Y - Year Time Switch for EASY500/700

Can be used for	
Device	From version no.:
EASY500	01
EASY700	01

General

EASY500 and EASY700 with the type reference “easy...-..-.C.” (Clock) are equipped with a device clock (real-time clock) and enable the use of a year time switch as well as a 7-day time switch.

The clock IC used in the control relay works within the date range 01.01. 2000 to 31.12.2099.

The devices equipped with a real-time clock each provide eight year time switches Y1...Y8.

If you have to implement special on and off switching functions on public holidays, vacations, company holidays, school holidays and special events, these can be implemented easily with the year time switch.

Function

You must use a year time switch in your circuit diagram exclusively as a contact.

Note: The year time switch does not function if the on year is later in the calendar than the off year.

Each year time switch is provided with four channels A, B, C and D. These channels of a year time switch all act jointly on the contact Yx that you include in the circuit diagram.
You can choose an on and off switching time for every channel.

If you select the Call enabled option in the Parameter display area, you can set the channels on the device.
The year time switch can switch ranges, individual days, months, years or combinations of all three.

Behaviour in the event of a power failure

The time and date are backed up in the event of a power supply failure and continue to run. However, the time switch relays will no longer switch. The contacts are kept open when de-energized.

Switching time ranges

The year time switch can switch ranges, individual days, months, years or combinations of all three.
Time ranges are defined by setting an ON and OFF time.
The contact therefore always switches from ON to OFF, as shown in the following Parameter examples.

Important entry conventions! The year time switch only operates correctly if you observe the following rules:

- The On year must be before the Off year,
- ON and OFF times must be specified the same in pairs.

Example of entries in pairs:

- ON = --/--/Year, OFF = --/--/Year,
- ON = --/Month/Year, OFF = --/Month/Year,
- ON = Day/Month/Year, OFF = Day/Month/Year

Defining Year time range parameters:

ON: -- -- 02, OFF: -- -- 10 means:

Switch on at 00:00 on 01.01.2002 and switch off when the OFF year has elapsed at 00:00 on 01.01.2011. See the example for this time range.

Defining Month time range parameters:

ON: -- 04 --, OFF: -- 10 -- means:

Switch on at 00:00 on 1 April and switch off after the OFF month has elapsed at 00:00 on 1 November. See the example for this time range.

Defining Day time range parameters:

ON: 02 -- --, OFF: 25 -- -- means:

Switch on at 00:00 on day 2 of the month and switch off when the OFF day has elapsed at 00:00 on day 26. See the example for this time range.

Defining the time range for Day, Month, Year:

ON: 02 04 05; OFF: 25 09 05 means:

The year time switch is required to switch on at 00:00 on April 2 2005 and stay on till 23:59 on September 25 2005.

Switching behaviour with overlapping channel settings:

The first ON date switches on and the first OFF date switches off. For this compare the example below.

Note: Avoid making incomplete entries. These may cause malfunctions.

Linking and Parameter Assignment of a Year Time Switch

Requirements:You have included a control relay in the project and have switched to Circuit Diagram View.

Activating a year time switch

- Position a Y year time switch operand in the circuit diagram on a contact field so that you can use the switch function.
- In the Properties field window select the required function block number between 1 and 8 on the Circuit Diagram Element tab. The operand Yxx will now be shown in the circuit diagram.
- If required, change the switch function of the contact from break to make contact.
- Define in the Parameters tab, Channel A-B, in the Channel A area at ON: the on time and at OFF: the off time of the first time range.
- If required set other time ranges via channel B,C and D.
  The appropriate contact Yxx is switched within the time ranges set.
- If required, change the enable of the parameter display and/or write a comment for the selected operand.
- Connect this Yxx contact in the circuit diagram.

Circuit diagram elements and parameters

	Description	Note
Contact		
Yx	Status 1 if the on condition is fulfilled.	
Coil function		
-	-	
Parameter display		

Call enabled	Function block parameters can be viewed on the device.	
Simulation		
-		

Parameter examples

Example 1: Select year range

The year time switch Y01 is required to switch on at 00:00 on 1 January 2002 and switch off at 23:59 on 31 December 2006.

The Y year time switch must be assigned the following parameters:

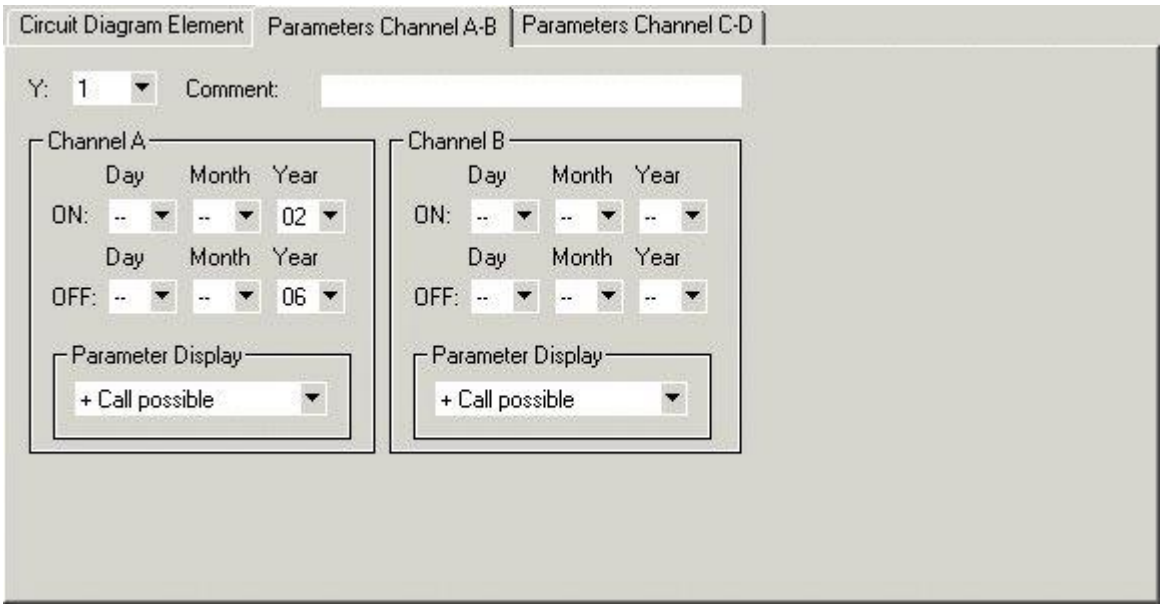

Figure: Entry screen in the programming software

Example 2: Select month ranges

The year time switch Y01 is required to switch on at 00:00 on 1 March and switch off at 23:59 on 31 October.

The Y year time switch must be assigned the following parameters:

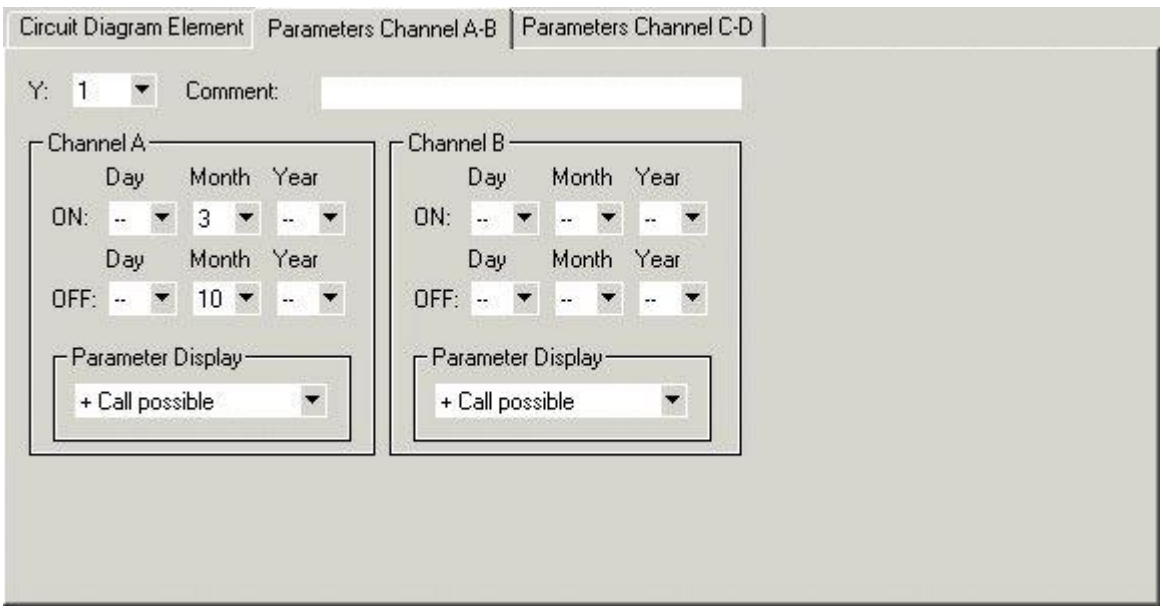

Figure: Entry screen in the programming software

Example 3: Select day ranges

The year time switch Y01 is required to switch on at 00:00 on day 1 of each month and switch off at 23:59 on day 28 of each month.

The Y year time switch must be assigned the following parameters:

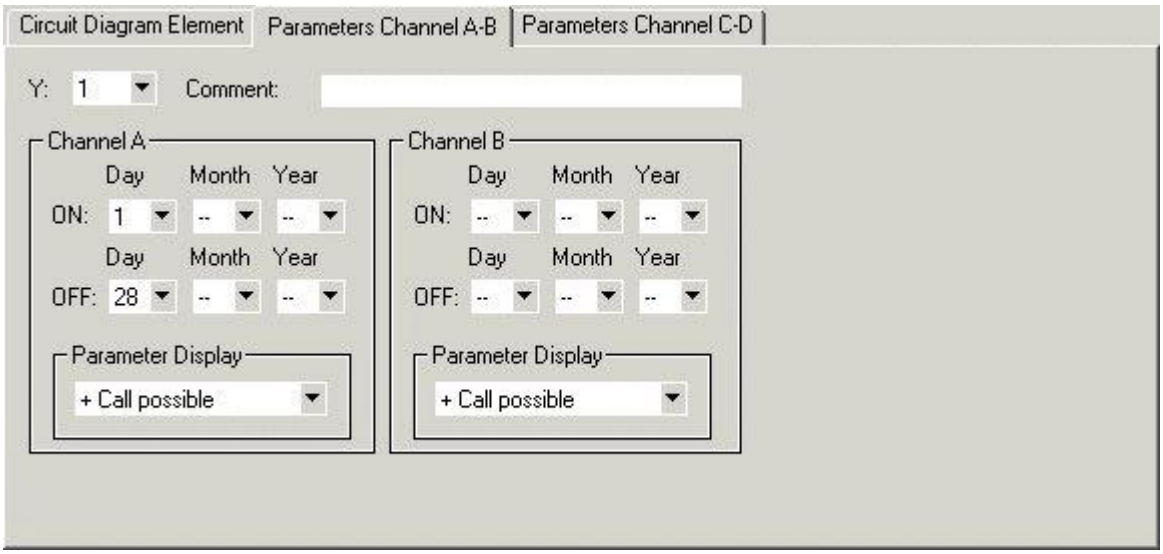

Figure: Entry screen in the programming software

Example 4: Select “public holidays"

The year time switch Y01 is required to switch on at 00:00 on December 25 of each year and switch off at 23:59 on December 27 of each year.

The Y year time switch must be assigned the following parameters:

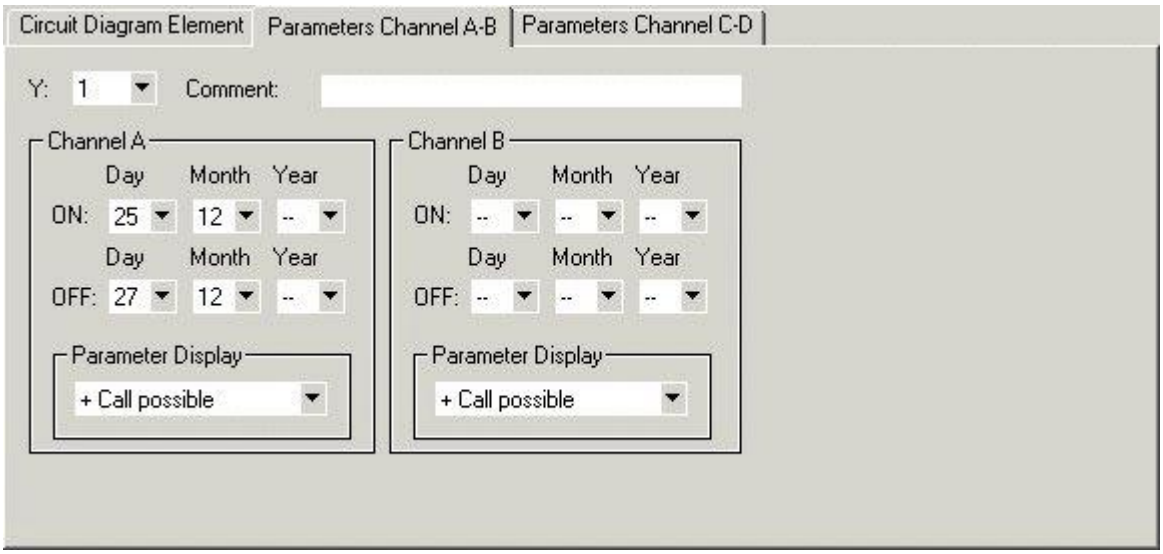

Figure: Entry screen in the programming software

Example 5: Select time range

The year time switch Y01 is required to switch on at 00:00 on 1 May of each year and switch off at 23:59 on 1 November of each year.

The Y year time switch must be assigned the following parameters:

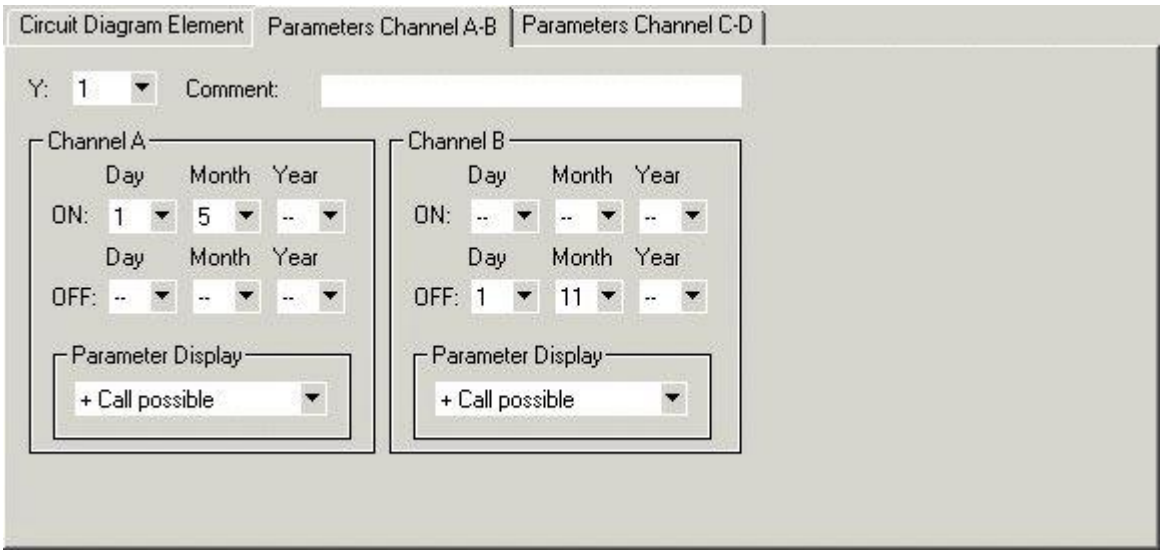

Figure: Entry screen in the programming software

Example 6: Specific days of specific months

The year time switch Y01 is required to switch on at 0:00 on day 9 of months 6, 7, 8, 9 and 10 and switch off at 23:59 on day 16 of the month.

The Y year time switch must be assigned the following parameters:

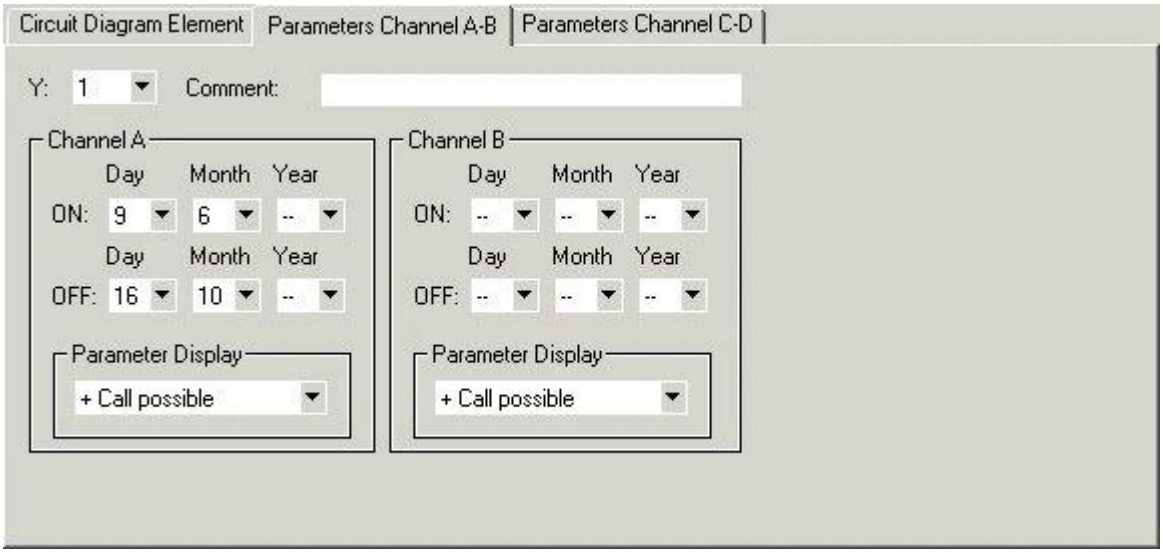

Figure: Entry screen in the programming software

Example 7: Overlapping ranges

Channel A of the year time switch Y01 switches on at 00:00 on day 3 of months 5, 6, 7, 8, 9, 10 and switches off at 23:59 on day 26 of the same months.

Channel B of the year time switch Y01 switches on at 00:00 on day 2 of months 6, 7, 8, 9, 10, 11, 12 and switches off at 23:59 on day 18 of the same months.

The Y year time switch must be assigned the following parameters:

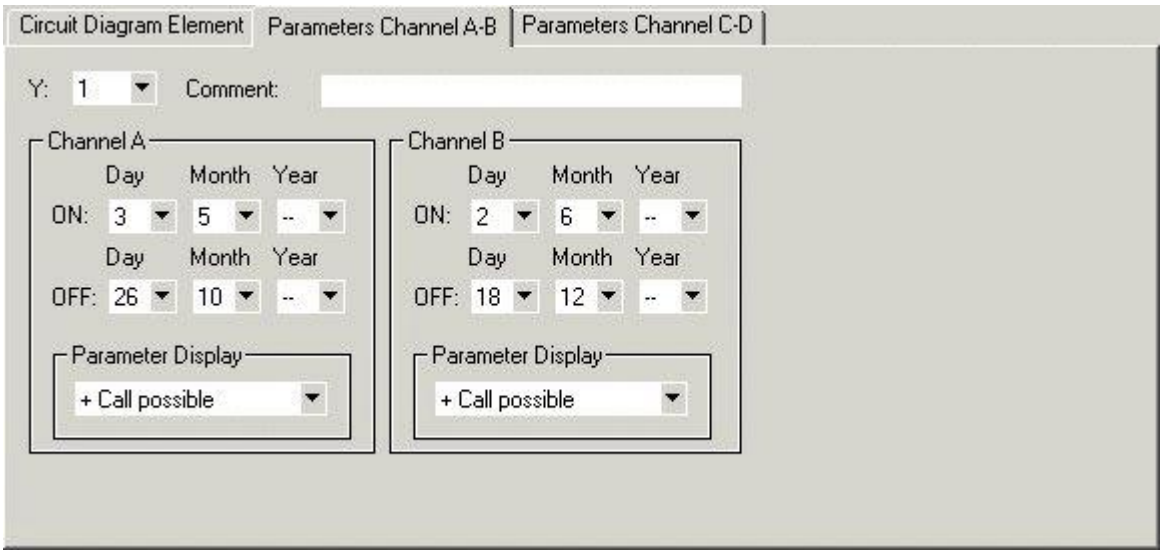

Figure: Entry screen in the programming software

Total number of channels and behaviour of contact Y01: The time switch comes on at 00:00 on May 3 and goes off at 23:59 on day 26 of the same month. The time switch comes on at 00:00 on day 2 of the months June, July, August, September, October, and goes off at 23:59 on day 18 of the same months. The time switch comes on at 00:00 on day 2 of the months November and December, and goes off at 23:59 on day 18 of the same months.

Tip: Refer to the EASY500/700 manual (AWB 2528-1508x) for more information on the function block (e.g. signal diagram).