

## DaylightSaving

A Function Block (FB) to take account of Daylight Saving time according Month and 'Week number in Month' rules. The FB will move the PLC Real Time Clock (RTC) on by 1 hour at 'HourFwd' on the Sunday set in MonthFwd/WeekNoFwd setting – to Summer Time clock setting. At hour 'HourBack' on the Sunday set in MonthBack/WeekNoBack the clock will be put back by 1 hour.

The lightweight FB is written in ladder and can be used in CP1L/H, CJ1/CS1/NSJ (V3 upwards) and all CJ2 PLC's.

For correct operation, this FB should always be 'Enabled' (so detection is made correctly). It is also provided with two inputs that will allow manual increment and decrement of the RTC by 1 hour.

The FB internally runs for one scan at every new hour of the RTC. This means that there is minimum impact on overall PLC scan time.

As a minimum the FB must be running on the Sunday in MonthFwd/WeekNoFwd at hour HourFwd and also on the last Saturday in MonthBack/WeekNoBack from 23:59:59 to Sunday at hour HourBack.

Function Block Parameter Name	Data Type	Details of function
<i>Inputs into Function Block</i>		
EN	BOOL	Always On (P_On)
MonthFwd	UINT	Month number (1-12) to move forward by 1hour
WeekNoFwd	UINT	Week number in MonthFwd to move forward by 1 hour Set 1-4 or 0 for last week in month
HourFwd	UINT	Hour number (1-23) on the Sunday in WeekNoFwd to move forward
MonthBack	UINT	Month number (1-12) to move backward by 1hour
WeekNoBack	UINT	Week number in MonthBack to move back by 1 hour Set 1-4 or 0 for last week in month
HourBack	UINT	Hour number (1-23) on the Sunday in WeekNoBack to move backward

Function Block Parameter Name	Data Type	Details of function
IncHour	BOOL	Manual increment of RTC by 1 hour upon rising edge. HourForward flag is Set.
DecHour	BOOL	Manual decrement of RTC by 1 hour upon rising edge. HourForward flag is Reset.
<i>Outputs from Function Block</i>		
ENO	BOOL	Unused
HourForward	BOOL	Flag to signify RTC has moved forward by 1 hour (in Summer Time) Note this flag is only set automatically on Sunday in MonthFwd/WeekNoFwd & MonthBack/WeekNoBack). Use Manual IncHour/DecHour to set initially.
<i>Precautions</i>		
<p>Always make sure that FB has EN input set all the time so that edge detection monitoring is correctly maintained.</p> <p>The RTC 'Day of Week' must be set correctly. (0=Sun, 6=Sat)</p> <p>Test fully in own code to ensure correct operation.</p>		

### Example use of Function block, used within ladder:-

For European Daylight saving (shown below)

MonthFwd=3, WeekFwdNo=0, HourFwd=2 (Last Sunday in March at 2am)

MonthFwd=10, WeekFwdNo=0, HourBack=3 (Last Sunday in October at 3am)

For USA Daylight saving

MonthFwd=3, WeekFwdNo=2, HourFwd=2 (Second Sunday in March at 2am)

MonthFwd=11, WeekFwdNo=1, HourBack=2 (First Sunday in November at 2am)

[Program Name : DaylightSavingSample]

[Section Name : DaylightSavingMonitoring]

Daylight saving FB for PLC Real Time Clock. Move forward and back by 1 hour at specified Month/Week/Hour.  
Used to compensate for Daylight Saving (summer time) hour changes according to local rules.

NB this FB must be running at the time DST changes  
(i.e. at HourFwd on Month/Week Fwd and midnight to HourBack on Month/Week Backward)

Monitor the PLC Real Time Clock and move clock forward by one hour (to Summer Time) in MonthFwd/WeekNoFwd/HourFwd (Sunday) and back by one hour on Sunday specified in MonthBack/WeekNoBack/HourBack.

MonthXXX = 1 to 12

WeekNoXXX = 1 to 4 (Week No in Month) or 0 for Last Sunday.

HourXXX = 1 to 23 (Hour on Sunday to move)

Examples...

For European Daylight saving

MonthFwd=3, WeekFwdNo=0, HourFwd=2 (Last Sunday in March at 2am)

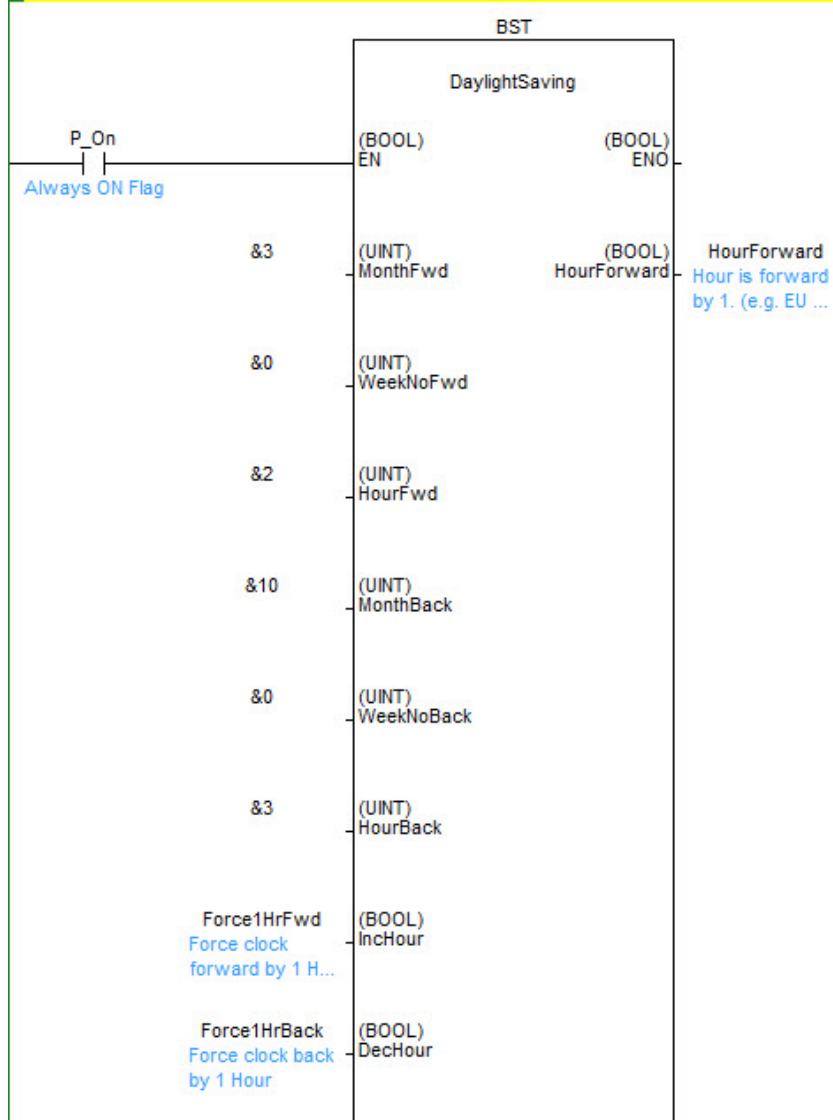
MonthFwd=10, WeekFwdNo=0, HourBack=3 (Last Sunday in October at 3am)

For USA Daylight saving

MonthFwd=3, WeekFwdNo=2, HourFwd=2 (Second Sunday in March at 2am)

MonthFwd=11, WeekFwdNo=1, HourBack=2 (First Sunday in November at 2am)

NB this FB should be enabled all the time for correct operation (i.e. P\_On).



<b>Revision History</b>		
V1.00	29 February 2012	Original Production