue of discrepancy in the DR analogue signals magnitudes if the CT&VT ratios are not integer ▪ Resolved issue of IEC 61850 application when a fast toggle state may cause interim state not to be reported ▪ Resolved issue of incorrect behavior of latched LED when there is a mix of Latched and Unlatched LEDs	MiCOM S1 V2.14 MiCOM Studio V3.1.1	P64x/EN M/A32
02	H	J/K	February 2014	▪ Resolved issue of thermal element mal operation under extreme situations such as sudden removal of loads ▪ More information is added to the maintenance record to facilitate investigation after being triggered	MiCOM S1 V2.14 MiCOM Studio V3.1.1	P64x/EN M/A32
03	A	J/K	Not available (May 2011)	▪ Cybersecurity Phase 1 has been included ▪ REB (redundant Ethernet board) has been included **Note: Improvements in 02E for P643 were included in 03A for all P64x models**	MiCOM S1 V2.14 MiCOM Studio V3.1.1	P64x/EN M/A32
			January 2011	▪ Rebranded from Areva to Alstom		P64x/EN M/B42
				▪ CT saturation and no gap detection algorithms have been included algorithm to improve the differential element operating time ▪ External fault detection algorithm has been included to prevent the CT saturation and no gap detection from blocking the 2nd harmonic element during external faults ▪ CT input exclusion. If a CT input is excluded, then it is not considered by any of the current based functions ▪ The CBF logic has been modified so that it resets in less than a cycle. Also, the settings are per current transformer input. A setting for the neutral current has also been included ▪ User alarms have been included and improved. 32 user alarms are available, and they can be set in the setting files as self-reset or latch. The label for each user alarm can be set in the setting file (no need to use the text editor). This label is also displayed in the PSL ▪ Two voltage controlled overcurrent stages are available ▪ All the current based functions are now settable; they are no longer fixed as HV, LV and TV. For example, there are three overcurrent elements (four stages each one). Any of the overcurrent elements can be set to protect a particular winding or a feeder ▪ Negative sequence overvoltage has been implemented		

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				▪ Assigned inputs extension, the selection of CT inputs for each winding has been increased. Now all the possible combinations are considered. For example, in a P645 four CT inputs can be assigned to the HV side and one to the LV side ▪ High impedance REF has been included ▪ Low impedance REF for autotransformer has been included ▪ The thermal overload function has been enhanced; four cooling modes have been included ▪ The two first stages of the negative phase sequence overcurrent element can be set as IDMT ▪ An additional VT input can be ordered in the P642. As a result, voltage functions and directional functions are available to some extent ▪ The first two stages of the negative phase sequence overcurrent element can be set as IDMT		
04	B	J/K	May 2011	▪ REB (redundant Ethernet board) is available ▪ An additional VT input can be ordered in the P642. As a result, negative phase sequence overvoltage function and directional functions are available to some extent **Note: Improvements in 02E for P643 were included in 04B for all P64x models. 04B does not include cybersecurity**	MiCOM S1 V2.14 MiCOM Studio V3.1.1	P64x/EN M/B52
04	C	K	February 2012	▪ PRP feature is added, P643 only	MiCOM S1 V2.14 MiCOM Studio V3.1.1	P64x/EN M/C52
04	D	J/K	March 2012	▪ Resolved issue of meaningless scaling factor and matching factor alarm ▪ Resolved issue of P64x when fitted with the second rear comms card displaying the error code 0x1e310071 in production	MiCOM S1 V2.14 MiCOM Studio V3.1.1	P64x/EN M/C52
04	E	J/K	May 2012	▪ PRP feature is added, P642/3/5 ▪ Status report over IEC 61850 is now in line with DDB signals ▪ Latched LED can now be reset using READ/CLEAR keys	MiCOM S1 V2.14 MiCOM Studio V3.1.1	P64x/EN M/C52
04	F	J/K	June 2012	▪ Logical nodes for 32 User Alarms are now defined in IEC 61850 ▪ Phase segregation of Start and Trip are included in IEC 61850 ▪ Resolved NPS O/C setting issue ▪ Frequency tracking algorithm is modified to avoid mal operation at low frequency start-up sequence ▪ Resolved S/R latches issue after power cycle ▪ Resolved issue of resetting some accumulated measured entities such as LOL, V/Hz and %Thermal replica via the front port ▪ Resolved issue of time stamping in the fault record when the time offset is other than zero ▪ Resolved issue of using wrong CT ratio in deriving the neutral current magnitude of the TV winding ▪ Resolved issue of VTS operation when there is loss of three-phase voltage	MiCOM S1 V2.14 MiCOM Studio V3.1.1	P64x/EN M/C52

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04	G	J/K	May 2013	▪ Resolved warnings/error messages due to incompatible cell types ▪ Resolved issue of re-boot when attempted to change setting group via CS103	MiCOM S1 V2.14 MiCOM Studio V3.1.1	P64x/EN M/C52
04	H	J/K	July 2013	▪ KEMA level A certificate ▪ Reference CT in REF changed to line side to avoid mal operation of REF due to noise ▪ Resolved issue of Thermal element mal operation under extreme situations such as sudden removal of load	MiCOM S1 V2.14 MiCOM Studio V3.1.1	P64x/EN M/C52
04	J	J/K	January 2014	▪ Resolved issue of IEC 61850 loss of communication under extreme situations ▪ Resolved issue of alarm not being raised when CT mismatch factor is set greater than its maximum allowed value of 15 and/or when RTD board is not fitted ▪ Resolved issue of incorrect winding under current calculation in Stub-Bus application ▪ More information is added to maintenance record to facilitate investigation after being triggered	MiCOM S1 V2.14 MiCOM Studio V3.1.1	P64x/EN M/C52
04	K	J/K	April 2014	▪ Resolved issue of IEC 61850 application after frequent changes in data ▪ Resolved issue of temporary revision of setting group to Group 1 after downloading a settings file	MiCOM S1 V2.14 MiCOM Studio V3.1.1	P64x/EN M/C52
04	L	J/K	August 2014	▪ Minor bug fixes	MiCOM S1 V2.14 MiCOM Studio V3.1.1	P64x/EN M/C52
04	M	J/K	May 2016	▪ Resolved Issues related to incorrect operation of SR gate and User Alarm ▪ Minor bug fixes	MiCOM S1 V2.14 MiCOM Studio V3.1.1	P64x/EN M/C52
05	A	M/P	May 2013	▪ Cyber Security ▪ Hot Standby feature (Ethernet failover switch between copper and fibre) for redundant Ethernet communications ▪ IEC 61850 GOOSE speed improvement ▪ IEC 61850 logical node mapping for 1-32 user alarms ▪ Phase segregation information in IEC 61850 data model ▪ SNTP Alarm- alarm indication via IEC 61850 when there is loss of signal on the SNTP Server ▪ Extended DR 128 Digital Inputs ▪ Reference CT for low impedance REF is now changed from neutral CT to line CT. In previous firmware version 04G, the reference CT is the neutral CT. Please check manual version C52	MiCOM S1 V2.14 MiCOM Studio V3.1.1	P64x/EN M/C63
05	B	M/P	July 2013	▪ A new setting has been added to Enable/Disable Transient Bias feature of the DIFF element	MiCOM S1 V2.14 MiCOM Studio V3.1.1	P64x/EN M/C63
06	A	M/P	January 2014	▪ Addition of new model configurations for P643 and P645 ▪ Addition of second harmonic blocking for POC, EF and REF protection ▪ Setting and DDB names reworked	MiCOM S1 V2.14 MiCOM Studio V3.1.1 MiCOM S1 Agile V1.1	P64x-TM-EN-1

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06	B	M/P	April 2014	▪ Resolved issue of IEC 61850 application after frequent changes in data ▪ Resolved issue of temporary revision of setting group to Group 1 after downloading a settings file	MiCOM S1 V2.14 MiCOM Studio V3.1.1 MiCOM S1 Agile V1.1	P64x-TM-EN-1.1
06	C	M/P	January 2015	▪ Resolved issue of Peripheral Interface Adapter performance at 60 Hz when all protection functions are enabled ▪ Resolved issue of SRAM defect ▪ Russian translations in DR CFG are enhanced ▪ Resolved issue of CORTEC option and VTS logic in P643/5 ▪ Resolved issue of under frequency function operation during voltage change over	MiCOM S1 V2.14 MiCOM Studio V3.1.1 MiCOM S1 Agile V1.1	P64x-TM-EN-1.1
06	D	M/P	December 2015	▪ Resolved issue of overflow of Energy values ▪ Resolved issue of Virtual Output incorrect mapping ▪ Minor bug fixes	MiCOM S1 V2.14 MiCOM Studio V3.1.1 MiCOM S1 Agile V1.1	P64x-TM-EN-1.1
06	E	M/P		▪ Improvement in Russian language translation ▪ Support to New Enhanced Low Current Input Module (Sensitive CT module)		
07	A	M/P	December 2017	▪ Enhancement by Introducing Sensitive CTs as CORTEC options 3 and 4. These options will increase the upper limit of allowed Matching Factor to 20 ▪ Enhancement by introducing Voltage Restrained Overcurrent function ▪ Resolved Issues related to incorrect operation of SR gate and User Alarm ▪ Minor bug fixes ▪ Improved Russian language translation and Russian language P645 display error ▪ Resolved P642 and P645 RDF issues ▪ Additional fault record data (MLFR logical node) in IEC 61850 Edition 1 as per Edition 2	MiCOM S1 V2.14 MiCOM Studio V3.1.1 MiCOM S1 Agile V1.1	P64x-TM-EN-1.2
07	B	M/P	February 2018	▪ KEMA level B certificate ▪ Resolved issue of TN3 measurement display ▪ Resolved issue related to Cross Blocking ▪ Minor bug fixes	MiCOM S1 V2.14 MiCOM Studio V3.1.1 MiCOM S1 Agile V1.3.1	P64x-TM-EN-2.3
07	C	M/P		▪ Support to new Ethernet board ▪ IEC 61850 data model loses synchronisation with main board data model ▪ Intermittent loss of GOOSE Subscription		
07	D	M/P	July 2021	▪ Support for 20 IO model for P643 ▪ VRO>1 Trip & VRO>2 Trip DDBs added in default AnyTrip mapping ▪ Minor bug fixes related to IEC 61850 measurement reporting	MiCOM S1 Agile V2.0.1	
07	E	M/P	October 2023	▪ Correction to frequent logging of SNTP failure alarms ▪ Corrected DNP3.0 over Ethernet communication issue. DNP communication stops after several hours when a relay with a single Ethernet board (1-RJ45, 1-FO) is configured for failover ▪ No gap detection logic improvements during transformer inrush	MiCOM S1 Agile Version 2.0.2	P64x-TM-EN-4.4

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07	E	M/P	October 2023	▪ For CB fail neutral current function when the IN< Input is set to Derived the calculation of IN has been changed to IA+IB+IC from (IA+IB+IC)/3. Also, the IN per CT input is used instead of the winding inputs for HV, LV or TV as the relay has CB Fail per CT input ▪ Correction to clipping of the voltage channels in the disturbance record of the sensitive current versions	MiCOM S1 Agile Version 2.0.2	P64x-TM-EN-4.4
12	A	M	January 2013	▪ P645 only ▪ Deviates from version 04 (related to conventional instrument transformer analogue module) ▪ GOOSE Performance Enhancement ▪ Ethernet Failover ▪ SNTP Alarm ▪ Minor bug fixes	MiCOM S1 V2.14 MiCOM Studio V3.1.1	P645/P746-RNC1-TM-EN-1
12	B	M	January 2013	▪ P645 only ▪ Minor bug fixes	MiCOM S1 V2.14 MiCOM Studio V3.1.1	P645/P746-RNC1-TM-EN-1
20	A	M	January 2015	▪ P645 only ▪ Only IEC 61850 and DNP3OE protocols are supported ▪ 40TE case size only ▪ Support of IEC 61850 Edition 2 features ▪ Extended Logical Nodes ▪ Extended setting ranges for CBF and Overcurrent functions ▪ Further GOOSE speed enhancement ▪ Minor bug fixes	MiCOM S1 V2.14 MiCOM Studio V3.1.1 MiCOM S1 Agile V1.1	P645SV-AD-ED2-EN-1
21	B	M	September 2018	▪ This release is for P643 and IEC 61850 only ▪ IEC 61850 Edition 2 ▪ KEMA level B certificate ▪ Addition of the fourth neutral current element (Derived EF) ▪ Enhancement of CBF function by additional setting for internal/external initiation ▪ IRIG-B enhancement by additional time change UTC/Local feature ▪ Addition of CB control feature, excluding CB condition monitoring, and XCBR ▪ New DDBs for Password block ▪ Minor bug fixes	MiCOM S1 V2.14 MiCOM Studio V3.1.1 MiCOM S1 Agile V1.3.1 MiCOM S1 Agile V1.4	P64x-TM-EN-3
22	A	M	June 2018	▪ 40TE case size only ▪ This release is for P645 and IEC 61850 only ▪ Support of IEC 61850 Edition 2 features ▪ Inclusion of Duplicate GOOSE feature ▪ IRIG-B Local Sync function, for IRIG–B type changes from UTC to Local ▪ New DDB's added to indicate if the Password input is blocked ▪ Bug fixes and improvement	MiCOM S1 V2.14 MiCOM Studio V3.1.1 MiCOM S1 Agile V1.3.1 MiCOM S1 Agile V1.4	P645SV-AD-ED2-EN-2

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91	D	M	November 2019	▪ P642 and P643 only ▪ New Ethernet board support - new CORTEC options R/S/T. Improved traffic density handling, PRP, HSR and RSTP supported in the same order option for standardization. Modulated/demodulated IRIG-B also standardized. New dual RJ45 copper Ethernet option provides a more economical connection to switches ▪ Duplicate GOOSE detection ▪ IEC 61850 Ed1/Ed2 Switching ▪ Device RBAC ▪ Redundant Server RBAC ▪ Security event management via syslog ▪ Multi-Client Report ▪ Fixed Length GOOSE support	MiCOM S1 Agile Version 2.0.1	P64x-TM-EN-4
91	E	M	June 2020	▪ P642 and P643 only ▪ CS103 configurable points list ▪ REF CT Selection (an option to select Phase CT input for REF element) ▪ P645 only ▪ New Ethernet board support - new CORTEC options R/S/T. Improved traffic density handling, PRP, HSR and RSTP supported in the same order option for standardization. Modulated/demodulated IRIG-B also standardized. New dual RJ45 copper Ethernet option, provides a more economical connection to switches ▪ Duplicate GOOSE detection ▪ IEC 61850 Ed2 support ▪ Cybersecurity enhancements ▪ Role based access control (RBAC) for centralized authentication ▪ Authorization and account management via RADIUS, and directly on the relay ▪ Security event management via syslog ▪ IEC 61850 multi-client reporting ▪ Fixed Length GOOSE support ▪ Diff Phase Comparison to improve operating time during some of evolving faults ▪ CS103 configurable points list ▪ REF CT Selection (an option to select Phase CT input for REF element) ▪ Bug fixes	MiCOM S1 Agile Version 2.0.2	P64x-TM-EN-4.2
91	F	M/P	February 2023	▪ New P643 digital input/output CORTEC option added. Product Specific Option ‘P’ - size 12 (60TE) case, 20 optos + 20 relays ▪ New P643 digital input/output CORTEC option added. Product Specific Option ‘Q’ - size 16 (80TE) case, 16 optos + 24 relays (Including 8 High Break) ▪ New neutral current supervision element for low impedance biased Restricted Earth Fault (REF) element to improve stability for external faults causing phase CT saturation ▪ PSL graphics memory increased from 7K to 27920 bytes to support more graphical items such as Off Page Connectors (OPCs) in the PSL	MiCOM S1 Agile Version 2.0.2	P64x-TM-EN-4.4

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91	F	M/P	February 2023	▪ For CB fail neutral current function when the IN< Input is set to Derived the calculation of IN has been changed to IA+IB+IC from (IA+IB+IC)/3. Also, the IN per CT input is used instead of the winding inputs for HV, LV or TV as the relay has CB Fail per CT input ▪ No Gap detection logic improvements during transformer inrush ▪ Enhancements to IEC 61850 Ed2 for KEMA certification ▪ German translation corrections to menu database ▪ Matching Factor at which TV winding current is removed, changed from a matching factor of 0.05 to below 0.001 ▪ Correction to DDB signal 1594 '3Ph V/Hz>AlmSt' not operating ▪ Correction to frequency measurement at 60 Hertz when any current protection is enabled ▪ Correction to frequent logging of SNTP failure alarms	MiCOM S1 Agile Version 2.0.2	P64x-TM-EN-4.4
91	G	M/P	January 2024	▪ Fixed issue related to NIC No Response and NIC MemAlloc Fail Alarms if dataset contains CF elements (P642/3 only)	MiCOM S1 Agile Version 2.0.2	P64x-TM-EN-4.4
91	H	M/P	September 2025	▪ Increased the MMS_MAX_MSG_SIZE to 65536 from 16384. For V91 software IEDs, Multi Client Reports are supported and if a read is done on System LLN0, the server size may be exceeded	MiCOM S1 Agile Version 2.0.2	P64x-TM-EN-4.4
91	J	M/P	September 2025	▪ P642/3 models only ▪ Support for new Ethernet boards, U/W/Y options in the CORTEC order code ▪ Added LCCH logical node for IEC 61850 Ed1 and Ed2 data models for link status of Ethernet ports (NP2A, and NP2B) for the new Ethernet boards ▪ Added two DDBs to show link status of NP2A and NP2B ports on the new Ethernet boards ▪ Configuration of HSR/PRP/RSTP/Failover via IED configuration tool over MCL ▪ Rebranding of GE to GE Vernova in ICD template ▪ Fixed IEC 61850 Interoperability issue with Siemens clients ▪ Fixed issue where frequency setting - (courier cell [0009]) cannot be set to 60Hz from the default 50Hz value. ▪ IEC 61850 LN numbering changed from 01, 02, 03 to 1, 2, 3 etc. Use of 01, 02...09 numbering for IEC61850 LNs can prevent some 61850 data attributes from updating correctly ▪ Fixed issue where the IED stops IEC 61850 MMS reporting after sequences of IEC 61850 MMS controls to PloGGIO/SPCSO Controls Inputs, if these are configured with either: (1) SBO with enhanced security or (2) Direct Control with enhanced security ▪ Fixed cyber security vulnerability in TMW Library for DNP3.0 ▪ Increased the MMS_MAX_MSG_SIZE to 65536 from 16384. For V91 software IEDs, Multi Client Reports are supported and if a read is done on System LLN0, the server size may be exceeded ▪ IEC 61850 Association ServiceSupportedCalled includes support for obtainFile ▪ Fixed issue where relay should not send out CommandTermination - when the operation is positive and the value is changed in IEC 61850 DOes and SBOes	MiCOM S1 Agile Version 2.0.2	P64x-TM-EN-4.4

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91	J	M/P	September 2025	▪ Fixed issue where the control will now correctly fail when the device is in On Mode and the Control comes with the Test flag set ▪ Fixed IEC 61850 Ed2 issue where for a free BRCB, ResvTms must be >0 value if client does not write it ▪ Fixed issue where IEC 61850 Server has no respond for SetDataValues request on setSrcRef DA ▪ Fixed issue where the IRIG-B Status changes to 'Card Failed' from 'Signal Healthy' over a long connection ▪ Fixed issue related to NIC No Response and NIC MemAlloc Fail Alarms if dataset contains CF elements ▪ Fixed issue with malformed packet from P40 IEDs. One of the IEC 61850 Clients can occasionally give up the association with a P40 relay - In most cases this is observed after a control action from the client ▪ Fixed issue where if a user creates a dataset and adds SI units' data attributes under the CF functional constraint and configures the RBCB with that dataset and Enables RBCB with IED scout the connection to the relay is lost ▪ The CFG file has been updated to use the correct data scaling identifier, P. The data scaling identifier P (Primary) or S (Secondary) was previously S in the disturbance records. The analogue values stored in the DAT file are always in Primary ▪ Fixed issue with COMTRADE Format for MMS showing "1997" - should be "1999" ▪ Fixed occasional Ping Loss on the IEC 61850 IED ▪ Fixed issue with GOOSE Control Block (GCB) enable and CSWI controls which are failing when initiated only from "UniGrid" conformance test tool ▪ Fixed issue with frequent logging of short-duration 'SNTP Failure' Alarms ▪ Fixed issue with IED losing MMS Communication when EntryID/Buffer Overflow is selected for URCB ▪ Fixed issue with IEC 61850 Ed2 where SBO Cancel request is not processed when IED mode is Test blocked ▪ Fixed issue where some data changes are not reported via IEC 61850 if 'BufTm' is set > 0 ▪ Fixed issue with PTP Failure Alarm set and reset when there is single Link fail in PRP Network ▪ Fixed issue with ICD file for IEC 61850: 'valKind' of all 'ctlVal' should be "Set", not "RO" ▪ Fixed issue with change of the IED Mode which causes two IEC 61850 reports to be generated, the first one with the wrong timestamp and the second one with the correct timestamp ▪ Fixed issue where when the stNum of a 'duplicate' GOOSE that is being published without Sim Flag goes > the stNum of the 'real' GOOSE Publisher, the P40 subscriber switched over to the new stNum ▪ Fixed issue to be compliant to IEC 61850 Edition 2.1, where for LPHD.Sim and Mod, the test flag should be ignored, and the command should be executed with or without the test flag. Previous implementation of Edition 2 required the test flag to be present when LLN0.Mod is in Test for LPHD.Sim to be active	MiCOM S1 Agile Version 2.0.2	P64x-TM-EN-4.4

S/W Version Major	S/W Version Minor	H/W Version	Original Date of Issue	Description of Changes	S1 Compatibility	Technical Documentation
91	J	M/P	September 2025	▪ Fixed issue where with the device in Test/Blocked Mode and user sends a control with the test flag the user gets a message saying the control has executed, but there is no change in status of the Control Inputs or outputs ▪ Fixed issue with DST setting, the time is shifted by 60 minutes as per DST offset setting, but the 'Summertime' bit flag in IEC 103 protocol is not set ▪ Fixed issue with reset of User Alarms - Incorrect reset through Function Key when Binary Input is still energized ▪ Fixed issue with VLAN priority online value is different to the configuration file for non-configured GOCB ▪ Fixed issue where the VLAN priority online value is different to the configuration file for non-configured GOCB ▪ Fixed issue with Error Code and Reboot initiated if user copies the settings from Group1 to any other Group through the HMI ▪ Fixed issue where change of the IED's LPHD1.PhyHealth causes two IEC 61850 reports to be generated, the first one with the wrong timestamp and the second one with the correct timestamp ▪ Fixed issue where in some scenarios the IED may incorrectly not accept GOOSE when switched between normal and simulation, and 'OoSeqGo' DO may not be TRUE or may flicker between TRUE/FALSE ▪ Fixed issue where the Earth Fault values are shown in secondary values (Fault recorded Event on HMI & S1 Agile) if set to Primary ▪ Fixed issue with IEC 61850: ATVFlt logical node reporting issue (Quality failure) ▪ Fixed issue with abnormal values in the disturbance recorder measurements ▪ Fixed issue with assigned names of User Alarms not displayed in PSL Editor correctly ▪ Fixed issue where the P64x CB fail reset operation only depends on the current & not on the CB status or Protection reset when set to CB Open & I< or Prot Reset & I< ▪ Fixed issue where assigned Names of User Alarms are not displayed on HMI Screen of P64X relays	MiCOM S1 Agile Version 2.0.2	P64x-TM-EN-4.4

2 SOFTWARE VERSION COMPATIBILITY

IED S/W Version	Setting File Version	Menu Text File Version*8	PSL File Version
01	01, 02	01, 02	01, 02
02	01, 02	01, 02	01, 02
03	03	03	03
04	04	04	04
05	05	05	05
06	06	06	06
07	07	07	07
12	12	12	12
20	20	20	20
21	21	21	21
22	22	22	22
91	91	91	91

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

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