

Devices

- 20220308 RPi1x4 (DST)
 - PFC200_LAB (CODESYS Control for PFC200)
 - PFC200_TEST (CODESYS Control for PFC200)
 - RPi102_HOME (CODESYS Control for Raspberry Pi 102)
 - RPi202_LAB (CODESYS Control for Raspberry Pi 202)
 - PLC Logic
 - PLC
 - 000 techNotes
 - 010 Initialization
 - 030 TIMING
 - 040 DATATYPES
 - 050 FUNCTION BLOCKS
 - 060 FUNCTIONS
 - 070 Communication
 - 090 CODED EXAMPLES
 - 092 PWRxSIM
 - 095 SIM
 - 101 Network Variables
 - 202 RPi
 - 251 OmronPLC
 - 700 ALARMS
 - 800 NAV LOGIC
 - 900 NAV SUBMENUS
 - 950 SCADA
 - gvl
 - RPi202_PFC200
 - ImagePool
 - Library Manager
 - PFC200_RPi202
 - Task Configuration
 - SubMenuList
 - Trend Recording Manager
 - pvm
 - Visualization Manager
 - RPi2_Codesys
- Ethernet (Ethernet)
- SoftMotion General Axis Pool
- I2C
- GPIOs_A_B (GPIOs B+/Pi2)
- Onewire
- Camera device
- SPI
- RPi3_WEB (CODESYS Control for Raspberry Pi 3)
- RPi4_KAYE (CODESYS Control for Raspberry Pi 4)

Library Manager

Name	Namespace	Effective Version
System_VisuElemsWinControls = VisuElemsWinControls, 4.1.0.0 (System)	VisuElemsWinControls	4.1.0.0
System_VisuElemTextEditor = VisuElemTextEditor, 4.1.0.0 (System)	VisuElemTextEditor	4.1.0.0
System_VisuElemTrace = VisuElemTrace, 4.1.0.0 (System)	VisuElemTrace	4.1.0.0
System_VisuElemXYChart = VisuElemXYChart, 4.1.0.0 (System)	VisuElemXYChart	4.1.0.0
system_visuinputs = visuinputs, 4.1.0.0 (system)	visuinputs	4.1.0.0
System_VisuNativeControl = VisuNativeControl, 4.1.0.0 (System)	VisuNativeControl	4.1.0.0
SysTimeRtc, 3.5.17.0 (System)	SysTimeRtc	3.5.17.0
Time and Date, 3.5.17.0 (3S - Smart Software Solutions GmbH)	Time_and_Date	3.5.17.0
Util = Util, 3.5.17.0 (System)	Util	3.5.17.0
VisuDialogs = VisuDialogs, 4.1.0.0 (System)	VisuDialogs	4.1.0.0
VisuTrendStorageAccess = VisuTrendStorageAccess, 4.1.0.0 (System)	VisuTrendStorageAccess	4.1.0.0
VisuUserManagement = VisuUserMgmt, 4.1.0.0 (System)	VisuUserManagement	4.1.0.0

Util, 3.5.17.0 (System)

- Analog Monitors
- BCD Conversions
- Bit/Byte Functions
- Constants
- Controller
- Datatypes
- Encoding
- Function Manipulators
- Gray Conversions
- HEX/ASCII Functions
- Images
- Library Information
- Mathematical Functions
- Signals
- TimerSwitch

Documentation

Util Library Documentation

Company: System
Title: Util
Version: 3.5.17.0
Categories: Application|Common
Author: 3S - Smart Software Solutions GmbH
Placeholder: Util

Description [1]

Provides data types for generator modes and points. And provides function blocks and functions for the following use cases: Analog monitors, BCD conversions, bit/byte functions, controller, function manipulators, mathematical functions and signals.

In the folder TimerSwitch the types, functions and function blocks are located for handling UTC and local time and the implementation of a timer switch.

Contents:

Properties

Filter

Sort by

Sort order

Property	Value
----------	-------

Messages - Total 0 error(s), 0 warning(s), 493 message(s)

Download 0 error(s) 0 warning(s) 1 message(s)

Description	Project	Object
-------------	---------	--------

Devices

- 20220308 RPi1x4 (DST)
 - PFC200_LAB (CODESYS Control for PFC200)
 - PFC200_TEST (CODESYS Control for PFC200)
 - RPi102_HOME (CODESYS Control for Raspberry Pi 102)
 - RPi202_LAB (CODESYS Control for Raspberry Pi 202)
 - PLC Logic
 - PLC
 - 000 techNotes
 - 010 Initialization
 - 030 TIMING
 - 040 DATATYPES
 - 050 FUNCTION BLOCKS
 - 060 FUNCTIONS
 - 070 Communication
 - 090 CODED EXAMPLES
 - 092 PWRxSIM
 - 095 SIM
 - 101 Network Variables
 - 202 RPi
 - 251 OmronPLC
 - 700 ALARMS
 - 800 NAV LOGIC
 - 900 NAV SUBMENUS
 - 950 SCADA
 - gvl
 - RPi202_PFC200
 - ImagePool
 - Library Manager
 - PFC200_RPi202
 - Task Configuration
 - SubMenuList
 - Trend Recording Manager
 - pvm
 - Visualization Manager
 - RPi2_Codesys
- Ethernet (Ethernet)
- SoftMotion General Axis Pool
- I2C
- GPIOs_A_B (GPIOs B+/Pi2)
- Onewire
- Camera device
- SPI
- RPi3_WEB (CODESYS Control for Raspberry Pi 3)
- RPi4_KAYE (CODESYS Control for Raspberry Pi 4)

```

21     SYNx           : SYNC;
22     LOADBANK       : LOADBANK;
23     UTy            : UTy;
24     PLANTLOAD      : PLANTLOAD;
25     ALARM          : ALARM;
26
27     END_VAR
28
29
30     VAR_GLOBAL CONSTANT
31
32     navMin          : INT := 1;
33     navMax          : INT := 10;
34     dutyQty        : INT := 16;
35
36     END_VAR
37
38
39     VAR_GLOBAL CONSTANT
40     (* Eastern Timezone declaration for Toronto, Canada.
41     DST begins on 2nd Sunday in March and EST begins on 1st Sunday in November by 1 hour.
42     Note: Ontario has two timezones - Central & Eastern
43     uiDay => 1..5 1=> first day of the month, 5 => last day of the month *)
44
45     // Coordinated Universal Time
46     gc_tzTimezoneUTC : TimeZone := (asgPeriod := [(sName:='UTC')]);
47
48     // Eastern Timezone - Toronto
49     gc_tzTimezoneTOR : TimeZone :=
50     (
51     iBias := -300, (* -300 minutes => -5 hours difference with respect to UTC with GMT -05:00
52     asgPeriod :=
53     [(sName:='EST', (* Eastern Standard Time - EST begins on 1st Sunday in November at 3:00am - Fall
54     dtDate := (uiMonth := 11, eWeekday := WEEKDAY.SUNDAY, uiDay := 1, uiHour := 3, uiMinute := 0)
55     ),
56     ( sName := 'DST', (* Daylight Saving Time - DST begins on 2nd Sunday in March at 3:00am - Spring F
57     dtDate := (uiMonth := 3, eWeekday := WEEKDAY.SUNDAY, uiDay := 2, uiHour := 3, uiMinute := 0),
58     iBias := 60 (* minutes - spring forward 1 hour in March *)
59     )
60     )];
61     );
62     END_VAR
63
  
```

Properties

- Filter
- Sort by
- Sort order

Property	Value
----------	-------

Messages - Total 0 error(s), 0 warning(s), 493 message(s)

Download 0 error(s) 0 warning(s) 1 message(s)

Description	Project	Object
-------------	---------	--------

Devices

- 20220308 RPi1x4 (DST)
 - PFC200_LAB (CODESYS Control for PFC200 SL)
 - PFC200_TEST (CODESYS Control for PFC200 SL)
 - RPi102_HOME (CODESYS Control for Raspberry Pi SL)
 - RPi202_LAB (CODESYS Control for Raspberry Pi MC SL)
 - PLC Logic
 - PLC
 - 000 techNotes
 - 010 Initialization
 - 030 TIMING
 - Programs
 - CycleTime (PRG)
 - prgTimeZone (PRG)
 - realTimeClock (PRG)
 - Systime (PRG)
 - _MAIN_TIMEDATE (PRG)
 - 040 DATATYPES
 - 050 FUNCTION BLOCKS
 - 060 FUNCTIONS
 - 070 Communication
 - 090 CODED EXAMPLES
 - 092 PWRxSIM
 - 095 SIM
 - 101 Network Variables
 - 202 RPi
 - 251 OmronPLC
 - 700 ALARMS
 - 800 NAV LOGIC
 - 900 NAV SUBMENUS
 - 950 SCADA
 - gvl
 - RPi202_PFC200
 - ImagePool
 - Library Manager
 - PFC200_RPi202
 - Task Configuration
 - SubMenuList
 - Trend Recording Manager
 - pvm
 - Visualization Manager
 - RPi2_Codesys
 - Ethernet (Ethernet)
 - SoftMotion General Axis Pool
 - I2C

```

1 PROGRAM prgTimeZone
2 VAR
3
4     utcDateTime      : ULINT;
5     localDT         : ULINT;
6     tZone           : ULINT;
7
8     utcDate         : DATE;
9     utcTime        : TIME_OF_DAY;
10    utc_eWeekday    : UTIL.WEEKDAY;
11    utc_sWeekday    : STRING(3);
12
13    localDate       : DATE;
14    localTime      : TIME_OF_DAY;
15    local_eWeekday : UTIL.WEEKDAY;
16    local_sWeekday : STRING(3);
17
18    errorID        : UTIL.ERROR;
19    period         : UTIL.PERIOD;
20    status         : STRING(8);
21
22    dst            : BOOL;
23

```

```

1 (* Set Eastern Timezone for Toronto, Canada - DST begins on 2nd Sunday in March and EST begins on 1st Sunday in November *)
2
3 (* FUNCTIONS: getTimeDate & localDateTime *)
4
5 // UTC
6 utcDateTime := getDateTIme();
7 SeparateDateTIme(uliDateTIme:=utcDateTime,eWeekday=>utc_eWeekday,datDate=>utcDate,todTIme=>utcTIme);
8 utc_sWeekday := tzzoneDOW(utc_eWeekday); // UTC Day of Week, 1= Mon, 2=TUE
9
10 // EST/DST
11 localDT := localDateTIme(tzTImeZone:=gvl.gc_tzTImeZoneTOR,uliDateTIme:=utcDateTime,eErrorID=>errorID,ePeriod=>period);
12 SeparateDateTIme(uliDateTIme:=localDT,eWeekday=>local_eWeekday,datDate=>localDate,todTIme=>localTIme);
13
14 tZone := (utcDateTime - localDT) / (1000 * 3600); // utc-local time difference in hours
15 local_sWeekday := tzzoneDOW(local_eWeekday); // Local TIme Day of Week, 1= Mon, 2=TUE
16
17
18
19 (* LOCAL TIMEZONE INFO - for HMI display purposes only *)
20

```

Messages - Total 0 error(s), 0 warning(s), 493 message(s)

Download 0 error(s) 0 warning(s) 1 message(s)

Description	Project	Object

Devices

- power (STRUCT)
- pwm (STRUCT)
- ramp (STRUCT)
- RPI2 (STRUCT)
- RS232 (STRUCT)
- sim (STRUCT)
- simulation (STRUCT)
- sine (STRUCT)
- sp334 (STRUCT)
- stage (STRUCT)
- sub_menu (STRUCT)
- sync (STRUCT)
- system (STRUCT)
- uty (STRUCT)
- voltage (STRUCT)
- vsd (STRUCT)
- ALARMS
- TIMEDATE
 - dow (STRUCT)
 - timedate (STRUCT)
 - TimezoneInfo (STRUCT)
- 050 FUNCTION BLOCKS
- 060 FUNCTIONS
- 070 Communication
- 090 CODED EXAMPLES
- 092 PWRxSIM
- 095 SIM
- 101 Network Variables
- 202 RPi
- 251 OmronPLC
- 700 ALARMS
- 800 NAV LOGIC
- 900 NAV SUBMENUS
- 950 SCADA
- gvl
- RPI202_PFC200
- ImagePool
- Library Manager
- PFC200_RPI202
- Task Configuration
- SubMenuList
- Trend Recording Manager
- pvm
- Visualization Manager

```

1  TYPE TimezoneInfo :
2  STRUCT
3
4      est_iBias      : INT;
5      est_sName     : STRING(3);
6      est_month     : UINT;
7      est_eWeekday  : UTIL.WEEKDAY; // 1=monday
8      est_sWeekday  : STRING(3);
9      est_day       : UINT; // 1..31 day in this Month or 1..5 1=> first day in this month 5 => last
10     est_hour      : UINT;
11     est_minute    : UINT;
12
13     dst_sName     : STRING(3);
14     dst_month     : UINT;
15     dst_eWeekday  : UTIL.WEEKDAY; // 1=monday
16     dst_sWeekday  : STRING(3);
17     dst_day       : UINT; // 1..31 day in this Month or 1..5 1=> first day in this month 5 => last
18     dst_hour      : UINT;
19     dst_minute    : UINT;
20     dst_iBias     : INT;
21
22 END_STRUCT
23 END_TYPE
24

```

Messages - Total 0 error(s), 0 warning(s), 493 message(s)

Download 0 error(s) 0 warning(s) 1 message(s)

Description	Project	Object

Last build: 0 0 Precompile Project user: (nobody)

Devices

- PFC200_TEST (CODESYS Control for PFC200 SL)
- RPI102_HOME (CODESYS Control for Raspberry Pi SL)
- RPI202_LAB (CODESYS Control for Raspberry Pi MC SL)
 - PLC Logic
 - PLC
 - 000 techNotes
 - 010 Initialization
 - 030 TIMING
 - 040 DATATYPES
 - 050 FUNCTION BLOCKS
 - 060 FUNCTIONS
 - OSCAT
 - ampCalc (FUN)
 - ASCII2DEC (FUN)
 - CHKSUM (FUN)
 - dateString (FUN)
 - DEC2ASCII (FUN)
 - kvaCalc (FUN)
 - kvaCalc2 (FUN)
 - kvarCalc (FUN)
 - kwCalc (FUN)
 - linearCalc (FUN)
 - pfCalc (FUN)
 - timeString (FUN)
 - tzoneDOW (FUN)
 - uniWordREAL (FUN)
 - uniWREALx10 (FUN)
 - 070 Communication
 - 090 CODED EXAMPLES
 - 092 PWRxSIM
 - 095 SIM
 - 101 Network Variables
 - 202 RPi
 - 251 OmronPLC
 - 700 ALARMS
 - 800 NAV LOGIC
 - 900 NAV SUBMENUS
 - 950 SCADA
 - gvl
 - RPI202_PFC200
 - ImagePool
 - Library Manager
 - PFC200_RPI202
 - Task Configuration

```

1 FUNCTION tzoneDOW : string
2 VAR_INPUT
3     eWeekday      : UTIL.WEEKDAY;
4 END_VAR
5 VAR
6 END_VAR
7

```

```

1 (* Local Timezone Day of Week *)
2
3 CASE eWeekday OF
4
5     1 : tzoneDOW := 'MON';
6     2 : tzoneDOW := 'TUE';
7     3 : tzoneDOW := 'WED';
8     4 : tzoneDOW := 'THU';
9     5 : tzoneDOW := 'FRI';
10    6 : tzoneDOW := 'SAT';
11    7 : tzoneDOW := 'SUN';
12
13 END_CASE

```

Messages - Total 0 error(s), 0 warning(s), 493 message(s)

Download 0 error(s) 0 warning(s) 1 message(s)

Description	Project	Object

RPi2 Info RPi2 GPIO **Timezone**

TAB25x5_TIMEZONE

Local Timezone Settings	Current Date & Time
EST	UTC Date/Time : 1646761780546
est_iBias : -300	UTC Date : D#2022-03-08
est_sName : EST	UTC Time : TOD#17:49:40.546
est_month: 11	UTC Weekday : 2
est_eWeekday: 7	UTC Weekday : TUE
est_sWeekday: SUN	
est_day: 1	Local Date/Time : 1646743780546
est_hour: 3	Local Date : D#2022-03-08
est_minute: 0	Local Time : TOD#12:49:40.546
	Local Weekday : 2
DST	Local Weekday : TUE
dst_iBias : 60	Period : 1
dst_sName : DST	Status : STANDARD
dst_month: 3	dst : 0
dst_eWeekday: 7	
dst_sWeekday: SUN	
dst_day: 2	
dst_hour: 3	
dst_minute: 0	

dst

sysINFO

Time Since Boot	device.clock.seconds	comm.index
sec: 23	40 RPi202	2 OMRONPLC
min: 21	25 PFC200	
hrs: 16		
days: 9		
Time Since Download		
sec: 36		
min: 55		
hrs: 0		
days: 0		
cycletime (ms): 100	system heartbeat (10s) <input type="radio"/>	
num of scan/s: 9	first scan completed <input checked="" type="radio"/>	
initialization timer (s): 0.0	initialization completed <input checked="" type="radio"/>	
dst: 0		

<< [] [] [] OMRON PFC200 **RPi2** [] COMM >> 2 2.6