

OSCAT  
Revision History

Release	Modul name	Rev	Date	History
335	MONTH_TO_STRING	1.2	16.07.24	added boundary check to respect array limits, Fix for CVE-2024-6876
334	CONSTANTS_SETUP	1.1	03.02.21	corrected error in decades
334	CRC_GEN	2.1	03.02.21	new improved code by dennis koepeke
334	REVERSE	1.2	03.02.21	new improved code by rebler wolfgang
334	SET_DATE	2.4	03.02.21	new better readable code
334	CALENDAR_CALC	1.7	03.02.21	changed LDT to LOCAL_DT for compatibility with IEC61131-3
334	RTC_2	1.4	03.02.21	changed LDT to LOCAL_DT for compatibility with IEC61131-3
334	Calendar Struct	1.4	03.02.21	changed LDT, LDATE, LTOD to LOCAL_DT, LOCAL_DATE, LOCAL_TOD
333	REAL_TO_STRF	1.8	02.01.12	added input parameter D to pecify the decimal separator
333	_STRING_TO_BUFFER	1.4	02.01.12	functions now returns the next position after the input string
333	_BUFFER_INSERT	1.5	02.01.12	functions now returns the next position after the input string
333	SET_DATE	2.3	29.12.11	improved performance
333	RTC_2	1.4	27.04.11	fixed error with local time calculation
332	LIST_SORT_L			deleted Module
332	LIST_RETRIEVE_MIN			deleted Module
332	LIST_RETRIEVE_MAX			deleted Module
332	GEN_PULSE	1.5	08.04.11	PTL and PTH was exchanged
332	CALENDAR_CALC	1.6	06.04.11	night was calculated wrong
332	REAL_TO_FRAC	1.1	06.04.11	optimized code
332	FILTER_MAV_W	1.4	26.03.11	corrected an error formula
332	FACT	1.5	26.03.11	fact is using constants.math
332	CONSTANTS_MATH	1.1	26.03.11	added array facts
332	DATE_ADD	1.8	22.03.11	corrected error in formula
332	LIST_RETRIEVE_LAST	2.0	21.03.11	new Module
332	LIST_SORT_L	2.0	21.03.11	every element starts with SEP
332	LIST_RETRIEVE_MAX	2.0	21.03.11	every element starts with SEP
332	LIST_RETRIEVE_MIN	2.0	21.03.11	every element starts with SEP
332	LIST_RETRIEVE	2.0	21.03.11	every element starts with SEP
332	LIST_NEXT	2.0	21.03.11	every element starts with SEP
332	LIST_LEN	2.0	21.03.11	every element starts with SEP
332	LIST_INSERT	2.0	21.03.11	every element starts with SEP
332	LIST_GET	2.0	21.03.11	every element starts with SEP
332	LIST_CLEAN	2.0	21.03.11	every element starts with SEP
332	LIST_ADD	2.0	21.03.11	new module
332	MAX3	1.1	18.03.11	improved performance
332	MIN3	1.1	18.03.11	improved performance
332	MID3	1.2	18.03.11	improved performance
332	F_POLY	1.1	18.03.11	improved performance
332	F_QUAD	1.1	18.03.11	improved performance
332	ONTIME	2.5	18.03.11	reset was not working
331	_RMP_B	1.2	19.02.11	new enhanced code
331	FRMP_B	1.0	17.01.11	new module
331	CLK_PULSE	1.2	16.02.11	corrected an error when timer overflows
331	GEN_SQ	1.3	16.02.11	corrected an error when timer overflows
331	GEN_PULSE	1.4	16.02.11	corrected an error when timer overflows
330	CALENDAR_CALC	1.5	02.02.11	added input H to specify twilight
330	DATE_ADD	1.7	02.02.11	fixed a problem, W was not calculated
330			02.02.11	removed building code in external library
321	LEAP_OF_DATE	1.4	28.01.11	improved performance
321	DAY_OF_YEAR	1.4	28.01.11	improved performance
321	DATE_ADD	1.6	27.01.11	improved performance
321	TIMER_P4	1.4	26.01.11	changed code to allow events over midnight
321	TIMER_EVENT	1.1	26.01.11	changed type of last to DT
321	SUN_TIME	1.7	25.01.11	using function sun_midday Changed calculation of sun_declination Changed input utc from DT to Date Added input H
321	SUN_MIDDAY	1.0	25.01.11	new module
321	FILTER_W	1.2	25.01.11	fixed error in formula
321	BUFFER_SEARCH	1.4	19.01.11	Return -1 if nothing found lgn=true will ignore case
321	DAYS_DELTA	1.3	25.01.11	improved performance
321	DST	1.5	24.01.11	improved performance
321	LEAP_DAY	1.2	24.01.11	improved performance
321	YEAR_END	1.1	24.01.11	improved performance

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321	BLIND_ACTUATOR	1.4	08.03.10	position before control
321	BLIND_CONTROL	1.5	08.03.10	position before control Delta := sene / 2
321	HEAT_METER	1.10	23.01.11	fixed a problem with pulse_mode
321	FLOW_METER	1.0	23.01.11	new module
321	SET_DATE	2.2	22.01.11	improved performance
321	NETWORK_BUFFER		21.01.11	deleted unused data structure
321	URL		21.01.11	deleted unused data structure
321	COUNT_SUBSTRING	1.0	20.01.11	new module
321	RTC_2	1.3	20.01.11	changed offset from hours to minutes
321	_BUFFER_UPPERCASE	1.0	20.01.11	new Module
321	CHK_REAL	1.0	20.01.11	new module
321	COUNT_DR	1.1	20.01.11	corrected init value to 16#FFFFFFFF
321	Global_Constants		20.01.11	removed nework buffers Added list_length
321	REAL_TO_FRAC	1.0	19.01.11	new module
321	GCD	1.0	19.01.11	new module
321	_ARRAY_SORT	2.0	19.01.11	new faster algorithm using quicksort
321	DEW_CON	1.6	19.01.11	Return 0 if RH <= 0
321	LIST_SORT_L	1.2	19.01.11	changed string(255) to string(list_length)
321	LIST_SORT_L	1.2	19.01.11	changed string(255) to string(list_length)
321	LIST_RETRIEVE_MIN	1.1	19.01.11	changed string(255) to string(list_length)
321	LIST_RETRIEVE_MAX	1.1	19.01.11	changed string(255) to string(list_length)
321	LIST_RETRIEVE	1.1	19.01.11	changed string(255) to string(list_length)
321	LIST_NEXT	1.1	19.01.11	changed string(255) to string(list_length)
321	LIST_LEN	1.2	19.01.11	changed string(255) to string(list_length)
321	LIST_INSERT	1.2	19.01.11	changed string(255) to string(list_length)
321	LIST_GET	1.1	19.01.11	changed string(255) to string(list_length)
321	LIST_CLEAN	1.1	19.01.11	changed string(255) to string(list_length)
321	FT_PT1	1.11	18.01.11	avoid underrun of out
321	SCALE_R	1.2	18.01.11	avoid division by 0
321	SCALE_D	1.2	18.01.11	avoid division by 0
321	SCALE_B	1.1	18.01.11	avoid division by 0
321	DEAD_BAND	1.2	18.01.11	Assign 0 before return
321	CONSTANTS_LOCATION	1.2	18.01.11	added spoken language Deleted holidays for more flexibility
321	CALENDAR_CALC	1.4	18.01.11	added input holidays to specify local holidays Changed call of function sun_time dt >> date
321	HOLIDAY	2.0	18.01.11	using user specified array for holidays Friday, saturday and sunday is also displayed on output name
321	EVENTS	1.0	18.01.11	New Module
321	ONTIME	2.4	17.01.11	init will not clear ontime and cycles, only rst clears these values
321	REFLECT	1.0	16.01.11	New Module
321	CRC_CHECK		16.01.11	Deleted and replaced by CRC_GEN
321	CRC_GEN	2.0	16.01.11	New code and features
321	Tank_VOL2	1.0	10.03.10	New Module
321	Tank_VOL1	1.0	10.03.10	New Module
321	CIRCLE_SEG	1.0	10.03.10	New Module
321	ACTUATOR_3P	2.0	29.01.10	new features and new code
321	CALENDAR_CALC	1.3	23.01.10	sun_rise, sun_set and sun_midday are now calculated in local time
321	CALENDAR	1.3	23.10.10	sun_rise, sun_set and sun_midday are now in local time
321	BLIND_CONTROL_S	1.2	23.01.10	fixed a bug during calibration Added T_UP and T_DN
321	ENERGY	1.2	16.01.10	avoid the string cal in comments for codesys import bug
321	TIMER_1	2.2	16.12.09	fixed error over midnight
321	ESR_MON_X8	1.2	01.12.09	changed ESR_OUT to be I/O
321	ESR_MON_R4	1.4	01.12.09	changed ESR_OUT to be I/O
321	ESR_MON_B8	1.3	01.12.09	changed ESR_OUT to be I/O
321	ESR_COLLECT	1.4	01.12.09	changes pos to be I/O Changed output array size to 32 elements
320			24.11.09	Network Components exported into Network Library
311	Global_Constants		13.11.09	added network short and long size Default string_length = 250
311	FT_PIDWL	1.3	13.11.09	fixed code for negative KP
311	GEN_PULSE	1.3	13.11.09	corrected error
311	HEAT_METER	1.9	13.11.09	C is now calculated correctly
311	LTIME_TO_UTC	1.7	13.11.09	corrected an error formula
311	ESR_COLLECT	1.3	12.11.09	output pos was not pointing to last value

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311	_BUFFER_INSERT	1.4	12.11.09	code optimization
311	_STRING_TO_BUFFER	1.3	12.11.09	limit end to size - 1
311	BUFFER_COMP	1.1	12.11.09	improved performance
311	BUFFER_SEARCH	1.3	12.11.09	limit end to array size
311	BUFFER_TO_STRING	1.5	12.11.09	limit start and stop to size of array
311	BLIND_SHADE_S	1.0	12.11.09	New Module
311	BLIND_INPUT	1.7	12.11.09	added state 139 set defaults for QU, QD, PO
311	GRAY_TO_BYTE	1.0	09.11.09	New Module
311	BYTE_TO_GRAY	1.0	09.11.09	New Module
311	TREND	1.0	21.08.09	new Module
311	SDT_NH3	1.0	20.08.09	new Module
311	SDD_NH3	1.0	20.08.09	new Module
311	K_TO_C	1.1	19.08.09	fixed error in calculation
311	C_TO_K	1.1	19.08.09	fixed error in calculation
310	BLIND_CONTROL_S	1.1	27.07.09	major code changes and updates
310	HEAT_METER	1.8	27.07.09	output C is now calculated in J/h
310	BLIND_CONTROL	1.4	27.07.09	changed status management
310	BLIND_ACTUATOR	1.3	27.07.09	changes status to be 12X
310	BLIND_SET	1.0	27.07.09	new Module
310	BLIND_INPUT	1.6	27.07.09	changed status 0 to 130
310	BIN_TO_DWORD	1.2	26.07.09	optimized code
310	BIN_TO_BYTE	1.2	26.07.09	optimized code
310	SUN_TIME	1.6	26.07.09	fixed a problem with wrong midday calculation
310	STACK_32	2.0	25.07.09	changed inputs to allow simultaneous read and write
310	STACK_16	2.0	25.07.09	changed inputs to allow simultaneous read and write
310	FIFO_32	2.0	24.07.09	changed inputs to allow read and write in one cycle
310	FIFO_16	2.0	24.07.09	changed inputs to allow read and write in one cycle
310	TANK_LEVEL	1.1	24.07.09	changed parameters of tonof
310	TONOF	1.2	21.07.09	fixed a timing problem
310	TIMECHECK	1.0	19.07.09	new Module
310	METER_STAT	1.3	18.07.09	changed all outputs to be I/O
310	DWORD_OF_WORD	1.0	18.07.09	new Module
310	WORD_OF_BYTE	1.4	18.07.09	added type conversions for compatibility reasons
310	DWORD_OF_BYTE	1.3	18.07.09	added type conversions for compatibility reasons
310	GEN_SQ	1.2	18.07.09	improved accuracy
310	MULTI_IN	1.4	18.07.09	improved performance
310	_RMP_NEXT	1.4	18.07.09	improved performance
310	GEN_PULSE	1.2	18.07.09	improved performance
305	DATE_ADD	1.5	29.03.09	improved performance
305	DEC_8	1.3	28.03.09	replaced multiple assignments
305	DAYS_IN_YEAR	1.0	27.03.09	new Module
305	DAYS_IN_MONTH	1.0	27.03.09	new Module
305	MONTH_OF_DATE	1.3	27.03.09	new improved code
305	BUFFER_TO_STRING	1.4	23.03.09	avoid writing to input stop
305	_BUFFER_INSERT	1.3	23.03.09	avoid writing to input pos
305	DRIVER_4C	1.0	23.03.09	New Module
305	HEAT_METER	1.7	23.03.09	real constants updated to new syntax using dot Corrected error in formula
305	DELAY	1.5	23.03.09	corrected non standard write to input N
305	DIMM_2	1.0	22.03.09	New Module
305	METER	1.4	18.03.09	last was not updated Code improvements
305	FIFO_32	1.4	14.03.09	replaced double assignments
305	FIFO_16	1.4	14.03.09	replaced double assignments
305	SCHEDULER	1.1	14.03.09	replaced double assignments
305	GEN_BIT	1.2	14.03.09	replaced double assignments
305	CLICK_DEC	1.1	14.03.09	replaced double assignments
305	STORE_8	1.2	14.03.09	replaced double assignments
305	LTCH_4	1.3	14.03.09	replaced double assignments
305	SHR_8UDE	1.2	14.03.09	replaced double assignments
305	SHR_4UDE	1.2	14.03.09	replaced double assignments
305	FF_D4E	1.3	14.03.09	replaced double assignments
305	FF_D2E	1.3	14.03.09	replaced double assignments
305	TREND_DW	1.2	14.03.09	replaced double assignments
305	GEN_PW2	1.1	14.03.09	replaced double assignments
305	MANUAL_1	1.2	14.03.09	replaced double assignments

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305	INTERLOCK_4	1.1	14.03.09	replaced double assignments
305	CONSTANTS_PHYS	1.1	13.03.09	real constants updated to new systax using dot
305	SEQUENCE_8	1.5	13.03.09	renamed output any to qx for compatibility reasons
305	SEQUENCE_4	1.5	13.03.09	renamed output any to qx for compatibility reasons
305	AIR_DENSITY	1.3	13.03.09	real constants updated to new systax using dot
305	BOILER	1.2	13.03.09	real constants updated to new systax using dot replaced double assignments
305	DEW_CON	1.5	13.03.09	real constants updated to new systax using dot
305	DEW_RH	1.2	13.03.09	real constants updated to new systax using dot
305	DEW_TEMP	1.6	13.03.09	real constants updated to new systax using dot function will now return -273.15 °C for RH = 0
305	HEAT_INDEX	1.3	13.03.09	real constants updated to new systax using dot
305	HEAT_TEMP	1.2	13.03.09	real constants updated to new systax using dot
305	LEGIONELLA	1.3	13.03.09	real constants updated to new systax using dot using new module sequence_8
305	T_AVG24	1.2	13.03.09	improved code
305	TEMP_EXT	1.3	13.03.09	real constants updated to new systax using dot
305	WATER_CP	1.2	13.03.09	real constants updated to new systax using dot
305	WATER_DENSITY	1.2	13.03.09	real constants updated to new systax using dot
305	WATER_ENTHALPY	1.1	13.03.09	real constants updated to new systax using dot
305	WCT	1.2	13.03.09	real constants updated to new systax using dot
305	BLIND_SHADE	1.4	13.03.09	improved code
305	TUNE2	1.2	11.03.09	real constants updated to new systax using dot
305	TUNE	1.2	11.03.09	real constants updated to new systax using dot
305	SRAMP	1.1	11.03.09	real constants updated to new systax using dot
305	CONTROL_SET1	1.1	11.03.09	real constants updated to new systax using dot
305	CONTROL_SET2	1.1	11.03.09	real constants updated to new systax using dot
305	DEAD_BAND_A	1.1	11.03.09	real constants updated to new systax using dot
305	DEAD_ZONE	1.2	11.03.09	real constants updated to new systax using dot
305	DEAD_ZONE2	1.1	11.03.09	real constants updated to new systax using dot
305	FT_DERIV	1.5	11.03.09	improved code
305	FT_INT2	1.2	11.03.09	real constants updated to new systax using dot
305	FT_PID	2.1	11.03.09	real constants updated to new systax using dot
305	FT_PIDW	1.2	11.03.09	real constants updated to new systax using dot
305	FT_PIDWL	1.2	11.03.09	real constants updated to new systax using dot
305	FT_PIWL	1.3	11.03.09	real constants updated to new systax using dot
305	FT_PT1	1.10	11.03.09	real constants updated to new systax using dot
305	FT_PT2	1.5	11.03.09	real constants updated to new systax using dot
305	SPEED	1.1	11.03.09	improved code
305	PT_TP_F	1.1	11.03.09	real constants updated to new systax using dot
305	PRESSURE	1.1	11.03.09	improved code
305	LENGTH	1.1	11.03.09	improved code
305	F_TO_PT	1.1	11.03.09	real constants updated to new systax using dot
305	F_TO_C	1.1	11.03.09	real constants updated to new systax using dot
305	ENERGY	1.1	11.03.09	improved code
305	C_TO_F	1.1	11.03.09	real constants updated to new systax using dot
305	ASTRO	1.1	11.03.09	improved code
305	TC_S	1.2	11.03.09	real constants updated to new systax using dot
305	METER_STAT	1.2	11.03.09	real constants updated to new systax using dot
305	M_TX	1.4	11.03.09	real constants updated to new systax using dot
305	CALIBRATE	1.3	11.03.09	real constants updated to new systax using dot
305	ALARM_2	1.1	11.03.09	improved code
305	TEMP_PT	1.7	11.03.09	real constants updated to new systax using dot
305	TEMP_NTC	1.1	11.03.09	real constants updated to new systax using dot
305	SENSOR_INT	1.3	11.03.09	real constants updated to new systax using dot
305	RES_SI	1.2	11.03.09	real constants updated to new systax using dot
305	RES_PT	1.3	11.03.09	real constants updated to new systax using dot
305	RES_NTC	1.1	11.03.09	real constants updated to new systax using dot
305	MULTI_IN	1.3	11.03.09	real constants updated to new systax using dot
305	PWM_PW	1.5	11.03.09	real constants updated to new systax using dot
305	PWM_DC	1.4	11.03.09	real constants updated to new systax using dot
305	GEN_SQR	1.4	11.03.09	real constants updated to new systax using dot set default amplitude to 1.0
305	GEN_SIN	1.6	11.03.09	real constants updated to new systax using dot
305	GEN_RMP	1.4	10.03.09	real constants updated to new systax using dot
305	WORD_TO_RANGE	1.1	10.03.09	improved code
305	STAIR2	1.4	10.03.09	real constants updated to new systax using dot
305	STAIR	1.4	10.03.09	real constants updated to new systax using dot

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305	SH_2	1.6	10.03.09	added type conversion for compatibility reasons
305	SEL2_OF_3	1.1	10.03.09	improved code
305	MIX	1.1	10.03.09	real constants updated to new systax using dot
305	FILTER_WAV	1.2	10.03.09	real constants updated to new systax using dot
305	AIN1	1.3	10.03.09	real constants updated to new systax using dot
305	ARRAY_VAR	1.3	10.03.09	added type conversion for compatibility reasons
305	ARRAY_TREND	1.3	10.03.09	added type conversion for compatibility reasons
305	ARRAY_HAV	1.1	10.03.09	real constants updated to new systax using dot
305	ARRAY_GAV	1.1	10.03.09	real constants updated to new systax using dot
305	ARRAY_AVG	1.3	10.03.09	added type conversion for compatibility reasons
305	CTANH	1.1	10.03.09	new faster code
305	CTAN	1.1	10.03.09	new faster code
305	R2_SET	1.1	10.03.09	real constants updated to new systax using dot
305	R2_ABS	1.1	10.03.09	real constants updated to new systax using dot
305	IP4_TO_STRING	1.1	10.03.09	improved code
305	POLYNOM_INT	1.3	10.03.09	real constants updated to new systax using dot
305	FT_AVG	1.5	10.03.09	added type conversion for compatibility reasons
305	TRIANGLE_A	1.2	10.03.09	real constants updated to new systax using dot
305	ELLIPSE_C	1.2	10.03.09	real constants updated to new systax using dot
305	V3_ZANG	1.1	10.03.09	real constants updated to new systax using dot
305	V3_YANG	1.1	10.03.09	real constants updated to new systax using dot
305	V3_XANG	1.1	10.03.09	real constants updated to new systax using dot
305	V3_PAR	1.1	10.03.09	real constants updated to new systax using dot
305	V3_NUL	1.1	10.03.09	real constants updated to new systax using dot
305	V3_NORM	1.1	10.03.09	real constants updated to new systax using dot
305	V3_ANG	1.1	10.03.09	real constants updated to new systax using dot
305	SUN_TIME	1.5	10.03.09	improved code Calculation is done on every call to allow for moving installations
305	TANH	1.3	10.03.09	real constants updated to new systax using dot
305	TANC	1.1	10.03.09	real constants updated to new systax using dot
305	SQRTN	1.3	10.03.09	real constants updated to new systax using dot
305	SIGN_R	1.4	10.03.09	real constants updated to new systax using dot
305	SINC	1.2	10.03.09	real constants updated to new systax using dot
305	SIGMOID	1.2	10.03.09	real constants updated to new systax using dot
305	RND	1.2	10.03.09	real constants updated to new systax using dot
305	RDM	1.9	10.03.09	real constants updated to new systax using dot
305	MODR	1.5	10.03.09	real constants updated to new systax using dot
305	LANGEVIN	1.2	10.03.09	real constants updated to new systax using dot
305	LAMBERT_W	1.1	10.03.09	real constants updated to new systax using dot
305	INV	1.1	10.03.09	real constants updated to new systax using dot
305	GOLD	1.1	10.03.09	real constants updated to new systax using dot
305	GDF	1.2	10.03.09	real constants updated to new systax using dot
305	GAUSSCD	1.1	10.03.09	real constants updated to new systax using dot
305	GAUSS	1.2	10.03.09	real constants updated to new systax using dot
305	GAMMA	1.3	10.03.09	real constants updated to new systax using dot
305	FRACT	1.3	10.03.09	real constants updated to new systax using dot
305	ERFC	1.1	10.03.09	real constants updated to new systax using dot
305	ERF	1.3	10.03.09	real constants updated to new systax using dot
305	DEG	1.2	10.03.09	real constants updated to new systax using dot
305	D_TRUNC	1.2	10.03.09	real constants updated to new systax using dot
305	COTH	1.4	10.03.09	real constants updated to new systax using dot
305	COSH	1.3	10.03.09	real constants updated to new systax using dot
305	CMP	1.1	10.03.09	added type conversion for compatibility reasons
305	CEIL2	1.3	10.03.09	use correct statement real_to_DINT
305	ATANH	1.2	10.03.09	real constants updated to new systax using dot
305	ATAN2	1.2	10.03.09	real constants updated to new systax using dot
305	ASINH	1.3	10.03.09	real constants updated to new systax using dot
305	AGDF	1.1	10.03.09	real constants updated to new systax using dot
305	ACOTH	1.2	10.03.09	real constants updated to new systax using dot
305	ACOSH	1.3	10.03.09	real constants updated to new systax using dot
305	TEMP_SI	1.5	10.03.09	removed nested comments
305	TEMP_NI	1.5	10.03.09	removed nested comments
305	M_T	1.4	10.03.09	removed nested comments Removed double ssignments
305	FT_INT	2.2	10.03.09	removed nested comments
305	EXPN	1.2	10.03.09	removed nested comments Real constants written with dot
305	DAY_OF_MONTH	2.1	10.03.09	removed nested comments

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305	CRC_GEN	1.5	10.03.09	removed nested comments
305	IS_IP4	1.1	10.03.09	new code
305	IP4_DECODE	1.1	10.03.09	new faster algorithm
305	CALENDAR_CALC	1.2	10.03.09	added calculation of work_week, sun_midday, sun_heighth sun_position will onlx be calculated once per 25 seconds when SPE = TRUE dst will only become true when dst_en = true
305	CALENDAR	1.2	10.03.09	added work_week, sun_midday, sun_heighth
305	BLIND_CONTROL_S	1.0	09.03.09	new Module
305	_RMP_NEXT	1.3	09.03.09	input E was ignored Removed double assignments
305	DT_SIMU	1.2	08.03.09	added increment by cycle mode
305	SUN_POS	2.1	07.03.09	refraction is added after angle is normalized deleted 10 second lockout added output for astronomical heighth h
305	REFRACTION	1.1	07.03.09	using new formula
304	TIMER_P4	1.3	28.02.09	array was not correctly initialized
304	UTC_TO_LTIME	1.9	27.02.09	added type conversions to avoid warnings under codesys 3.0
304	SUN_POS	2.0	23.01.09	new code with better accuracy
304	LTIME_TO_UTC	1.6	27.02.09	added type conversions to avoid warnings under codesys 3.0
304	SELECT_8	1.1	27.02.09	renamed input en to e
304	M_TX	1.3	27.02.09	deleted unnecessary init with 0
304	M_D	1.2	27.02.09	deleted unnecessary init with 0
304	REAL_TO_STRF	1.7	27.02.09	added a missing zero for IN < 1
304	SECOND_TO_TIME	1.2	24.02.09	renamed input to IN
304	MINUTE_TO_TIME	1.2	24.02.09	renamed input to IN
304	HOUR_TO_TIME	1.2	24.02.09	renamed input to IN
304	DAY_TO_TIME	1.1	24.02.09	renamed input to IN
304	FILTER_MAV_W	1.3	23.02.09	limit N to max array index
304	FILTER_MAV_DW	1.3	23.02.09	limit N to max array index
304	INC1	1.2	23.02.09	when inc1 is called with X >= N inc will continue with 0
304	DELAY	1.4	23.02.09	corrected an index problem
304	_RMP_NEXT	1.2	20.02.09	improved algorithm and added T_L
304	TREND_DW	1.1	20.02.09	added outputs TU, TD and D
304	BLIND_SHADE	1.3	08.02.09	added calendar data structure Added shading position to be configured
304	CALENDAR_CALC	1.1	08.02.09	corrected wrong night calculation Added sun position data
304	CALENDAR	1.1	08.02.09	added sun position data
304	METER	1.3	08.02.09	changed MX to be I/O Make sure calculation works for cycle times < 1ms
304	HEAT_METER	1.6	08.02.09	changed output Y to I/O
304	LAMBERT_W	1.0	08.02.09	New Module
304	T_AVG24	1.1	08.02.09	added outputs T24_MIN and T24_MAX Changed sign of input OFS
304	DIMM_I	2.3	26.01.09	dimming will reverse at 0 Rst will override set
304	FT_PIDWL	1.1	25.01.09	multiply differential part with KP
304	FT_PIWL	1.2	25.01.09	now also works with negative K
304	SCALE_X8	1.2	24.01.09	corrected error in formula
304	FADE	1.3	24.01.09	delted unused var FF
304	ACTUATOR_2P	2.1	24.01.09	deleted unused var inb
304	_RMP_NEXT	1.1	24.01.09	deletes unused vars tmp1 and tmp2
304	GEO_TO_DEG	1.0	22.01.09	New Module
304	BLIND_INPUT	1.5	22.01.09	added auto mode for IN Added pulse mode for D1 and D2
304	TO_UPPER	1.3	16.01.09	corrected an error in module
303	TEMP_NTC	1.0	30.12.08	New Module
303	RES_NTC	1.0	30.12.08	New Module
303	CLICK	2.0	28.12.08	new code using library modules
303	CONSTANTS_LOCATION	1.1	23.12.08	added french holidays
303	CONSTANTS_LANGUAGE	1.2	23.12.08	added french language
303	TIMER_2	1.5	22.12.08	make sure timer_2 is executed in the first cycle
303	URL_DECODE	1.1	17.12.08	changed function CHR to CHR_TO_STRING
303	TO_UML	1.1	17.12.08	changed function CHR to CHR_TO_STRING
303	LIST_SORT_L	1.1	17.12.08	changed function CHR to CHR_TO_STRING
303	LIST_INSERT	1.1	17.12.08	changed function CHR to CHR_TO_STRING
303	HTML_DECODE	1.2	17.12.08	changed function CHR to CHR_TO_STRING
303	FILL	1.1	17.12.08	changed function CHR to CHR_TO_STRING

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303	CHARNAME	1.4	17.12.08	changed function CHR to CHR_TO_STRING
303	CHR_TO_STRING	1.3	17.12.08	changed name of function chr to chr_to_string
303	SUN_POS	1.6	17.12.08	angles below horizon are displayed in negative degrees
303	ONTIME	2.3	17.12.08	fixed an error when in would be true for more then 49 days
303	M_T	1.3	17.12.08	code optimization
303	TP_X	1.3	17.12.08	code optimization
303	FADE	1.2	17.12.08	FADE input F was inverted
303	F_LIN2	1.1	17.12.08	optimized formula
303	_RMP_NEXT	1.0	24.11.08	New Module
303	FILTER_MAV_W	1.2	24.11.08	added type conversions for compatibility reasons avoid divide by 0 f N = 0
303	FILTER_MAV_DW	1.2	24.11.08	added type conversions for compatibility reasons avoid divide by 0 f N = 0
303	ACTUATOR_2P	2.0	23.11.08	new code using library modules
303	GEN_PULSE	1.1	23.11.08	added default enq = TRUE
303	MANUAL	1.0	21.11.08	New Module
303	BAND_B	1.0	21.11.08	New Module
303	TREND_DW	1.0	21.11.08	New Module
303	AUTORUN	1.0	20.11.08	New Module
303	_RMP_W	1.1	20.11.08	set default for E to be TRUE added Init code
303	_RMP_B	1.1	20.11.08	set default for E to be TRUE added Init code
303	SDT_TO_TOD	1.1	16.11.08	chaged typecasts to avoid warnings
303	ONTIME	2.2	16.11.08	chaged typecasts to avoid warnings
303	DT_SIMU	1.1	16.11.08	added type conversions for compatibility reasons
303	T_PLC_MS	1.2	16.11.08	initialized constants with 0 for compatibility reasons
303	T_PLC_US	1.2	16.11.08	initialized constants with 0 for compatibility reasons
303	GLOBAL CONSTANTS		16.11.08	moved structured constants to global vars for compatibility reasons
303	DIMM_I	2.2	16.11.08	added Reset Out feature
302	BUFFER_COMP	1.0	14.11.08	New Module
302	DIMM_I	2.1	14.11.08	added soft_dimm feature
302	CLICK_MODE	1.0	13.11.08	New Module
302	SCALE_R	1.1	13.11.08	corrected formula for negative gradient
302	SCALE_D	1.1	13.11.08	corrected formula for negative gradient
302	ONTIME	2.1	10.11.08	increased internal resolution to milliseconds
302	FILTER_I	1.0	08.11.08	New Module
302	ACTUATOR_A	1.0	08.11.08	New Module
302	TIMER_EXT	1.1	06.11.08	added default = true for ena input
302	FT_DERIV	1.4	06.11.08	optimized code for better performance
302	TIMER_1	2.1	06.11.08	set defaults for inputs day and e, improved performance
302	HEAT_METER	1.5	06.11.08	changed to FT_INT2 to avoid overrun at hig values
302	FT_PIDW	1.1	05.11.08	rewritten code using integrate
302	FT_INT2	1.1	05.11.08	rewritten code using integrate
302	CTRL_OUT	1.1	05.11.08	optimized code for better performance
302	FT_INT	2.1	03.11.08	optimized code using integrate
302	D_TRUNC	1.2	03.11.08	deleted unused variable check
302	INTEGRATE	1.0	03.11.08	New Module
302	FT_PT2	1.4	03.11.08	optimized code and fixed a problem with init
302	FILTER_DW	1.1	03.11.08	fixed overflow problem in formula
302	FILTER_W	1.1	03.11.08	fixed overflow problem in formula
302	CYCLE_4	1.0	03.11.08	New Module
302	SCALE_B8	1.4	03.11.08	used wrong factor in formula
302	SCALE_B4	1.4	03.11.08	used wrong factor in formula
302	SCALE_B2	1.4	03.11.08	used wrong factor in formula
302	T_AVG24	1.0	03.11.08	New Module
301	TEMP_PT	1.6	31.10.08	optimized code for better performance
301	_BUFFER_INIT	1.2	31.10.08	corrected an error while routine would write outside of arrays
301	_BUFFER_CLEAR	1.2	31.10.08	corrected an error while routine would write outside of arrays
301	D_TRUNC	1.1	31.10.08	optimized code for better performance
301	MODR	1.4	31.10.08	changed algorithm to the more common version using floor instead of TRUNC
301	PIN_CODE	1.0	30.10.08	New Module
301	BYTE_OF_DWORD	1.2	30.10.08	optimized code for better performance
301	WORD_OF_DWORD	1.2	30.10.08	optimized code for better performance
301	TOGGLE	1.1	30.10.08	deleted unnecessary init with 0
301	STORE_8	1.1	30.10.08	optimized code for better performance
301	LTCH_4	1.2	30.10.08	deleted unnecessary init with 0
301	LTCH	1.2	30.10.08	deleted unnecessary init with 0

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301	FF_JKE	1.2	30.10.08	optimized code for better performance
301	FF_DRE	1.2	30.10.08	optimized code for better performance
301	FF_D4E	1.2	30.10.08	deleted unnecessary init with 0
301	FF_D2E	1.2	30.10.08	deleted unnecessary init with 0
301	MESSAGE_4R	1.1	27.10.08	changed _INC to INC1
301	FILTER_WAV	1.1	27.10.08	changed _DEC and _INC to DEC1 and INC1
301	FILTER_MAV_W	1.1	27.10.08	added typecast to avoid warnings
301	FILTER_MAV_DW	1.1	27.10.08	added typecast to avoid warnings
301	FIFO_32	1.3	25.10.08	optimized code for better performance
301	FIFO_16	1.3	25.10.08	optimized code for better performance
301	STACK_32	1.3	25.10.08	optimized code for better performance
301	STACK_16	1.3	25.10.08	optimized code for better performance
301	ESR_COLLECT	1.1	27.10.08	optimized code for better performance
301	DELAY	1.3	27.10.08	performance improvement
301	INC1	1.1	27.10.08	New Module, replacing _INC1
301	DEC1	1.1	27.10.08	New Module, replacing _DEC1
301	SIGN_I	1.3	27.10.08	optimized code for better performance
301	GAUSS	1.1	27.10.08	optimized code for better performance
301	FT_PIWL	1.1	27.10.08	integrator will not be adjusted when ki = 0
301	FACT	1.4	27.10.08	optimized code for better performance
301	CAUCHYCD	1.0	26.10.08	New Module
301	CAUCHY	1.0	26.10.08	New Module
301	NEGX	1.0	26.10.08	New Module
301	INV	1.0	26.10.08	New Module
301	BETA	1.0	26.10.08	New Module
301	GAMMA	1.2	26.10.08	optimized code for better performance Improved accuracy for small values by a factor > 1000
301	CONSTANTS_MATH	1.0	26.10.08	Added 1 / pi and 1 / e
301	MATRIX	1.3	26.10.08	changed input bit to val for compatibility reasons
301	DEC_8	1.2	26.10.08	changed input bit to val for compatibility reasons
301	SCALE_B8	1.3	26.10.08	changed input bit to val for compatibility reasons
301	SCALE_B4	1.3	26.10.08	changed input bit to val for compatibility reasons
301	SCALE_B2	1.3	26.10.08	changed input bit to val for compatibility reasons
301	STAIR2	1.3	26.10.08	changed input bit to val for compatibility reasons
301	STAIR	1.3	26.10.08	changed input bit to val for compatibility reasons
301	SCALE_X2	1.1	26.10.08	optimized code for better performance
301	RND	1.1	26.10.08	optimized code for better performance
301	RMP_SOFT	3.0	26.10.08	New code using _RMP_B
301	GEN_RMP	1.3	26.10.08	optimized code for better performance
301	TO_UPPER	1.2	25.10.08	optimized code for better performance
301	TO_LOWER	1.2	25.10.08	optimized code for better performance
301	CLK_PRG	1.3	25.10.08	optimized code for better performance
301	SHR8_UDE	1.1	25.10.08	optimized code for better performance
301	SHR4_UDE	1.1	25.10.08	optimized code for better performance
301	SHR_4E	1.1	25.10.08	optimized code for better performance
301	ROUND	1.5	25.10.08	optimized code for better performance using constant decades
301	A_TRIG	1.1	25.10.08	optimized code for better performance A_TRIG now works for res = 0
301	RND	1.1	25.10.08	optimized code for better performance
301	FSTRING_TO_MONTH	1.2	25.10.08	optimized code for better performance
301	TIMER_EVENT_DECODE	1.1	25.10.08	using new language defaults
301	FSTRING_TO_WEEK	1.1	25.10.08	using new language defaults
301	FSTRING_TO_WEEKDAY	1.2	25.10.08	using new language defaults
301	WORK_WEEK	1.5	25.10.08	optimized code for better performance
301	DAY_OF_MONTH	2.0	25.10.08	new code using setup constants
301	SET_DATE	2.0	25.10.08	new code using setup constants
301	CONSTANTS_SETUP	1.0	25.10.08	New Module
301	ERF	1.2	25.10.08	optimized code for better performance
301	BINOM	1.0	25.10.08	New Module
301	CHARNAME	1.3	24.10.08	optimized code for better performance
301	CHARCODE	1.2	24.10.08	optimized code for better performance
301	INTERLOCK_4	1.0	23.10.08	New Module
301	TANC	1.0	23.10.08	New Module
301	CALENDAR_CALC	1.0	23.10.08	New Module
301	LEGIONELLA	1.2	23.10.08	changed code to use new version of timer_1
301	TIMER_1	2.0	23.10.08	New code, enable input new features (DAYS)
301	RMP_W	2.0	23.10.08	New code using _RMP_W
301	RMP_B	2.0	23.10.08	New code using _RMP_B



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301	_RMP_W	1.0	23.10.08	New Module
301	FLOAT_TO_REAL	1.2	23.10.08	fixed a problem with character 8 and 9 behind the comma
301	LIST_SORT_L	1.0	23.10.08	New Module
301	LIST_RETRIEVE_MIN	1.0	23.10.08	New Module
301	ESR_MON_B8	1.2	22.10.08	optimized code for better performance
301	DIR_TO_DEG	1.1	22.10.08	using language constants
301	CONSTANTS_LANGUAGE	1.1	22.10.08	New Module
301	DEG_TO_DIR	1.1	22.10.08	using language constants
301	LIST_RETRIEVE_MAX	1.0	22.10.08	New Module
301	DIMM_I	2.0	22.10.08	changed structure and code for better performance New features
301	_RMP_B	1.0	22.10.08	New Module
301	F_LAMP	1.2	22.10.08	changed structure and code for better performance and external variables
301	EXPN	1.1	22.10.08	optimized code for better performance
301	SW_RECONFIG	1.0	22.10.08	New Module
301	CTRL_PWM	1.1	21.10.08	optimized code for better performance
301	HEAT_METER	1.4	21.10.08	optimized code for better performance
301	ACTUATOR_2P	1.6	21.10.08	optimized code for better performance
301	HOLIDAY	1.6	21.10.08	using location constants
301	FIND_CHAR	1.3	21.10.08	changed setup constants
301	FINDB_NONUM	1.3	21.10.08	optimized code for better performance
301	FIND_NONUM	1.3	21.10.08	optimized code for better performance
301	ACTUATOR_PUMP		21.10.08	changed code to use ontime rev 2.0
301	BURNER	1.6	21.10.08	changed code to use ontime rev 2.0
301	ONTIME	2.0	21.10.08	changed structure and code for better performance and external variables
301	CALENDAR	1.0	21.10.08	New Module
301	LTIME_TO_UTC	1.5	20.10.08	changed time_zone_offset from Real to INT, now in Minutes
301	LOCAL_TIME		20.10.08	deleted from library, can be replaced by UTC_TO_LTIME
301	UTC_TO_LTIME	1.8	20.10.08	changes type of input TIME_ZONE_OFFSET from real to int, now is in +/-minutes Deleted outputs DSE and WEEKDAY Changed from FB to Function
301	CONSTANTS_LOCATION	1.0	20.10.08	New Module
301	GLOBAL CONSTANTS		20.10.08	changed to structured constants
301	TIMER_2	1.4	20.10.08	performance improvement Deleted unnecessary trunc
301	TO_UPPER	1.1	19.10.08	changed setup constants
301	TO_LOWER	1.1	19.10.08	changed setup constants
301	ISC_UPPER	1.1	19.10.08	changed setup constants
301	ISC_LOWER	1.1	19.10.08	changed setup constants
301	ISC_ALPHA	1.1	19.10.08	changed setup constants
301	CHARNAME	1.2	19.10.08	changed setup constants
301	CHARCODE	1.1	19.10.08	changed setup constants
301	FSTRING_TO_MONTH	1.1	19.10.08	changed language setup constants
301	MONTH_TO_STRING	1.1	19.10.08	changed language setup constants
301	WEEKDAY_TO_STRING	1.1	19.10.08	changed language setup constants
301	DT_TO_STRF	1.1	19.10.08	changed language setup constants
301	NEG		19.10.08	deleted unnecessary function because -X is faster
301	PWM_PW	1.4	19.10.08	changed type TP_R to TP_X because of name change
301	PWM_DC	1.3	19.10.08	changed type TP_R to TP_X because of name change Improved performance
301	TP_X	1.2	19.10.08	renamed module from TP_R for compatibility reasons
301	IRTRANS_DECODE	1.1	19.10.08	added typecast to avoid warnings changed output device to dev for compatibility reasons
301	IRTRANS_8	1.2	19.10.08	changed input device_code to dev_code and device to dev for compatibility reasons
301	IRTRANS_4	1.2	19.10.08	changed input device_code to dev_code and device to dev for compatibility reasons
301	IRTRANS_1	1.2	19.10.08	changed input device_code to dev_code and device to dev for compatibility reasons
301	BLIND_ACTUATOR	1.2	18.10.08	changed calls for rmp_B because of change in RMP_B
301	FT_AVG	1.4	18.10.08	renamed inout EN to E for compatibility reasons
301	BIT_LOAD_DW2	1.0	18.10.08	New Module
301	BIT_LOAD_W2	1.0	18.10.08	New Module
301	BIT_LOAD_B2	1.0	18.10.08	New Module
301	SH_T	1.1	18.10.08	renamed inout EN to E for compatibility reasons
301	RMP_W	1.8	18.10.08	renamed inout EN to E for compatibility reasons
301	BIT_TOGGLE_DW	1.0	18.10.08	New Module
301	BIT_TOGGLE_W	1.0	18.10.08	New Module
301	BIT_TOGGLE_B	1.0	18.10.08	New Module
301	DEW_TEMP	1.5	18.10.08	changed to use phys constants
301	DEW_CON	1.4	18.10.08	changed to use phys constants

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301	AIR_DENSITY	1.2	18.10.08	changed to use phys constants
301	SUN_POS	1.5	18.10.08	changed to use math constants
301	RDMDW	1.2	18.10.08	changed to use math constants
301	RDM2	1.1	18.10.08	changed to use math constants
301	RDM	1.8	18.10.08	changed to use math constants
301	RAD	1.2	18.10.08	changed to use math constants
301	OM_TO_F	1.1	18.10.08	changed to use math constants
301	GEN_SIN	1.5	18.10.08	changed to use math constants
301	GDF	1.1	18.10.08	changed to use math constants
301	GAMMA	1.1	18.10.08	changed to use math constants
301	F_TO_OM	1.1	18.10.08	changed to use math constants
301	ELLIPSE_C	1.1	18.10.08	changed to use math constants
301	ELLIPSE_A	1.1	18.10.08	changed to use math constants
301	VEKTOR_3	1.0	18.10.08	New Module
301	URL	1.0	18.10.08	New Module
301	TIMER_EVENT	1.0	18.10.08	New Module
301	SDT	1.0	18.10.08	New Module
301	REAL2	1.0	18.10.08	New Module
301	NETWORK_BUFFER	1.0	18.10.08	New Module
301	HOLIDAY_DATA	1.0	18.10.08	New Module
301	ESR_DATA	1.0	18.10.08	New Module
301	CONSTANTS_PHYS	1.0	18.10.08	New Module
301	COMPLEX	1.0	18.10.08	New Module
301	ATAN2	1.0	18.10.08	changed to use math constants
301	SDT_TO_DATE	1.0	18.10.08	New Module
301	SDT_TO_DT	1.0	18.10.08	New Module
301	SDT_TO_TOD	1.0	18.10.08	New Module
301	DT2_TO_SDT	1.0	18.10.08	New Module
301	DT_TO_SDT	1.0	18.10.08	New Module
301	TIMER_P4	1.2	18.10.08	added typecast to avoid warnings Changes type of input ofs from int to byte
301	RMP_B	1.8	18.10.08	added typecast to avoid warnings changed input en to e for compatibility reasons
301	FADE	1.1	18.10.08	performance improvement changed calls for rmp_w because rmp_w has chaged
277	MANUAL_1	1.1	17.10.08	deleted unnecessary variable m_edge
277	IRTRANS_8	1.1	17.10.08	performance improvement
277	IRTRANS_4	1.1	17.10.08	performance improvement
277	ACTUATOR_UD	1.3	17.10.08	deleted unnecessary initialization with 0
277	STACK_16	1.2	17.10.08	deleted unnecessary init with 0
277	STACK_32	1.2	17.10.08	deleted unnecessary init with 0
277	FIFO_32	1.2	17.10.08	performance improvement
277	FIFO_16	1.2	17.10.08	performance improvement
277	BOILER	1.1	16.10.08	performance improvement
277	MUX_4	1.2	16.10.08	performance improvement
277	MUX_2	1.2	16.10.08	performance improvement
277	MUX_R2	1.1	16.10.08	performance improvement
277	MUX_R4	1.1	16.10.08	performance improvement
277	LIST_LEN	1.1	16.10.08	fixed a problem where list_len would only work up to STRING_LENGTH
277	RMP_W	1.8	16.10.08	performance improvement
277	RMP_B	1.7	16.10.08	performance improvement
277	GEN_BIT	1.1	15.10.08	performance improvement
277	MULTI_IN	1.2	14.10.08	corrected an error for in_3 overrange detection Improved performance
277	DEW_CON	1.3	14.10.08	performance improvement
277	UTC_TO_LTIME	1.7	14.10.08	Renamed module from LTIME to UTC_TO_LTIME Changed input Time_zone_offset from int to real to allow half hour offset changed function weekday to day_of_week
277	SET_DATE	1.7	14.10.08	optimized code for better performance
277	LTIME_TO_UTC	1.4	14.10.08	changes code for efficiency Changes TIME_Zone_Offset from Int to REAL to allow half hour offset
277	FILTER_WAV	1.0	14.10.08	New Module
277	ACTUATOR_PUMP	1.3	13.10.08	auto activation can now be disabled when run_every = T#0s
277	_DEC1	1.0	13.10.08	New Module
277	_INC1	1.0	13.10.08	New Module
277	FILTER_MAV_W	1.0	13.10.08	New Module
277	FILTER_MAV_DW	1.0	13.10.08	New Module
277	FT_AVG	1.3	10.10.08	improved performance

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277	TIMER_P4	1.1	09.10.08	changed function year to year_of_date changed function weekday to day_of_week changed structure of program to be more efficient Added set and reset of channel at specific times Changed input DIS to ENQ
277	FILTER_W	1.0	09.10.08	New Module
277	FILTER_DW	1.0	09.10.08	New Module
277	MESSAGE_4R	1.0	08.10.08	New Module
277	TIMER_EXT	1.0	07.10.08	New Module
277	TIMER_1	1.7	07.10.08	changed function weekday to day_of_week
277	DCF_77	1.10	07.10.08	changed function weekday to day_of_week
277	DAY_OF_WEEK	1.4	07.10.08	changed name of function from weekday to day_of_week
277	WORK_WEEK	1.4	07.10.08	changed function year to year_of_date changed function weekday to day_of_week
277	TIMER_2	1.3	07.10.08	chaged function month to month_of_date changed function weekday to day_of_week
277	TEMP_EXT	1.2	07.10.08	chaged function month to month_of_date
277	MONTH_END	1.1	07.10.08	changed function year to year_of_date changed function month to month_of_date
277	METER_STAT	1.1	07.10.08	changed function year to year_of_date changed function month to month_of_date changed function weekday to day_of_week
277	LEAP_DAY	1.1	07.10.08	changed function month to month_of_date
277	HOLIDAY	1.5	07.10.08	changed function year to year_of_date changed function weekday to day_of_week changed function month to month_of_date
277	DT_TO_STRF	1.0	07.10.08	New Module
277	DST	1.4	07.10.08	changed function year to year_of_date
277	DAY_OF_YEAR	1.3	07.10.08	changed name of function year to year_of_date
277	DATE_ADD	1.4	07.10.08	changed function year to year_of_date changed function month to month_of_date
277	MONTH_OF_DATE	1.2	07.10.08	changed name of function month to month_of_date
277	YEAR_OF_DATE	1.4	07.10.08	changed name of function year to year_of_date
277	FLOAT_TO_REAL	1.1	02.10.08	fixed an error, characters 8 and 9 would not be converted
277	DIMM_I	1.4	30.09.08	added input val to supply value for set operation Added setup parameter INIT_VAL
277	DEC_TO_DWORD	1.1	30.09.08	corrected an error where decoding of characters 8 and 9 would fail
277	DEC_TO_INT	1.1	30.09.08	changed length of input dtring from 20 to 10 corrected an error where decoding of characters 8 and 9 would fail
277	DEC_TO_BYTE	1.1	30.09.08	changed length of input dtring from 20 to 10 corrected an error where decoding of characters 8 and 9 would fail
277	SCHEDULER_2	1.0	29.09.08	New Module
277	SCHEDULER	1.0	28.09.08	New Module
277	HEAT_TEMP	1.1	26.09.08	moved T_INT from config to Input Added config variable H Corrected error in formula
277	GEN_PW2	1.0	26.09.08	New Module
277	BLIND_INPUT	1.4	26.09.08	corrected an error while PO and AO was set during automatic modes
277	FSTRING_TO_MONTH	1.0	25.09.08	New Module
277	FSTRING_TO_DT	1.0	24.09.08	New Module
277	MANUAL_2	1.0	22.09.08	New Module
277	DEBOUNCE	1.0	22.09.08	New Module
277	WEEKDAY_TO_STRING	1.0	21.09.08	New Module
277	MONTH_TO_STRING	1.0	21.09.08	New Module
277	GLOBAL CONSTANTS		21.09.08	added new section Language Setup added new section country setup
277	OCT_TO_BYTE	1.1	20.09.08	changed length of input dtring from 20 to 10
277	HEX_TO_BYTE	1.1	20.09.08	changed length of input dtring from 20 to 5
277	FSTRING_TO_DWORD	1.1	20.09.08	changed length of input dtring from 20 to 40
277	FSTRING_TO_BYTE	1.1	20.09.08	changed length of input dtring from 20 to 12
277	BIN_TO_DWORD	1.1	20.09.08	changed length of input dtring from 20 to 40
277	BIN_TO_BYTE	1.1	20.09.08	changed length of input dtring from 20 to 12
277	DT_SIMU	1.0	11.09.08	New Module
276	TMIN	1.0	21.06.08	New Module
276	TMAX	1.0	20.06.08	New Module
276	FSTRING_TO_WEEKDAY	1.1	18.07.08	changed nested call of left(trim()) for compatibility reasons
276	TOF_1	1.0	17.07.08	New Module

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276	CLICK_DEC	1.0	17.07.08	New Module
276	CLICK_CNT	1.0	16.07.08	New Module
276	A_TRIG	1.0	16.07.08	New Module
276	BLIND_INPUT	1.3	16.07.08	rewritten code to allow for more functionality added single click mode with single_switch added Debounce for inputs S1 and S2 added double_click functionality
276	FF_RSE	1.0	16.07.08	New Module
276	PULSE_T	1.0	15.07.08	New Module
276	JD2000	1.0	15.07.08	New Module
276	REFRACTION	1.0	14.07.08	New Module
275	STAIR2	1.2	30.06.08	added type conversions to avoid warnings under codesys 3.0
275	CEIL2	1.2	30.06.08	added type conversions to avoid warnings under codesys 3.0
275	ERF	1.1	30.06.08	added type conversions to avoid warnings under codesys 3.0
275	SUN_POS	1.4	30.06.08	added type conversions to avoid warnings under codesys 3
275	CTRL_PID	2.0	30.06.08	renamed Module FT_PID to CTRL_PID rewritten code to use modular approach
275	CTRL_PI	2.0	30.06.08	renamed Module FT_PI to CTRL_PI rewritten code to use modular approach
275	INT_TO_BCDC	1.1	30.06.08	changed name INT_TO_BCD to INT_TO_BCDC to avoid collision with util.lib corrected error in code
275	BCDC_TO_INT	1.1	30.06.08	changed name BCD_TO_INT to BCDC_TO_INT to avoid collision with util.lib
275	GLOBAL CONSTANTS		30.06.08	reduced size of string constants to 253 to avoid problems with target aixia DCUF
275	SEQUENCE_64	1.0	29.06.08	New Module
275	INC2	1.0	29.06.08	New Module
275	GEN_PULSE	1.0	29.06.08	New Module
275	FLOW_CONTROL	1.0	28.06.08	New Module
275	TP_1	1.0	28.06.08	New Module
275	TP_1D	1.0	28.06.08	New Module
275	LIST_INSERT	1.0	28.06.08	New Module
275	LIST_CLEAN	1.0	28.06.08	New Module
275	LIST_RETRIEVE	1.0	28.06.08	New Module
275	LIST_NEXT	1.0	25.06.08	New Module
275	LIST_LEN	1.0	25.06.08	New Module
275	FLOAT_TO_REAL	1.0	22.06.08	New Module
275	DWORD_TO_STRB	1.3	20.06.08	improved algorithm for higher speed
275	BYTE_TO_STRB	1.3	20.06.08	improved algorithm for higher speed
275	IRTRANS_1	1.1	20.06.08	improved algorithm for higher speed
275	LIST_PARSE	1.0	20.06.08	New Module
275	DEC_TO_DWORD	1.0	20.06.08	New Module
275	DEC_TO_INT	1.0	20.06.08	New Module
275	DEC_TO_BYTE	1.0	20.06.08	New Module
275	FSTRING_TO_WEEK	1.0	18.06.08	New Module
275	FSTRING_TO_WEEKDAY	1.0	18.06.08	New Module
275	TIMER_EVENT_DECODE	1.0	18.06.08	New Module
275	FSTRING_TO_DWORD	1.0	18.06.08	New Module
275	FSTRING_TO_BYTE	1.0	18.06.08	New Module
275	BIN_TO_DWORD	1.0	18.06.08	New Module
275	BIN_TO_BYTE	1.0	18.06.08	New Module
275	OCTAL_TO_BYTE	1.0	18.06.08	New Module
275	OCTAL_TO_DWORD	1.0	18.06.08	New Module
275	HEX_TO_DWORD	1.4	18.06.08	changed input hex to STRING(20) function now ignores wrong characters
275	HEX_TO_BYTE	1.0	18.06.08	New Module
275	DEL_CHARS	1.0	18.06.08	New Module
275	CLEAN	1.0	18.06.08	New Module
275	TIMER_P4	1.0	17.06.08	New Module
275	MANUAL_4	1.0	17.06.08	New Module
275	MANUAL_1	1.0	17.06.08	New Module
275	HTML_DECODE	1.1	16.06.08	changed nested call of replace for better compatibility
275	CHARNAME	1.1	16.06.08	changed nested call of concat for better compatibility
275	LEAP_DAY	1.0	15.06.08	New Module
275	MONTH_BEGIN	1.0	15.06.08	New Module
275	MONTH_END	1.0	15.06.08	New Module
275	YEAR_END	1.0	15.06.08	New Module
275	FT_PT1	1.9	14.06.08	improved algorithm for higher accuracy
275	SIGN_R	1.3	14.06.08	improved algorithm for higher speed
275	DEAD_ZONE	1.1	14.06.08	improved algorithm for higher speed

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275	DEAD_BAND	1.1	14.06.08	improved algorithm for higher speed
275	DEAD_BAND_A	1.0	14.06.08	New Module
275	SH_2	1.5	14.06.08	set default for input N = 16
275	FT_AVG	1.2	14.06.08	set default for input EN = TRUE and N = 32
275	FT_PIDWL	1.0	13.06.08	New Module
275	FT_PIWL	1.0	13.06.08	New Module
275	MS_TO_BFT	1.0	12.06.08	New Module
275	BFT_TO_MS	1.0	12.06.08	New Module
275	BUFFER_TO_STRING	1.3	12.06.08	check for pointer overrun change type of inputs start and stop to UINT
275	COUNT_DR	1.0	12.06.08	New Module
275	RTC_2	1.2	12.06.08	improved performance
275	DIR_TO_DEG	1.0	11.06.08	New Module
275	DEG_TO_DIR	1.0	11.06.08	New Module
275	BIT_OF_DWORD	1.2	06.06.08	changes type of input N from byte to int
275	HOUR_OF_DT	1.0	06.06.08	New Module
275	MINUTE_OF_DT	1.0	06.06.08	New Module
275	SECOND_OF_DT	1.0	06.06.08	New Module
275	FT_PIDW	1.0	03.06.08	New Module
275	FT_PIW	1.0	03.06.08	New Module
275	FT_PDT1	1.0	03.06.08	New Module
275	FT_PD	1.0	03.06.08	New Module
275	CTRL_PWM	1.0	03.06.08	New Module
275	FT_PID	2.0	03.06.08	New Module
275	FT_PI	2.0	03.06.08	New Module
275	CTRL_OUT	1.0	02.06.08	New Module
275	CTRL_IN	1.0	02.06.08	New Module
275	R2_SET	1.0	02.06.08	New Module
275	FT_INT2	1.0	02.06.08	New Module
275	FT_INT	2.0	02.06.08	rewritten with clear code added output LIM switched back to 32 Bit resolution
275	HYST_2	1.2	02.06.08	improved algorithm for higher speed
275	HYST_1	1.1	02.06.08	improved algorithm for higher speed
275	HYST	1.0	02.06.08	New Module
275	TANK_LEVEL	1.0	01.06.08	New Module
275	ACTUATOR_COIL	1.0	01.06.08	New Module
274	F_POLY	1.0	20.05.08	New Module
274	SEL2_OF_3B	1.0	19.05.08	New Module
274	ALARM_2	1.0	19.05.08	New Module
274	RDM	1.7	18.05.08	changed constant E to E1
274	SEL2_OF_3	1.0	18.05.08	New Module
274	RDMDW	1.1	18.05.08	changed constant E to E1
274	SCALE_R	1.0	18.05.08	New Module
274	SCALE_D	1.0	18.05.08	New Module
274	SCALE_B	1.0	18.05.08	New Module
274	GLOBAL CONSTANTS		18.05.08	added charname lists renamed E to E1
274	SCALE	1.0	18.05.08	New Module
274	REPLACE_CHARS	1.0	14.05.08	New Module
274	CHARNAME	1.0	14.05.08	New Module
274	CHARCODE	1.0	14.05.08	New Module
274	BUFFER_TO_STRING	1.2	13.05.08	changed type of pointer to array[0..32767] changed size of string to STRING_LENGTH
274	BUFFER_SEARCH	1.2	13.05.08	changed type of pointer to array[0..32767] changed size of string to STRING_LENGTH
274	_STRING_TO_BUFFER	1.2	13.05.08	changed type of pointer to array[0..32767] changed size of string to STRING_LENGTH
274	_BUFFER_INSERT	1.2	13.05.08	changed type of pointer to array[0..32767] changed size of string to STRING_LENGTH
274	HTML_DECODE	1.0	03.05.08	New Module
274	HTML_ENCODE	1.0	03.05.08	New Module
274	GOLD	1.0	27.04.08	New Module
274	AGDF	1.0	27.04.08	New Module
274	GDF	1.0	27.04.08	New Module
274	GLOBAL CONSTANTS		27.04.08	added new constant PI05 and PI025
274	PERIOD2	1.0	27.04.08	New Module
274	URL_DECODE	1.0	27.04.08	New Module
274	URL_ENCODE	1.0	27.04.08	New Module

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274	IS_URLCHR	1.0	27.04.08	New Module
274	WORD_OF_BYTE	1.3	23.04.08	reverse order of inputs to be more logical
274	DWORD_OF_BYTE	1.2	23.04.08	reverse order of inputs to be more logical
274	IP4_TO_STRING	1.0	22.04.08	New Module
274	AIN1	1.2	22.04.08	corrected error in formula when code_min was set corrected error when sign bit was used optimized code for better performance new functionality overflow_code
274	CLOG	1.1	20.04.08	use ATAN2 instead of ATAN
274	CARG	1.1	20.04.08	use ATAN2 instead of ATAN
274	ATAN2	1.0	20.04.08	New Module
274	GLOBAL CONSTANTS		19.04.08	added Setup Parameter NETWORK_BUFFER_SIZE
274	DCF77	1.9	19.04.08	added input dsi to allow to set daylight savings time when SDT is TRUE added asynchronous SET input
274	URL_TO_STRING	1.0	18.04.08	New Module
274	STRING_TO_URL	1.0	18.04.08	New Module
274	REAL_TO_DW	1.0	18.04.08	New Module
274	DW_TO_REAL	1.0	18.04.08	New Module
274	GAUSSCD	1.0	07.04.08	New Module
274	ERFC	1.0	07.04.08	New Module
274	ERF	1.0	07.04.08	New Module
274	GLOBAL CONSTANTS		07.04.08	deleted unused setup parameter STEP7
274	YEAR_BEGIN	1.2	07.04.08	deleted unused step7 code
274	YEAR	1.3	07.04.08	deleted unused step7 code
274	WEEKDAY	1.3	07.04.08	deleted unused step7 code
274	SET_DATE	1.6	07.04.08	deleted unused step7 code
274	HOLIDAY	1.4	07.04.08	improved algorithm for higher speed
274	EASTER	1.3	07.04.08	improved algorithm for higher speed
274	DAY_OF_DATE	1.3	07.04.08	deleted unused step7 code
274	GAUSS	1.0	06.04.08	New Module
274	MODR	1.3	04.04.08	added type conversion to avoid warnings under codesys 3.0
274	IS_SORTED	1.1	04.04.08	added type conversion to avoid warnings under codesys 3.0
274	FLOOR2	1.1	04.04.08	added type conversion to avoid warnings under codesys 3.0
274	CEIL2	1.1	04.04.08	added type conversion to avoid warnings under codesys 3.0
274	ARRAY_HAV	1.0	02.04.08	New Module
274	ARRAY_GAV	1.0	02.04.08	New Module
274	_ARRAY_MUL	1.0	02.04.08	New Module
274	_ARRAY_ADD	1.0	02.04.08	New Module
274	_ARRAY_ABS	1.0	02.04.08	New Module
273	_ARRAY_SHUFFLE	1.2	30.03.08	changed last in rdm2 from pos to i+pos for more randomness
273	TO_UML	1.0	29.03.08	New Module
273	UPPERCASE	1.3	29.03.08	changed STRING to STRING(STRING_LENGTH)
273	TRIM1	1.2	29.03.08	changed STRING to STRING(STRING_LENGTH)
273	TRIM	1.2	29.03.08	changed STRING to STRING(STRING_LENGTH)
273	TICKER	1.2	29.03.08	changed STRING to STRING(STRING_LENGTH)
273	REPLACE_UML	1.1	29.03.08	changed STRING to STRING(STRING_LENGTH) new code to avoid pointer out of range use new function to_uml
273	REPLACE_ALL	1.1	29.03.08	changed STRING to STRING(STRING_LENGTH)
273	REAL_TO_STRF	1.5	29.03.08	changed STRING to STRING(20)
273	MIRROR	1.1	29.03.08	changed STRING to STRING(STRING_LENGTH)
273	MESSAGE	1.1	29.03.08	changed STRING to STRING(STRING_LENGTH)
273	LOWERCASE	1.3	29.03.08	changed STRING to STRING(STRING_LENGTH)
273	IS_UPPER	1.1	29.03.08	changed STRING to STRING(STRING_LENGTH)
273	IS_NUM	1.1	29.03.08	changed STRING to STRING(STRING_LENGTH)
273	IS_NCC	1.1	29.03.08	changed STRING to STRING(STRING_LENGTH)
273	IS_LOWER	1.1	29.03.08	changed STRING to STRING(STRING_LENGTH)
273	IS_HEX	1.1	29.03.08	changed STRING to STRING(STRING_LENGTH)
273	IS_CTRL	1.1	29.03.08	changed STRING to STRING(STRING_LENGTH)
273	IS_CC	1.1	29.03.08	changed STRING to STRING(STRING_LENGTH)
273	IS_ALPHA	1.1	29.03.08	changed STRING to STRING(STRING_LENGTH)
273	IS_ALNUM	1.1	29.03.08	changed STRING to STRING(STRING_LENGTH)
273	HEX_TO_DWORD	1.3	29.03.08	changed STRING to STRING(8)
273	FINDP	1.2	29.03.08	changed STRING to STRING(STRING_LENGTH)
273	FINDB_NUM	1.2	29.03.08	changed STRING to STRING(STRING_LENGTH)
273	FINDB_NONUM	1.2	29.03.08	changed STRING to STRING(STRING_LENGTH)
273	FINDB	1.3	29.03.08	changed STRING to STRING(STRING_LENGTH)
273	FIND_NUM	1.2	29.03.08	changed STRING to STRING(STRING_LENGTH)

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273	FIND_NONUM	1.2	29.03.08	changed STRING to STRING(STRING_LENGTH)
273	FIND_CTRL	1.2	29.03.08	changed STRING to STRING(STRING_LENGTH)
273	FIND_CHAR	1.2	29.03.08	changed STRING to STRING(STRING_LENGTH)
273	EXEC	1.4	29.03.08	changed STRING to STRING(STRING_LENGTH)
273	DWORD_TO_STRH	1.3	29.03.08	changed STRING to STRING(8)
273	DWORD_TO_STRF	1.1	29.03.08	changed STRING to STRING(20) limit the output string to max 20 digits
273	DWORD_TO_STRB	1.2	29.03.08	changed STRING to STRING(32)
273	COUNT_CHAR	1.1	29.03.08	changed STRING to STRING(STRING_LENGTH)
273	CODE	1.1	29.03.08	changed STRING to STRING(STRING_LENGTH)
273	CHR	1.2	29.03.08	changed STRING to STRING(1)
273	CAPITALIZE	1.1	29.03.08	changed STRING to STRING(STRING_LENGTH)
273	BYTE_TO_STRH	1.3	29.03.08	changed STRING to STRING(2)
273	BYTE_TO_STRB	1.2	29.03.08	changed STRING to STRING(8)
273	GLOBAL CONSTANTS		28.03.08	Added setup parameter STRING_LENGTH
273	IS_SORTED	1.0	28.03.08	New Module
273	TRIME	1.0	28.03.08	New Module
273	FIX	1.0	28.03.08	New Module
273	FILL	1.0	28.03.08	New Module
273	FIND_CTRL	1.1	26.03.08	character 127 is now recognized as control
273	FIND_CHAR	1.1	26.03.08	char will now accept extended ascii
273	FIB	1.3	26.03.08	function now returns -1 for input < 0 or > 46
273	METER	1.2	24.03.08	use data_type real2 to extend accuracy to 15 digits total do not use ft_int which adds unnecessary overhead
273	PERIOD	1.3	22.03.08	function would deliver wrong results when d1 and dx are a leap_year
273	DAYS_DELTA	1.2	22.03.08	changed output from int to dint because the total date range is 49710 days
273	DAY_OF_DATE	1.2	22.03.08	changed output from int to dint because the total date range is 49710 days
273	DATE_ADD	1.3	22.03.08	fixed some bugs when month was negative
273	R2_ABS	1.0	21.03.08	New Module
273	FRACT	1.2	21.03.08	Replaced TRUNC with D_TRUNC for compatibility reasons
273	MODR	1.2	21.03.08	Replaced TRUNC with D_TRUNC for compatibility reasons
273	FLOOR2	1.0	21.03.08	New Module
273	CEIL	1.1	21.03.08	Replaced TRUNC with real_to_int for compatibility reasons
273	EVEN	1.1	21.03.08	Changed type of input IN from int to dint
273	FLOOR	1.1	21.03.08	Replaced TRUNC with real_to_int for compatibility reasons
273	CEIL2	1.0	21.03.08	New Module
273	D_TRUNC	1.0	21.03.08	New Module
273	R2_ADD2	1.0	20.03.08	New Module
273	R2_MUL	1.0	20.03.08	New Module
273	R2_ADD	1.0	20.03.08	New Module
273	TRIM1	1.1	20.03.08	avoid to call replace with pos = 0 because some systems will produce an error
273	TRIM	1.1	20.03.08	avoid to call replace with pos = 0 because some systems will produce an error
273	REAL_TO_STRF	1.4	20.03.08	changed trunc to dint because trunc was generating wrong values on wago 842 corrected an error with negative numbers
273	EXEC	1.3	20.03.08	Make sure output of exec will always be in the format x.y
273	IS_NCC	1.0	19.03.08	New Module
273	IS_CC	1.0	19.03.08	New Module
273	CRC_CHECK	1.1	16.03.08	changed type of input size to uint improved code for better performance
273	CRC_GEN	1.4	16.03.08	changed type of input size to uint
273	PARSET	1.1	16.03.08	added type conversion to avoid warnings under codesys 3.0
273	HEAT_METER	1.3	16.03.08	added type conversion to avoid warnings under codesys 3.0
273	_STRING_TO_BUFFER	1.1	16.03.08	changed type of input size to uint
273	BUFFER_SEARCH	1.1	16.03.08	changed type of input size to uint
273	BUFFER_TO_STRING	1.1	16.03.08	changed type of input size to uint
273	_BUFFER_INSERT	1.1	16.03.08	changed type of input size to uint
273	GEN_SIN	1.4	16.03.08	added type conversion to avoid warnings under codesys 3.0
273	GEN_RDT	1.1	16.03.08	added type conversion to avoid warnings under codesys 3.0
273	FT_PT1	1.8	16.03.08	added type conversion to avoid warnings under codesys 3.0
273	FT_INT	1.9	16.03.08	added type conversion to avoid warnings under codesys 3.0
273	DST	1.3	16.03.08	added type conversion to avoid warnings under codesys 3.0 code improvement for better performance
273	ESR_MON_R4	1.3	16.03.08	deleted wrong conversion real_to_dword
273	ARRAY_VAR	1.2	16.03.08	changed type of input size to uint
273	ARRAY_TREND	1.2	16.03.08	changed type of input size to uint
273	ARRAY_SUM	1.1	16.03.08	changed type of input size to uint
273	ARRAY_SPR	1.1	16.03.08	changed type of input size to uint
273	ARRAY_SDV	1.1	16.03.08	changed type of input size to uint

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273	ARRAY_MIN	1.1	16.03.08	changed type of input size to uint
273	ONTIME	1.5	16.03.08	added type conversion to avoid warnings under codesys 3.0
273	ARRAY_MAX	1.1	16.03.08	changed type of input size to uint
273	ARRAY_AVG	1.2	16.03.08	changed type of input size to uint
273	_ARRAY_SORT	1.6	16.03.08	changed type of input size to uint
273	_ARRAY_SHUFFLE	1.1	16.03.08	changed type of input size to uint
273	_ARRAY_MEDIAN	1.5	16.03.08	changed type of input size to uint improved performance
273	_ARRAY_INIT	1.3	16.03.08	changed type of input size to uint
273	SET_DATE	1.5	16.03.08	added type conversion to avoid warnings under codesys 3.0
273	SET_DT	1.5	16.03.08	added type conversion to avoid warnings under codesys 3.0
273	SUN_POS	1.3	16.03.08	added type conversion to avoid warnings under codesys 3.0
273	TC_S	1.1	16.03.08	added type conversion to avoid warnings under codesys 3.0
273	TUNE	1.1	16.03.08	added type conversion to avoid warnings under codesys 3.0
273	TUNE2	1.1	16.03.08	added type conversion to avoid warnings under codesys 3.0 improved performance
273	WORK_WEEK	1.3	16.03.08	added type conversion to avoid warnings under codesys 3.0
273	DCF77	1.8	16.03.08	Changed output weekday to wday and dst to ds for compatibility reasons
273	BIT_LOAD_DW	1.1	16.03.08	Changed input bit to val for compatibility reasons
273	BIT_LOAD_W	1.1	16.03.08	Changed input bit to val for compatibility reasons
273	BIT_LOAD_B	1.1	16.03.08	Changed input bit to val for compatibility reasons
273	AIN1	1.1	16.03.08	added type conversion to avoid warnings under codesys 3.0
273	AIN	1.5	16.03.08	added type conversion to avoid warnings under codesys 3.0
273	_BUFFER_CLEAR	1.1	16.03.08	added type conversion to avoid warnings under codesys 3.0 changed type of input size to uint deleted unused variable i
273	_BUFFER_INIT	1.1	16.03.08	added type conversion to avoid warnings under codesys 3.0 changed type of input size to uint
273	BYTE_TO_BITS	1.1	16.03.08	renamed from byte_to_bit to byte_to_bits for compatibility reasons
273	BYTE_TO_BIT	1.1	16.03.08	renamed from byte_to_bit to byte_to_bits for compatibility reasons
273	SET_TOD	1.5	16.03.08	added type conversion to avoid warning under codesys 3.0
273	RDM	1.6	16.03.08	added type conversion to avoid warning under codesys 3.0
273	ROUND	1.4	16.03.08	added type conversion to avoid warning under codesys 3.0
273	ASINH	1.2	16.03.08	changed sequence of calculations to improve performance
273	ACOSH	1.2	16.03.08	changed sequence of calculations to improve performance
273	DIFFER	1.1	16.03.08	Improved code for higher speed
272	RDMDW	1.0	14.03.08	New Module
272	MULTIME	1.1	14.03.08	rounded the result after the last digit
272	HOUR_TO_TOD	1.1	14.03.08	rounded the input after the last digit
272	HOUR_TO_TIME	1.1	14.03.08	rounded the input after the last digit
272	MINUTE_TO_TIME	1.1	14.03.08	rounded the input after the last digit
272	SECOND_TO_TIME	1.1	14.03.08	rounded the input after the last digit
272	SET_TOD	1.4	14.03.08	changed code to avoid rounding problem at last digit of millisecond
272	TC_S	1.0	13.03.08	New Module
272	TC_MS	1.0	13.03.08	New Module
272	TC_US	1.0	13.03.08	New Module
272	SRAMP	1.0	13.03.08	New Module
272	FT_INT	1.8	13.03.08	changed preset value out_min to -1e37 stop integrator at the limits optimized code
272	CMP	1.0	12.03.08	New Module
272	SINH	1.3	11.03.08	improved accuracy around 0
272	SINC	1.0	11.03.08	New Module
272	LANGEVIN	1.1	11.03.08	changed formula to avoid problems when x = 0
272	SQRTN	1.2	11.03.08	added result 0 for conpatibility reasons
272	FRACT	1.1	11.03.08	added dint_to_real for compatibility reasons now returns 0 for number > 2e9 changed input to x
272	RND	1.0	11.03.08	New Module
272	ROUND	1.3	11.03.08	corrected an error with negative numbers
272	SIGMOID	1.1	11.03.08	extended range of valid inputs to +inv / -inv
272	FIB	1.2	10.03.08	changed output to dint instead of real
272	FACT	1.3	10.03.08	changed output of fact to dint to allow bigger values
272	COTH	1.3	10.03.08	extended range of valid inputs to +/- INV changed formula for better accuracy
272	TANH	1.2	10.03.08	corrected an error in formula extended range of valid inputs to +/- INV
272	RDM	1.5	10.03.08	make sure last will be between 0 and 1 to avoid invalid results
272	_BUFFER_INSERT	1.0	09.03.08	New Module



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272	CODE	1.0	09.03.08	New Module
272	HEAT_METER	1.2	06.03.08	corrected an error in pulse mode
272	ISC_UPPER	1.0	06.03.08	New Module
272	ISC_LOWER	1.0	06.03.08	New Module
272	ISC_HEX	1.0	06.03.08	New Module
272	ISC_CTRL	1.0	06.03.08	New Module
272	ISC_NUM	1.0	06.03.08	New Module
272	ISC_ALPHA	1.0	06.03.08	New Module
272	LOWERCASE	1.2	06.03.08	added support for extended Ascii
272	UPPERCASE	1.2	06.03.08	added support for extended Ascii
272	TO_LOWER	1.0	06.03.08	New Module
272	TO_UPPER	1.0	06.03.08	New Module
272	GLOBAL CONSTANTS		06.03.08	Added EXTENDED_ASCII
272	BUFFER_TO_STRING	1.0	05.03.08	New Module
272	BUFFER_SEARCH	1.0	05.03.08	New Module
272	_STRING_TO_BUFFER	1.0	05.03.08	New Module
272	_BUFFER_INIT	1.0	05.03.08	New Module
272	_BUFFER_CLEAR	1.0	05.03.08	New Module
272	CAPITALIZE	1.0	04.03.08	New Module
272	IP4_CHECK	1.0	04.03.08	New Module
272	REAL_TO_STRF	1.3	04.03.08	result is now rounded instead of trunc corrected an error with reals < 1
272	_ARRAY_SHUFFLE	1.0	04.03.08	New Module
272	HEX_TO_DWORD	1.2	04.03.08	added support for a..f and return 0 for invalid string
272	EXEC	1.2	04.03.08	add a 0 to the string if a '.' is at the end of the string
272	REPLACE_UML	1.0	29.02.08	New Module
272	IS_UPPER	1.0	29.02.08	New Module
272	IS_NUM	1.0	29.02.08	New Module
272	IS_LOWER	1.0	29.02.08	New Module
272	IS_IP4	1.0	29.02.08	New Module
272	IS_HEX	1.0	29.02.08	New Module
272	IS_CTRL	1.0	29.02.08	New Module
272	IS_ALPHA	1.0	29.02.08	New Module
272	IS_ALNUM	1.0	29.02.08	New Module
272	IP4_DECODE	1.0	29.02.08	New Module
272	COUNT_CHAR	1.0	29.02.08	New Module
272	FINDB_NUM	1.1	29.02.08	Improved code for higher speed
272	FINDB_NONUM	1.1	29.02.08	Improved code for higher speed
272	FIND_CHAR	1.0	29.02.08	New Module
272	FIND_CTRL	1.0	29.02.08	New Module
272	FINDP	1.1	29.02.08	ADDED MAX(pos,1) in loop initialization
272	BIT_LOAD_B	1.0	29.02.08	New Module
272	BIT_LOAD_DW	1.0	29.02.08	New Module
272	BIT_LOAD_W	1.0	29.02.08	New Module
272	RDM2	1.0	29.02.08	New Module
272	FINDB	1.2	29.02.08	added findb := 0 for compatibility reasons
272	FIND_NUM	1.1	29.02.08	added input pos to start search at position
272	FIND_NONUM	1.1	29.02.08	added input pos to start search at position
271	AOUT	1.4	23.02.08	Improved code for higher speed
271	AOUT1	1.0	23.02.08	New Module
271	AIN1	1.0	23.02.08	New Module
271	POLYNOM_INT	1.2	22.02.08	Improved code for higher speed
271	TRIANGLE_A	1.1	22.02.08	Improved code for higher speed
271	SPHERE_V	1.2	22.02.08	Improved code for higher speed
271	CONE_V	1.2	22.02.08	Improved code for higher speed
271	CIRCLE_C	1.1	22.02.08	Improved code for higher speed
271	CIRCLE_A	1.2	22.02.08	Improved code for higher speed
271	CABS	1.0	21.02.08	New Module
271	CACOS	1.0	21.02.08	New Module
271	CACOSH	1.0	21.02.08	New Module
271	CADD	1.0	21.02.08	New Module
271	CARG	1.0	21.02.08	New Module
271	CASIN	1.0	21.02.08	New Module
271	CASINH	1.0	21.02.08	New Module
271	CATAN	1.0	21.02.08	New Module
271	CATANH	1.0	21.02.08	New Module
271	CCON	1.0	21.02.08	New Module
271	CCOS	1.0	21.02.08	New Module

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271	CCOSH	1.0	21.02.08	New Module
271	CDIV	1.0	21.02.08	New Module
271	CEXP	1.0	21.02.08	New Module
271	CINV	1.0	21.02.08	New Module
271	CLOG	1.0	21.02.08	New Module
271	CMUL	1.0	21.02.08	New Module
271	CPOL	1.0	21.02.08	New Module
271	CPOW	1.0	21.02.08	New Module
271	CSET	1.0	21.02.08	New Module
271	CSIN	1.0	21.02.08	New Module
271	CSINH	1.0	21.02.08	New Module
271	CSQRT	1.0	21.02.08	New Module
271	CSUB	1.0	21.02.08	New Module
271	CTAN	1.0	21.02.08	New Module
271	CTANH	1.0	21.02.08	New Module
271	HYPOT	1.0	21.02.08	New Module
271	TEMPERATURE	1.0	21.02.08	New Module
271	RTC_2	1.1	20.02.08	Added millisecond set input
271	RTC_MS	1.1	20.02.08	Added millisecond set input
271	WORD_OF_BYTE	1.2	19.02.08	replaced + with or for better compatibility
271	D_TRIG	1.1	19.02.08	Improved code for higher speed
271	STACK_32	1.1	19.02.08	Improved code for higher speed
271	STACK_16	1.1	19.02.08	Improved code for higher speed
271	FIFO_32	1.1	19.02.08	Improved code for higher speed
271	FIFO_16	1.1	19.02.08	Improved code for higher speed
271	PARITY	1.3	18.02.08	Improved code for higher speed
271	CHECK_PARITY	1.3	18.02.08	Improved code for higher speed
271	BYTE_OF_BIT	1.1	18.02.08	Improved code for higher speed
271	REVERSE	1.1	18.02.08	Improved code for higher speed
271	BLIND_SECURITY	1.2	12.02.08	added config variables rain_up and wind_up position for rain and wind is now configurable
27	FT_INT	1.7	08.02.08	Added interim variable to allow for changes smaller than 8 digits of output
27	METER	1.1	08.02.08	Use new version of ft_int and deleted unnecessary limits for integrators
27	SWAP_BYTE2	1.0	04.02.08	New Module
27	SWAP_BYTE	1.0	04.02.08	New Module
27	REPLACE_ALL	1.0	04.02.08	New Module
27	CHR	1.1	04.02.08	return string would not be terminated properly
27	FINDP	1.0	04.02.08	New Module
27	MIRROR	1.0	04.02.08	New Module
27	TRIM1	1.0	04.02.08	New Module
27	LOWERCASE	1.1	04.02.08	improved performance added support for Å, Ö, Ü
27	UPPERCASE	1.1	04.02.08	improved performance added support for Å, Ö, Ü
27	EASTER	1.2	03.02.08	Modified code for better performance
27	RDM	1.4	02.02.08	changed algorithm to avoid non iec functions and guarantee more randomness
27	BLIND_SCENE	1.1	29.01.08	Replaced shr/shl with and for better performance
27	FT_RMP	1.4	25.01.08	Improved algorithm for higher speed allow KR and KF to be 0
27	DCF77	1.7	23.01.08	added sdt input which is used to initialize rtc and rtc1 during first cycle.
27	RTC_2	1.0	21.01.08	New module
27	RTC_MS	1.0	20.01.08	New Module
27	SUN_POS	1.2	18.01.08	further performance improvements only calculate once every 10 seconds
27	SUN_TIME		17.01.08	calculation is now only performed once a day
27	TIMER_1	1.6	17.01.08	New code with better performance Output is now only active during the time of day it is supposed to no pulse is generated at power up
27	COUNT_BR	1.0	16.01.08	New Module
27	SELECT_8	1.0	16.01.08	New Module
27	INC	1.1	15.01.08	Allow for negative increment
27	RANGE_TO_WORD	1.0	09.01.08	New Module
27	RANGE_TO_BYTE	1.0	09.01.08	New Module
27	WORD_TO_RANGE	1.0	09.01.08	New Module
27	BYTE_TO_RANGE	1.0	09.01.08	New Module
27	DEW_TEMP	1.4	08.01.08	Improved algorithm for higher speed
27	LEAP_OF_DATE	1.2	08.01.08	Improved algorithm for higher speed
27	DAY_OF_MONTH	1.4	08.01.08	Improved algorithm for higher speed

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27	COTH	1.2	08.01.08	Improved algorithm for higher speed
27	ROUND	1.2	08.01.08	Improved algorithm for higher speed
27	SH_2	1.4	06.01.08	Improved algorithm for higher speed
27	STAIR	1.2	06.01.08	Improved algorithm for higher speed
27	SCALE_B8	1.2	06.01.08	Improved algorithm for higher speed
27	SCALE_B4	1.2	06.01.08	Improved algorithm for higher speed
27	SCALE_B2	1.2	06.01.08	Improved algorithm for higher speed
27	GEN_SQR	1.3	06.01.08	Improved algorithm for higher speed
27	GEN_SIN	1.3	06.01.08	Improved algorithm for higher speed
27	TEMP_SI	1.4	06.01.08	Improved algorithm for higher speed
27	TEMP_NI	1.4	06.01.08	Improved algorithm for higher speed
27	BAR_GRAPH	1.2	06.01.08	Improved algorithm for higher speed
27	KMH_TO_MS	1.1	06.01.08	Improved algorithm for higher speed
27	F_TO_C	1.1	06.01.08	Improved algorithm for higher speed
27	SUN_POS	1.1	06.01.08	Improved algorithm for higher speed
27	SUN_TIME	1.3	06.01.08	Improved algorithm for higher speed
27	_ARRAY_SORT	1.5	05.01.08	Improved algorithm for higher speed
27	SINH	1.2	05.01.08	Improved algorithm for higher speed
27	COSH	1.2	05.01.08	Improved algorithm for higher speed
27	ATANH	1.1	05.01.08	Improved algorithm for higher speed
27	ACOTH	1.1	05.01.08	Improved algorithm for higher speed
27	HYST_3	1.2	05.01.08	Improved code for higher performance
27	HYST_2	1.1	05.01.08	Improved code for higher performance
27	FT_PT1	1.7	05.01.08	Improved code for higher performance
27	FT_PID	1.6	05.01.08	Improved code for higher performance
27	FT_PI	1.2	05.01.08	Improved performance
27	FT_INT	1.6	05.01.08	Improved performance
27	TEMP_PT	1.5	05.01.08	replaced /2 with * 0.5 for better performance
27	RDM	1.3	05.01.08	Corrected an error with high values of sps timer
27	PERIOD	1.2	04.01.08	Improved performance
27	DAY_OF_YEAR	1.2	04.01.08	Improved performance
27	YEAR_BEGIN	1.1	04.01.08	formula for step7 was incorrect during leap years
27	SET_DATE	1.4	03.01.08	Improved performance
27	IRTRANS_DECODE	1.0	02.01.08	New Module
27	IRTRANS_8	1.0	02.01.08	New Module
27	IRTRANS_4	1.0	02.01.08	New Module
27	IRTRANS_1	1.0	02.01.08	New Module
27	DRIVER_4	1.0	02.01.08	New Module
27	DRIVER_1	1.0	02.01.08	New Module
27	CLK_DIV	1.1	02.01.08	Improved performance
27	BYTE_OF_DWORD	1.1	02.01.08	Improved performance
27	WORD_OF_DWORD	1.1	02.01.08	Improved performance
27	FIB	1.1	02.01.08	deleted unused variable pt
27	WORD_OF_BYTE	1.1	02.01.08	Improved performance
27	CRC_GEN	1.3	02.01.08	Improved performance
27	DWORD_OF_BYTE	1.1	02.01.08	Improved performance
26	BLIND_INPUT	1.2	30.12.07	added click_timeout variable and function
26	FIB	1.0	27.12.07	New Module
26	WATER_CP	1.1	27.12.07	Increased accuracy
26	SHR1	1.1	27.12.07	changed code for better performance
26	SHL1	1.1	27.12.07	changed code for better performance
26	LTCH_4	1.1	27.12.07	changed code for better performance
26	LTCH	1.1	27.12.07	changed code for better performance
26	FF_JKE	1.1	27.12.07	changed code for better performance
26	FF_DRE	1.1	27.12.07	changed code for better performance
26	FF_D4E	1.1	27.12.07	changed code for better performance
26	FF_D2E	1.1	27.12.07	changed code for better performance
26	STAIR	1.1	27.12.07	changed code for better performance
26	STAIR2	1.1	27.12.07	changed code for better performance
26	HYST_3	1.1	27.12.07	changed code for better performance
26	ACTUATOR_2P	1.5	27.12.07	changed code for better performance
26	LINEAR_INT	1.1	27.12.07	changed code for better performance
26	STORE_8	1.0	26.12.07	New Module
26	MESSAGE_8	1.0	26.12.07	New Module
26	FADE	1.0	26.12.07	New Module
26	RMP_B	1.6	25.12.07	changed code for better performance
26	RMP_W	1.7	25.12.07	corrected an error while step response was too slow for fast rist times

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26	HEAT_METER	1.1	25.12.07	added config variable return_meter added output C for current consumption
26	MATRIX	1.2	23.12.07	added exit statement in for loop instead of i:=5
26	WEEKDAY	1.2	23.12.07	correction for step7
26	TEMP_PT	1.4	23.12.07	avoid a negative square root if input values are wrong
26	YEAR	1.2	23.12.07	changed code for better performance
26	WORK_WEEK	1.2	19.12.07	changed code for better performance changed code to comply with ISO8601
26	YEAR_BEGIN	1.0	19.12.07	New Module
26	TEMP_NI	1.3	17.12.07	changed code for better performance
26	POLYNOM_INT	1.1	17.12.07	init makes no sense for a function
26	TEMP_SI	1.3	17.12.07	changed code for better performance
26	YEAR	1.2	16.12.07	changed code for better performance
26	SET_DATE	1.3	16.12.07	changed code for better performance
26	OSCAT_VERSION	1.1	16.12.07	added possibility to return date and version depending on in
26	CLK_8MS		16.12.07	No longer supported is replaced by CLK_N
26	CLK_4MS		16.12.07	No longer supported is replaced by CLK_N
26	CLK_2MS		16.12.07	No longer supported is replaced by CLK_N
26	CLK_1MS		16.12.07	No longer supported is replaced by CLK_N
26	CLK_N	1.0	16.12.07	New Module
26	EASTER	1.1	15.12.07	changed code for better performance
26	REAL_TO_STRF	1.2	15.12.07	changed code for better performance
26	DWORD_TO_STRH	1.2	15.12.07	changed code for better performance
26	DWORD_TO_STRB	1.1	15.12.07	changed code for better performance
26	BYTE_TO_STRH	1.2	15.12.07	changed code for better performance
26	BYTE_TO_STRB	1.1	15.12.07	changed code for better performance
26	FINDB	1.1	15.12.07	changed code for better performance
26	TICKER	1.1	15.12.07	step now starts at 1 instead of 0
26	_ARRAY_SORT	1.4	15.12.07	added function return = true
26	SIGNAL_4	1.0	13.12.07	New Module
26	SIGNAL	1.0	13.12.07	New Module
26	INT_TO_BCD	1.0	13.12.07	New Module
26	BCD_TO_INT	1.0	13.12.07	New Module
26	ARRAY_VAR	1.1	12.12.07	changed code for better performance
26	ARRAY_AVG	1.1	12.12.07	changed code for better performance
26	ARRAY_VAR	1.1	12.12.07	changed code for better performance
26	ARRAY_TREND	1.1	12.12.07	changed code for better performance
26	V3_ZANG	1.0	11.12.07	New Module
26	V3_YANG	1.0	11.12.07	New Module
26	V3_XANG	1.0	11.12.07	New Module
26	V3_XPRO	1.0	11.12.07	New Module
26	V3_SMUL	1.0	11.12.07	New Module
26	V3_REV	1.0	11.12.07	New Module
26	V3_PAR	1.0	11.12.07	New Module
26	V3_NORM	1.0	11.12.07	New Module
26	V3_DPRO	1.0	11.12.07	New Module
26	V3_SUB	1.0	11.12.07	New Module
26	V3_ADD	1.0	11.12.07	New Module
26	V3_ANG	1.0	11.12.07	New Module
26	V3_ABS	1.0	11.12.07	New Module
26	LANGEVIN	1.0	10.12.07	New Module
26	SIGMOID	1.0	10.12.07	New Module
26	GAMMA	1.0	10.12.07	New Module
26	FACT	1.2	10.12.07	start value for i has changed to 2 for better performance
26	TONOF	1.0	10.12.07	New Module
26	PWM_PW	1.3	09.12.07	Corrected a problem with F = 0
252	DCF77	1.6	08.12.07	corrected a problem with time_zone_offset
251	LTIME_TO_UTC	1.3	08.12.07	corrected a problem with time_zone_offset
251	LTIME	1.6	08.12.07	corrected a problem with time_zone_offset
251	LOCAL_TIME	1.4	08.12.07	corrected a problem with time_zone_offset
25	ESR_COLLECT	1.1	08.12.07	Added reset input
25	ESR_MON_R4	1.2	08.12.07	corrected an error while esr type would not be set
25	CHECK_PARITY	1.2	08.12.07	changed code for better performance
25	PARITY	1.2	08.12.07	changed code for better performance
25	WCT	1.1	07.12.07	changed code for better performance
25	SPHERE_V	1.1	04.12.07	changed code for better performance
25	CONE_V	1.1	04.12.07	changed code for better performance
25	CIRCLE_A	1.1	04.12.07	changed code for better performance

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25	EXPN	1.0	04.12.07	New Module
25	TICKER	1.0	04.12.07	New Module
25	AIR_DENSITY	1.1	04.12.07	changed code for better performance
25	SQRTN	1.1	02.12.07	changed code for better performance
25	ROUND	1.1	02.12.07	changed code for better performance
25	ASINH	1.1	02.12.07	changed code for better performance
25	ACOSH	1.1	02.12.07	changed code for better performance
25	AOUT	1.3	02.12.07	changed code for better performance
25	SDD	1.1	02.12.07	changed code for better performance
25	DEW_TEMP	1.3	02.12.07	changed code for better performance
25	DEW_CON	1.2	02.12.07	changed code for better performance output is now in Gramms / Qubic meter
25	AIR_ENTHALPY	1.2	02.12.07	changed code for better performance
25	EXP10	1.0	02.12.07	New Module
25	AIN	1.4	02.12.07	chaged code for better performance
25	RMP_W	1.6	02.12.07	corrected an error in calculation of step response
25	TEMP_PT	1.3	02.12.07	chaged code for better performance
25	SENSOR_INT	1.1	02.12.07	Corrected an error in algorithm
25	RES_SI	1.1	02.12.07	chaged code for better performance
25	RES_PT	1.2	02.12.07	chaged code for better performance
25	RES_NI	1.2	02.12.07	chaged code for better performance
25	ONTIME	1.4	02.12.07	chaged code for better performance
25	BAR_GRAPH	1.1	02.12.07	changed code to improove performance
25	FT_INT	1.5	02.12.07	changed code to improove performance
25	WATER_DENSITY	1.1	02.12.07	new code for better performance
25	HEAT_INDEX	1.2	02.12.07	new code for better performance
25	DEW_RH	1.1	02.12.07	new code for better performance
25	DST	1.2	01.12.07	changed code to improove performance
25	COTH	1.1	01.12.07	changed code to improove performance
25	COSH	1.1	01.12.07	changed code to improove performance
25	TANH	1.1	01.12.07	changed code to improove performance
25	SINH	1.1	01.12.07	changed code to improove performance
25	SIGN_R	1.2	01.12.07	changed code to improove performance
25	SIGN_I	1.2	01.12.07	changed code to improove performance
25	EVEN	1.1	01.12.07	changed code to improove performance
25	FT_PT2	1.3	30.11.07	changed out to be K * in during initialization avoid divide by 0 if TN = 0
25	FT_PT1	1.6	30.11.07	changed out to be K * in during initialization
25	PWM_PW	1.2	27.11.07	avoid divide by 0 when F = 0
25	PWM_DC	1.2	27.11.07	avoid divide by 0 when F = 0
25	GEN_SIN	1.2	27.11.07	avoid divide by 0 when pt = 0
25	GEN_RMP	1.2	27.11.07	avoid divide by 0 when pt = 0
24	BLIND_SHADE	1.2	24.11.07	added shade_delay to avoid constant up and down if sun is out parcially
24	HOLIDAY	1.3	24.11.07	changes F_use of Buß_und_Betttag to 0 because this is no official holiday
24	REAL_TO_STRF	1.1	20.11.07	when N=0 there will be no dot at the end of the string
24	GEN_RDT	1.0	20.11.07	New Module
24	RDM	1.2	20.11.07	changed code of temp calculation to avoid overflow in modr due to resucit would not fit DINT for high timer values
24	ACTUATOR_2P	1.4	19.11.07	replaced left over statement time() with tx
24	MIX	1.0	19.11.07	New Module
24	HEX_TO_DWORD	1.1	19.11.07	changed type of function from int to dword
24	HEAT_METER	1.0	17.11.07	New Module
24	_ARRAY_INIT	1.2	14.11.07	changed size calculation to be more efficient
24	_ARRAY_SORT	1.3	14.11.07	changed size calculation to be more efficient
24	_ARRAY_MEDIAN	1.4	14.11.07	corrected a problem with size calculation
24	T_PLC_MS	1.1	12.11.07	added temporaray variable tx because some compilers could not handle time() as an argument
24	T_PLC_US	1.1	12.11.07	added temporaray variable tx because some compilers could not handle time() as an argument
24	LTIME_TO_UTC	1.2	12.11.07	changed Type of time_zone_offset from time to int to allow for time zones with negative offset
24	LTIME	1.5	12.11.07	changed Type of time_zone_offset from time to int to allow for time zones with negative offset
24	LOCAL_TIME	1.3	12.11.07	changed time_zone_offset from time to integer to allow for negative offset time zones
24	DCF77	1.5	12.11.07	changed time_offset from time to integer to allow for negative offset time zones
24	RDM	1.1	11.11.07	changed time() into t_plc_ms()
24	MUL_ADD	1.1	11.11.07	deleted preset values for K and O this makes no sense for a function
24	NEG	1.0	11.11.07	New Module

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24	SGN	1.1	11.11.07	changed type of function from real to int
24	LTIME_TO.UTC	1.1	05.11.07	replaced literal constant with variable because of error in möller ecp4 compiler
24	CONTROL_SET2	1.0	04.11.07	New Module
24	CONTROL_SET1	1.0	04.11.07	New Module
24	TUNE	1.0	04.11.07	New Module
24	TUNE2	1.0	03.11.07	New Module
24	PARSET2	1.0	03.11.07	New Module
24	FT_PI	1.1	03.11.07	added noise input to filter noise output diff added set limit output false when output is within limits overflow was not set correctly
24	FT_PID	1.5	03.11.07	added noise input to filter noise, output diff added, set limit output false when output is within limits overflow was not set correctly
24	SET_TOD	1.3	02.11.07	changed dword to DINT in calculation to avoid warnings with some compilers
24	PARSET	1.0	02.11.07	New Module
24	DEAD_BAND	1.0	02.11.07	New Module
24	AIR_ENTHALPY	1.1	02.11.07	deleted unused variable RF
23	DATE_ADD	1.2	01.11.07	added int_to_dword statements to avoid possible overrun with möller ecp4
23	SET_TOD	1.2	01.11.07	changed coding to avoid possible overrun situation on möller ecp4
23	SET_DT	1.4	01.11.07	converted hour type integer to dword in calculation to avoid overrun on möller ecp4
23	WINDOW2	1.0	31.10.07	New Module
23	FT_PID	1.4	31.10.07	Rewritten to avoid error when one of the limits is 0
23	FT_PI	1.0	31.10.07	New Module
23	AIR_ENTHALPY	1.0	31.10.07	New Module
23	HOLIDAY	1.2	31.10.07	changed holiday definition from constant to input constant
23	BLIND_CONTROL	1.3	30.10.07	added lockout configuration time for motor direction change
23	AIR_DENSITY	1.0	29.10.07	New Module
23	SDD	1.0	29.10.07	New Module
23	WATER_ENTHALPY	1.0	29.10.07	New Module
23	FT_DERIV	1.3	29.10.07	prohibit calculation when tx - last = 0 to avoid div 0 and increase accuracy on fast systems
23	FT_INT	1.4	29.10.07	changed code so int will not be called is time difference is 0 to increase accuracy on systems with cycle times below 1ms
23	BLIND_SCENE	1.0	24.10.07	new module
23	LTIME	1.4	24.10.07	changed code because the execution every 100ms can cause major problems if the supplied time was not correct at start. use of new dst function
23	LOCAL_TIME	1.2	24.10.07	changed dst calculation because function dst was upgraded no error in local_time only a change in DST
23	DCF77	1.4	24.10.07	changed dst calculation because function dst was upgraded no error in DCF77 only a change in DST
23	DST	1.1	24.10.07	deleted time_zone_offset input because dst is generally at 01:00 utc and not mesz uk starts 01:00 utc and also greece
23	FT_PT1	1.5	23.10.07	added out := in to the init statements
23	BLIND_SHADE	1.1	19.10.07	manual mode was not detected because outputs were checked and not inputs UP and DN
23	CONE_V	1.0	17.10.07	New Module
22	GLOBAL CONSTANTS		16.10.07	Renamed PI in PI1 for better compatibility to other libraries
22	DEG	1.1	16.10.07	Deg will become 0 when it reaches 360
22	RAD	1.1	16.10.07	Rad will become 0 when it reaches 2PI
22	TRIANGLE_A	1.0	16.10.07	New Module
22	SPHERE_V	1.0	16.10.07	New Module
22	ELLIPSE_C	1.0	16.10.07	New Module
22	ELLIPSE_A	1.0	16.10.07	New Module
22	CIRCLE_C	1.0	16.10.07	New Module
22	CIRCLE_A	1.0	16.10.07	New Module
22	SGN	1.0	16.10.07	New Module
22	BLIND_CONTROL	1.2	16.10.07	Ignore angle when T_ANGLE < T#100ms
22	BLIND_SHADE	1.0	15.10.07	New Module
22	CRC_GEN	1.2	09.10.07	Added init values for start value and final XOR added reflect_in and reflect_out feature
22	REVERSE	1.0	09.10.07	New Module
22	SET_DT	1.3	08.10.07	deleted unused variables count and leap
22	DAY_OF_MONTH	1.3	08.10.07	deleted unused variable yr
22	_ARRAY_MEDIAN	1.3	08.10.07	deleted unused variables m and temp
22	POLYNOM_INT	1.0	08.10.07	New Module
22	LINEAR_INT	1.0	07.10.07	New Module

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22	BLIND_SECURITY	1.1	06.10.07	Added pos and angle inputs and outputs actions are now configurable
22	BLIND_INPUT	1.1	06.10.07	Renamed output ps and as to po and ao added click mode
22	BLIND_NIGHT	1.1	06.10.07	added pos and angle inputs and outputs night position and angle can now be configured any manual operation at night will cancel night operation
22	BLIND_CONTROL	1.1	06.10.07	Integrated blind_actuator into BLIND_CONTROL
22	BLIND_ACTUATOR	1.1	06.10.07	Rearranged outputs
22	RMP_W	1.5	05.10.07	Corrected a problem with pt = 0ms
22	RMP_B	1.5	05.10.07	Corrected a problem with pt = 0ms
22	HEX_TO_DWORD	1.0	02.10.07	New Module
21	DAY_OF_DATE	1.1	01.10.07	Added step7 compatibility
21	MONTH	1.1	01.10.07	New coding for much better performance, no string functions used
21	SET_DT	1.2	01.10.07	Added step7 compatibility
21	SET_DATE	1.2	01.10.07	added step7 compatibility, now call function set_date
21	TIMER_1	1.5	01.10.07	Corrected a problem , timer would not generate a pulse over midnight
21	DAY_OF_MONTH	1.2	01.10.07	Corrected an error in algorithm.
21	LEAP_YEAR	1.2	01.10.07	Improved code for higher performance
21	DAY_OF_YEAR	1.1	01.10.07	Added compatibility to step7
21	YEAR	1.1	01.10.07	Corrected error and added compatibility to Step7
21	GLOBAL CONSTANTS		01.10.07	Added Setup Parameter STEP7
21	BLIND_NIGHT	1.0	30.09.07	New Module
21	BLIND_SHADER	1.0	30.09.07	New Module
21	BLIND_INPUT	1.0	29.09.07	New Module
21	BLIND_CONTROL	1.0	29.09.07	New Module
21	BLIND_SECURITY	1.0	29.09.07	New Module
21	BLIND_ACTUATOR	1.0	29.09.07	New Module
21	INTERLOCK	1.0	28.09.07	New Module
21	RMP_W	1.4	28.09.07	Added output high and low, coorrected error while Busy was displayed when en was false improoved performance and timing accuracy added init statements to avoid wrong startup conditions
21	RMP_B	1.4	28.09.07	Added output high and low, coorrected error while Busy was displayed when en was false improoved performance and timing accuracy added init statements to avoid wrong startup conditions
21	_ARRAY_MEDIAN	1.2	22.09.07	chagned code to use array_sort Improved performance
21	_ARRAY_SORT	1.2	22.09.07	new algorithm for better performance
21	PERIOD	1.1	20.09.07	corrected a problem with leap year
20	SET_DT	1.1	19.09.07	Corrected leap year calculation
20	SET_DATE	1.1	19.09.07	Corrected leap year calculation
20	PERIOD	1.0	19.09.07	New Module
20	DCF77	1.3	17.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	ESR_MON_X8	1.1	17.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	ESR_MON_R4	1.1	17.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	ESR_MON_B8	1.1	17.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	FT_RMP	1.3	17.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	TP_R	1.1	17.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	SEQUENCE_8	1.4	17.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	SEQUENCE_4	1.4	17.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	GEN_SQ	1.1	17.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	CLK_PULSE	1.1	17.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	CLK_PRG	1.2	17.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	CLK_8MS	1.1	17.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	CLK_4MS	1.1	17.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	CLK_2MS	1.1	17.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	CLK_1MS	1.1	17.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	SH_2	1.3	17.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	SH_1	1.2	17.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	RMP_W	1.3	17.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	RMP_SOFT	1.2	17.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	RMP_B	1.3	17.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	GEN_SQ	1.2	17.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	GEN_SIN	1.1	17.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	GEN_RMP	1.1	17.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	DAYS_DELTA	1.1	16.09.07	Corrected an error in algorithm
20	DAY_OF_DATE	1.0	16.09.07	New Module

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20	METER_STAT	1.0	16.09.07	New Module
20	METER	1.0	16.09.07	New Module
20	GEN_RDM	1.1	16.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	ONTIME	1.3	16.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	M_TX	1.2	16.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	M_T	1.2	16.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	M_D	1.1	16.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	FT_TN64	1.1	16.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	FT_TN16	1.1	16.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	FT_PT2	1.2	16.09.07	Deleted unused code section for system time reading and unnecessary startup code
20	FT_PT1	1.4	16.09.07	Replaced Time() with T_PLC_US for compatibility and better internal resolution
20	CYCLE_TIME	1.2	16.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	FT_INT	1.3	15.09.07	Replaced Time() with T_PLC_US for compatibility and better internal resolution
20	FT_DERIV	1.2	15.09.07	Replaced Time() with T_PLC_US for compatibility and better internal resolution
20	FT_PROFILE	1.1	15.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	TEMP_EXT	1.1	15.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	TIMER_2	1.2	15.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	TIMER_1	1.4	15.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	SWITCH_I	1.1	15.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	PULSE_LENGTH	1.1	15.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	DIMM_I	1.3	15.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	CLICK	1.2	15.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	ACTUATOR_UD	1.2	15.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	ACTUATOR_PUMP	1.2	15.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	ACTUATOR_3P	1.3	15.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	ACTUATOR_2P	1.3	15.09.07	Replaced Time() with T_PLC_MS for compatibility and performance reasons
20	SHL1	1.0	14.09.07	New Module
20	SHR1	1.0	14.09.07	New Module
20	TOGGLE	1.0	13.09.07	New Module
20	T_PLC_US	1.0	14.09.07	New Module
20	T_PLC_MS	1.0	14.09.07	New Module
20	AOUT	1.2	13.09.07	changed code to avoid warning under codesys 2.3.8.1
20	AIN	1.3	13.09.07	changed code to avoid warning under codesys 2.3.8.1
20	RES_NI	1.1	13.09.07	Changed coding for better performance
20	DEW_TEMP	1.2	13.09.07	Changed algorithm to improve performance
20	DEW_CON	1.1	13.09.07	Changed algorithm to improve performance
20	WATER_DENSITY	1.0	13.09.07	New Module
20	DWORD_TO_STRH	1.1	11.09.07	changed coding for compatibility with twincat, under twincat concat cannot have a function as argument.
20	BYTE_TO_STRH	1.1	11.09.07	changed coding for compatibility with twincat, under twincat concat cannot have a function as argument.
20	SET_TOD	1.1	11.09.07	changed coding to avoid a compiler warning under twincat.
20	MATRIX	1.1	11.09.07	deleted unused variables k and old_code
20	CRC_GEN	1.1	11.09.07	Deleted unused variable i
20	CHECK_PARITY	1.1	10.09.07	Changed algorithm to improve performance
20	PARITY	1.1	10.09.07	Changed algorithm to improve performance
20	TEMP_SII	1.2	10.09.07	Reduced accuracy to 0.01 degree to shorten execution time and corrected an error in formula
20	TEMP_PT	1.2	10.09.07	Reduced accuracy to 0.01 degree to shorten execution time
20	TEMP_NI	1.2	10.09.07	Reduced accuracy to 0.01 degree to shorten execution time
20	BIT_COUNT	1.1	10.09.07	Improved performance
20	SH_2	1.2	10.09.07	Corrected an error while index would be out of array if N = 0;
20	D_TRIG	1.0	04.09.07	New Module
18	ONTIME	1.2	02.08.07	Corrected an error while ontime would stop counting time after a certain time is reached
17	LTIME_TO_UTC	1.0	05.07.07	New Module
17	BIT_COUNT	1.0	05.07.07	New Module
17	MATRIX	1.0	10.06.07	New Module
17	CRC_CHECK	1.0	09.06.07	New Module
17	CRC_GEN	1.0	09.06.07	New Module
17	BYTE_TO_STRB	1.0	09.06.07	New Module
17	BYTE_TO_STRH	1.0	09.06.07	New Module
17	DWORD_TO_STRB	1.0	09.06.07	New Module
17	DWORD_TO_STRH	1.0	09.06.07	New Module
17	CLICK	1.1	18.05.07	Corrected an error while Click would stop working when t_reconfig expired
16	PRESSURE	1.0	27.03.07	New Module
16	ARRAY_SDV	1.0	01.04.07	New Module
16	LTIME	1.3	18.03.07	changed code, dst would not work during first cycle.



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16	DEW_TEMP	1.1	29.04.07	Changed code when RH = 0, not to execute log(0)
16	GLOBAL CONSTANTS		02.05.07	Added UG, universal gas constant
16	ARRAY_VAR	1.0	01.04.07	New Module
16	TIMER_1	1.3	14.04.07	Corrected an error while output would not go active when start year = 1970 increased accuracy by checking every 100ms added init section to compensate for timer overflow at startup
16	DATE_ADD	1.1	12.04.07	corrected an error while date would be incorrect when year = 0
16	M_TX	1.1	02.05.07	Corrected wrong measurements during startup added output ET (elapsed time) added Reset input added tmax input
16	LENGTH	1.0	27.03.07	New Module
16	ASTRO	1.0	27.03.07	New Module
16	ENERGY	1.0	27.03.07	New Module
16	DEW_CON	1.0	29.04.07	New Module
16	CYCLE_TIME	1.2	10.03.07	changed initialization of ct_min to t#10h for compatibility with siemens s7
16	SPEED	1.0	27.03.07	New Module
16	M_D	1.0	02.05.07	New Module
16	M_T	1.1	02.05.07	Added init variable to avoid unreasonable result if falling edge occurs first added ET (elapsed Time) output added reset input
16	DEW_RH	1.0	29.04.07	New Module
16	SUN_TIME	1.2	17.04.07	corrected error while sun:midday would not be corrected for longitude.
15	MUL_ADD	1.0	08.02.07	New Module
15	CLK_PRG	1.1	25.02.07	rewritten moule in ST for better performance PT can noe be changed during runtime
15	DEC_8	1.1	03.03.07	rewritten moule in ST for better performance
15	FT_RMP	1.2	12.02.07	Added INIT to prevent erroneous startup conditions
15	GEN_RDM	1.0	07.02.07	New Module
15	FT_PID	1.3	03.03.07	Added default values for inputs KP, TN, TV, LIMIT_H and LIMIT_L
15	CEIL	1.0	07.02.07	New Module
15	FT_PT1	1.3	27.02.07	Output will be set to input during initial startup
15	CLICK	1.0	15.02.07	New Module „click“
15	PULSE_LENGTH	1.0	15.02.07	New Module
15	FACT	1.1	04.03.07	Changed a critical erro while loop was indefinite
15	GEN_RMP	1.0	03.03.07	New Module
15	FLOOR	1.0	07.02.07	New Module
15	DEAD_ZONE_2	1.0	12.02.07	New Module
15	SIGN_I	1.1	03.03.07	changed method of function for better compatibility to other systems
15	GLOBAL CONSTANTS		03.03.07	Increased accuracy of PI2 renamed T0 to TK for better compatibility with other Libraries renamed C to C0 for better compatibility
15	WCT	1.0	07.02.07	New Module
15	HOLIDAYEAT_INDEX	1.1	27.02.07	deleted unused variables rh3 and T3
15	PWM_DC	1.1	25.02.07	rewritten moule in ST for better performance
15	F_LAMP	1.1	08.02.07	New Module
15	HOLIDAY	1.1	27.02.07	deleted unused variable init
15	ONTIME	1.1	22.02.07	Changed VAR RETAIN PERSISTENT to VAR RETAIN for better compatibility with controllers without file system like WAGO's LON controllers
15	TIMER_2	1.1	22.02.07	Changed VAR RETAIN PERSISTENT to VAR RETAIN for better compatibility with controllers without file system like WAGO's LON controllers
15	_ARRAY_MEDIAN	1.1	03.03.07	Corrected an error in median calculation
15	DEC_4	1.1	03.03.07	rewritten moule in ST for better performance
15	GEN_SQR	1.1	12.02.07	Added default value for dc = 0.5
15	SWITCH_X	1.0	15.02.07	New Module
15	CALIBRATE	1.2	22.02.07	Chaged VAR RETAIN PERSISTENT to VAR RETAIN for better compatibility with controllers without file system
15	DEC_2	1.1	03.03.07	rewritten moule in ST for better performance
15	FT_PROFILE	1.0	27.02.07	New Module
15	INC	1.0	07.02.07	New Module
15	PWM_PW	1.1	25.02.07	rewritten moule in ST for better performance
15	DEAD_ZONE	1.0	12.02.07	New Module
15	BAR_GRAPH	1.0	22.02.07	New Module
15	BOILER	1.0	27.02.07	New Module
15	DCF_77	1.2	26.02.07	Chaqnged statements to avoid a compiler error if wago 16 bit lon controller is used
14	MUX_R2	1.0	19.01.07	New Module
14	DIMM_I	1.1	22.01.07	Deleted unused structure „ramp“
14	F_TO_OM	1.0	22.01.07	New Module
14	ESR_MON_X8	1.0	26.01.07	New Module

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14	ASINH	1.0	12.01.07	New Module
14	DAY_OF_MONTH	1.1	22.01.07	deleted unused variable day_in_year and day_in_year_begin
14	Heat_Temp	1.0	27.01.07	New Module
14	DIMM_I	1.2	02.02.07	Changed method to read time() only at the beginning of the module for better consistency when a higher priority task interrupts „dimm_i“ added code in case structure for state 1 to allow for short one cycle long input pulses
14	SEQUENCE_4	1.3	17.01.07	Changed output fault to ESR compatible output STATUS added stop on error functionality default for inputs IN is now TRUE renamed variable state to step
14	SH_2	1.1	20.01.07	Added input N to specify the amount of samples for calculations added output trig
14	DWORD_TO_STRF	1.0	16.01.07	New Module
14	_ARRAY_INIT	1.1	06.01.07	Changed type of function to BOOL function now returns TRUE
14	SUN_POS	1.0	01.02.07	New Module
14	SCALE_B4	1.1	19.01.07	Changed outputs to REAL to avoid Integer overflow added input offset for better cascading changed from FB to FUNCTION
14	SCALE_X8	1.0	19.01.07	New Module
14	STAIR2	1.0	28.01.07	New Module
14	HYST_3	1.0	22.01.07	New Module
14	GEN_SIN	1.0	22.01.07	New Module
14	SIGN_R	1.1	19.01.07	changed method of function for better compatibility to other systems
14	RMP_W	1.2	22.01.07	Deleted unused variable step
14	KMH_TO_MS	1.0	04.02.07	New Module
14	ACTUATOR_2P	1.2	17.01.07	Deleted unused variable time_overflow
14	ACTUATOR_3P	1.2	23.01.07	Deleted unused variables „force_on“ and „force_off“
14	FT_PT2	1.1	15.01.07	Improved algorithm for higher accuracy and speed
14	SENSOR_INT	1.1	20.01.07	Deleted input R0 which was not used
14	SQRTN	1.0	12.01.07	New Module
14	BURNER	1.3	31.12.06	Added status output to be ESR compatible
14	F_LIN2	1.0	01.01.07	New Module
14	FT_TN16	1.0	01.01.07	New Module
14	FT_PID	1.2	03.01.07	Added int_band for structural adaptation of PID
14	BYTE_OF_DWORD	1.0	17.01.07	New Module
14	AOUT	1.1	18.01.07	Renamed module to AOUT changed output to hold 32 bits max corrected an error with sign bit
14	SUN_TIME	1.1	20.01.07	deleted unused variables sun_rineR and sun_setR
14	SH	1.1	16.01.07	Added output trig
14	MAX_3	1.0	01.01.07	New Module
14	OM_TO_F	1.0	22.01.07	New Module
14	MIN_3	1.0	01.01.07	New Module
14	FT_PT1	1.2	03.01.07	Corrected an error with falling edge errors added faktor K
14	SEQUENCE_8	1.3	17.01.07	Changed output fault to ESR compatible output STATUS added stop on error functionality default for inputs IN is now TRUE renamed variable state to step
14	MULTI_IN	1.1	01.01.07	Changed midr to mid3 funktion for better performance
14	STAIR	1.0	28.01.07	New Module
14	ACOSH	1.0	12.01.07	New Module
14	BURNER	1.2	31.12.06	Added Oil_Temp input
14	ACTUATOR_UD	1.1	22.01.07	Added status output changed inputs „ton“ and „toff“ to config variables added config var „out_return to enable „yup_in“ and y_dn_in“ changed manual mode to override automatic mode
14	FT_TN8	1.0	01.01.07	New Module
14	SCALE_B8	1.1	19.01.07	Changed outputs to REAL to avoid Integer overflow added input offset for better cascading changed from FB to FUNCTION
14	DELAY	1.2	19.01.07	changed reset to load the value of in instead of 0
14	CHR	1.0	16.01.07	New Module
14	SCALE_X4	1.0	19.01.07	New Module
14	RDM	1.0	16.01.07	New Module
14	LEGIONELLA	1.1	17.01.07	Rewritten moule in ST for better performance changed error out to ESR compatible Status output
14	ACOTH	1.0	12.01.07	New Module
14	WORK_WEEK	1.1	14.01.07	deleted unused variable yday

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14	SCALE_X2	1.0	19.01.07	New Module
14	DCF_77	1.1	02.02.07	change wday and dst outputs when there is no dcf reception
14	FT_IMP	1.1	03.01.07	Added faktor K
14	SH_1	1.1	06.01.07	Added output trig
14	MUX_R4	1.0	19.01.07	New Module
14	DELAY_4	1.1	19.01.07	added variable temp to add 1 delay for q1
14	WORD_OF_DWORD	1.0	17.01.07	New Module
14	_ARRAY_SORT	1.1	06.01.07	Function now returns TRUE
14	BURNER	1.4	22.01.07	Changed output „fail“ to „status“ added output „cycles“ corrected an error while pre_heat would be active when an error was present added „coil2“ output and „stage2“ input for dual stage burners
14	TEMP_PT	1.1	24.01.07	deleted input R0 which was not used
14	OFFSET_2	1.0	12.01.07	New Module
14	FT_PT1	1.1	01.01.07	Corrected error during startup corrected error with very small time values < 10ms
14	COSH	1.0	12.01.07	New Module
14	TANH	1.0	12.01.07	New Module
14	FT_DERIV	1.1	03.01.07	Added init code for startup set default for K to 1
14	RMP_SOFT	1.0	22.01.07	New Module
14	ATANH	1.0	12.01.07	New Module
14	FT_INT	1.2	15.01.07	Added default value for K = 1
14	COTH	1.0	12.01.07	New Module
14	DWORD_OF_BYTE	1.0	24.01.07	New Module
14	MS_TO_KMH	1.0	04.02.07	New Module
14	RMP_B	1.2	17.01.07	Renamed input UD to UP for better usability deleted unused variable step
14	TEMP_NI	1.1	24.01.07	deleted input R0 which was not used
14	ESR_MON_B8	1.0	26.01.07	New Module
14	ESR_MON_R4	1.0	26.01.07	New Module
14	FT_AVG	1.1	07.01.07	Changed reset logic to load buffer with IN instead of 0 added EN input for better flow control added init to avoid erroneous startup conditions deleted unused variable CNT
14	OFFSET	1.0	12.01.07	New Module
14	EXEC	1.1	06.02.07	Corrected error with COS function divide by 0 wilol return an error now
14	AIN	1.2	19.01.07	fixed an error with sign bit.
14	LTIME	1.2	17.01.07	Added input UTC instead of internal SYSRTCGETTIME for better compatibility with different Hardware corrected an error while DST_ENABLE would not be checked before DST is enabled
14	BURNER	1.1	31.12.06	Added Pre heating time and output flame monitor before ignition will generate error output now added output for Kwh
14	WINDOW	1.1	22.01.07	Changed input arrangement
14	TEMP_SI	1.1	24.01.07	deleted input R0 which was not used
14	WORD_OF_BYTE	1.0	24.01.07	New Module
14	ESR_COLLECT	1.0	26.01.07	New Module
14	SINH	1.0	12.01.07	New Module
14	FT_TN64	1.0	01.01.07	New Module
14	MID_3	1.0	01.01.07	New Module
14	SCALE_B2	1.1	19.01.07	Changed outputs to REAL to avoid Integer overflow added input offset for better cascading changed from FB to FUNCTION
13	ACTUATOR_2P	1.1	07.10.06	changed error, pos could not reach 1 or 0 under certain conditions due to error in code
13	DATE_ADD	1.0	27.12.06	New Module
13	TEMP_EXT	1.0	06.12.06	New Module
13	K_TO_C	1.0	04.12.06	New Module
13	RMP_B	1.1	15.10.06	Added output busy
13	FIND_NONUM	1.0	06.10.06	New Module
13	FT_PID	1.1	01.12.06	Changed algorithm to „Trapezregel“ for higher accuracy
13	TIMER_1	1.2	25.12.06	Corrected an error with timer overflow
13	TIMER_1	1.1	01.12.06	Corrected an error whith pulse width = 0
13	C_TP_K	1.0	04.12.06	New Module
13	CYCLE_TIME	1.1	12.12.06	Added output cycles
13	TRIM	1.0	06.10.06	New Module
13	FINDB_NUM	1.0	06.10.06	New Module
13	MUX_4	1.1	05.10.06	rewritten moule in ST for better performance

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13	FT_RMP	1.1	08.10.06	Added UD output
13	FIND_NUM	1.0	06.10.06	New Module
13	ACTUATOR_2P	1.1	07.10.06	changed „on“ and „off“ to „force“ and „force_in“ for better usability.
13	SEQUENCE_4	1.2	01.12.06	corrected an error in sequence logic added init at startup to prevent erroneous startup conditions
13	MUX_2	1.1	05.10.06	rewritten moule in ST for better performance
13	UPPERCASE	1.0	06.10.06	New Module
13	DAYS_DELTA	1.0	27.12.06	New Module
13	FT_INT	1.1	13.12.06	Changed algorithm to „Trapezregel“ for higher accuracy
13	ACTUATOR_3P	1.1	19.10.06	Added code to avoid overrun of the end_switch
13	OSCAT_VERSION	1.0	06.10.06	New Module
13	LOWERCASE	1.0	06.10.06	New Module
13	FINDB	1.0	06.10.06	New Module
13	REAL_TO_STRF	1.0	06.10.06	New Module
13	ACTUATOR_PUMP	1.1	27.12.06	Fixed an error while the pump would run for t_min at startup
13	EASTER	1.0	27.12.06	New Module
13	DIFFER	1.0	08.10.06	New Module
13	FINDB_NONUM	1.0	06.10.06	New Module
13	SEQUENCE_8	1.2	01.12.06	corrected an error in sequence logic added init at startup to prevent erroneous startup conditions
13	STATUS_TO_ESR	1.0	06.10.06	New Module
12	SECOND	1.1	02.10.06	Changed name of input to ITOD
12	RMP_W	1.1	04.10.06	added the busy output which signals that the ramp is running.
12	ARRAY_SUM	1.0	02.10.06	New Module
12	ARRAY_TREND	1.0	02.10.06	New Module
12	LTIME	1.1	02.10.06	corrected an error where dst would be delayed by 0.1second
12	LEAP_OF_DATE	1.1	02.10.06	Corrected an error while year 1970 would not work
12	CHECK_PARITY	1.0	01.10.06	New Module
12	DELAY	1.1	01.10.06	Corrected an error in buffer management
12	ARRAY_MIN	1.0	02.10.06	New Module
12	ARRAY_MAX	1.0	02.10.06	New Module
12	SEQUENCE_4	1.1	01.10.06	Added output any corrected delay to occur aftzer event and not before
12	LEAP_YEAR	1.1	02.10.06	Corrected an error while year 1970 would not work
12	ARRAY_AVG	1.0	02.10.06	New Module
12	ARRAY_SPR	1.0	02.10.06	New Module
12	LOCAL_TIME	1.1	02.10.06	Corrected an error while DST would be calculated wrong
12	HOUR	1.1	02.10.06	Changed name of input to ITOD
12	MULTIME	1.0	02.10.06	New Module
12	EVEN	1.0	01.10.06	New Module
12	DEW_TEMP	1.0	02.10.06	New Module
12	MINUTE	1.1	02.10.06	Changed name of input to ITOD
12	SEQUENCE_8	1.1	01.10.06	Added output any corrected delay to occur aftzer event and not before
11	SH_2	1.0	01.09.06	New Module
11	SH_T	1.0	01.09.06	New Module
11	FT_MIN_MAX	1.0	01.09.06	New Module
11	PARITY	1.0	01.09.06	New Module
11	F_LIN	1.0	01.09.06	New Module
11	F_QUAD	1.0	01.09.06	New Module
11	AIN	1.1	18.08.06	fixed an error with low value negative and high value 0.
11	ROUND	1.0	01.09.06	New Module
11	F_POWER	1.0	01.09.06	New Module
11	WEEKDAY	1.1	21.08.06	Coorrected an error in formula
10	TP_R	1.0	04.08.06	New Module
10	SET_DT	1.0	04.08.06	New Module
10	M_TX	1.0	04.08.06	New Module
10	RAD	1.0	04.08.06	New Module
10	INC_DEC	1.0	04.08.06	New Module
10	MINUTE_TO_TIME	1.0	04.08.06	New Module
10	SHR_4UDE	1.0	04.08.06	New Module
10	DAY_OF_YEAR	1.0	04.08.06	New Module
10	HYST_2	1.0	04.08.06	New Module
10	MUX_4	1.0	04.08.06	New Module
10	SECOND_TO_TIME	1.0	04.08.06	New Module
10	FF_D2E	1.0	04.08.06	New Module
10	CLK_4MS	1.0	04.08.06	New Module
10	DST	1.0	04.08.06	New Module

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10	FRACT	1.0	04.08.06	New Module
10	SET_TOD	1.0	04.08.06	New Module
10	FF_D4E	1.0	04.08.06	New Module
10	CLK_DIV	1.0	04.08.06	New Module
10	CLK_2MS	1.0	04.08.06	New Module
10	PT_TO_F	1.0	04.08.06	New Module
10	CLK_PULSE	1.0	04.08.06	New Module
10	M_T	1.0	04.08.06	New Module
10	DAY_OF_MONTH	1.0	04.08.06	New Module
10	DAY_TO_TIME	1.0	04.08.06	New Module
10	RES_PT	1.1	04.08.06	New Module
10	FIFO_16	1.0	04.08.06	New Module
10	STACK_32	1.0	04.08.06	New Module
10	F_TO_PT	1.0	04.08.06	New Module
10	RES_NI	1.0	04.08.06	New Module
10	CLK_1MS	1.0	04.08.06	New Module
10	MUX_2	1.0	04.08.06	New Module
10	BIT_OF_DWORD	1.0	04.08.06	New Module
10	FF_JKE	1.0	04.08.06	New Module
10	LTCH_4	1.0	04.08.06	New Module
10	GEN_SQ	1.0	04.08.06	New Module
10	GEN_BIT	1.0	04.08.06	New Module
10	SHR_8UDE	1.0	04.08.06	New Module
10	HOUR	1.0	04.08.06	New Module
10	SHR_4E	1.0	04.08.06	New Module
10	B_TRIG	1.0	04.08.06	New Module
10	BYTE_OF_BIT	1.0	04.08.06	New Module
10	BYTE_TO_BIT	1.0	04.08.06	New Module
10	SHR_8PLE	1.0	04.08.06	New Module
10	C_TO_F	1.0	04.08.06	New Module
10	FF_DRE	1.0	04.08.06	New Module
10	STACK_16	1.0	04.08.06	New Module
10	SET_DATE	1.0	04.08.06	New Module
10	DEG	1.0	04.08.06	New Module
10	SWITCH_I	1.0	04.08.06	New Module
10	HOUR_TO_TOD	1.0	04.08.06	New Module
10	YEAR	1.0	04.08.06	New Module
10	HYST_1	1.0	04.08.06	New Module
10	MONTH	1.0	04.08.06	New Module
10	HOUR_TO_TIME	1.0	04.08.06	New Module
10	LTCH	1.0	04.08.06	New Module
10	CLK_8MS	1.0	04.08.06	New Module
10	RES_SI	1.0	04.08.06	New Module
10	F_TO_C	1.0	04.08.06	New Module
10	FIFO_32	1.0	04.08.06	New Module