



Time functions of the Selec 600XU and Selec 600DT timer relays

The Selec 600XU and Selec 600DT conceal untapped potential

The Selec 600XU and Selec 600DT are **versatile timer relays**, or to be more precise, multifunction timer relays that combine a wide range of time functions.

However, the mere presence of these functions is not enough if you are not familiar with their **possible applications**.

The **following overview** provides some examples for possible areas of use, so that you can **recognise their full potential** and make use of them for your projects.

Time functions of the Selec 600XU and Selec 600DT timer relays

The designations that are assigned by Selec are abbreviated to letters. Some of these letters are assigned to different functions for the 600XU timer relay as for the 600DT, and vice versa. There are also letters that are used for identical functions. The following overview should make it simpler for you to make use of the time functions.

Time functions	Selec 600DT	Selec 600XU
ON delay	A	A
Interval	B	B
Asymmetrical cyclic OFF first	C	-
Asymmetrical cyclic ON first	D	-
Cyclic equal OFF first	E	C
Cyclic equal ON first	F	Ci
Pulse output	H	D
Delay on break	J	E
Delay on make / break	K	F
Interval after break (negative edge ***)	L	H
Single shot	P	I
Retriggerable single shot	Q	J
Latching relay	R	K
Delay (on break) with totalise (negative edge ***)	T	Ai
Interval with totalise (negative edge ***)	U	Bi

*** Negative edge = voltage change from high to low

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Conditions for the execution of the time functions

In order that time functions can be executed, certain conditions must be fulfilled.

The following therefore applies: If no control contact Y1 is required for the time function, the process is started upon application of the supply voltage (U) or (VS). The functions without a control contact would be, in the case of Timer Relay 600XU, **A, B, C, Ci and D**, and for the 600DT the functions **A, B, C, D, E, F and H**.

If, however, a control contact Y1 is required, then the supply voltage (U in the case of the 600XU or VS in the case of the 600DT) must be continuously connected and the timer relay is activated via the control contact. In the case of the 600XU timer relay, this concerns the functions **E, F, H, I, J, K, Ai and Bi** and with the 600DT it concerns the functions **J, K, L, P, Q, R, T and U**.

Time function(s):	Explanation:	Application example/area of use:
<p>ON delay (A) for the 600XU and the 600DT</p> <p>On Delay</p>	<p>The switching function is only <u>executed after</u> the delay time has lapsed.</p>	<p>Irrigation system control in agriculture (Example I):</p> <p>The timer relay is activated by flipping the switch.</p> <p>Once the configured response time delay has lapsed, the irrigation system in the greenhouse starts up.</p>
<p>Interval (B) for the 600XU and the 600DT</p> <p>Interval</p>	<p>The switching function is <u>executed immediately</u> and only ends after the configured time.</p>	<p>Irrigation system control in agriculture (Example II):</p> <p>The timer relay is activated by flipping the switch.</p> <p>The irrigation system in a greenhouse starts immediately. Only once the programmed interval timing relay delay has lapsed is the timer relay switched off.</p>
<p>Asymmetrical cyclic only with the 600DT</p> <p>1. ... OFF first (C)</p> <p>Asymmetrical Cyclic (OFF 1st)</p>	<p>1. Cycle control is <u>performed with</u> time intervals of differing lengths ((t1) and (t2)), beginning with a switch-off time (t1).</p>	<p>Sauce production within the food industry:</p> <p>A liquid must be stirred for 10 minutes every hour in order to produce a homogeneous mixture. You can select whether to <u>begin with the pause</u> of one hour (1) or <u>whether the stirring should start</u> immediately (2).</p>
<p>2. ... ON first (D)</p> <p>Asymmetrical Cyclic (ON 1st)</p>		

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Conditions for the execution of the time functions

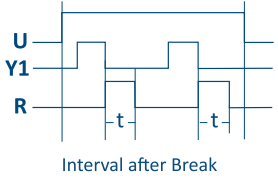
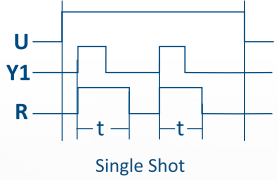
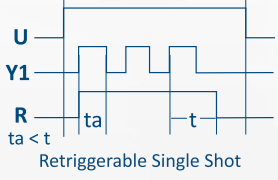
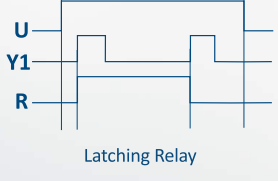
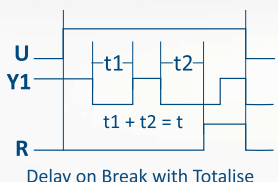
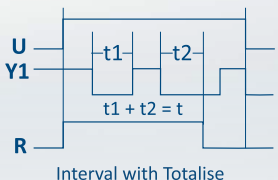
Time function(s):	Explanation:	Application example/area of use:
<p>Cyclic equal 1. ... OFF first (E or C) E in the case of the 600DT / C in the case of the 600XU</p> <p>Cycle Equal (OFF 1st)</p>	<p>1. The cycle control is characterised by its flashing sequences, which begin <u>with a switch-off time</u> and then alternate with switch-on times of consistent length.</p>	<p>Lighting systems in industrial facilities:</p> <p>1. An LED is switched on after a pre-configured time delay (t), which is followed by a switch-on time of (t), before the cycle starts over from the beginning. Because the switch-off time is identical to the switch-on time, this produces a symmetrical flashing pattern.</p>
<p>2. ... ON first (F or Ci) F in the case of the 600DT / Ci in the case of the 600XU</p> <p>Cycle Equal (ON 1st)</p>	<p>2. Cycle control <u>starts with</u> a switch-on time for the flashing sequences and then alternates with switch-off times of consistent length.</p>	<p>2. The same as for example 1, except the start takes place with a pre-defined switch-on time.</p>
<p>Pulse output (H or D) H in the case of the 600DT / D in the case of the 600XU</p> <p>Pulse Output</p>	<p>The timer relay <u>waits</u> for a predefined time (t1) before it sends a pulse. The duration of the pulse (t2) is also defined.</p>	<p>Control of fault-prone industrial facilities:</p> <p>With the time-delayed start-up of machines after a power failure, to avoid damage and guarantee smooth operation.</p>
<p>Delay on break (J or E) J in the case of the 600DT / E in the case of the 600XU</p> <p>Delay on Break</p>	<p>As soon as control signal Y1 is issued, the switching function starts. <u>After the switching off</u> of Y1, the pre-defined time (t) starts to count down. As soon as the time has lapsed, the time function switches off.</p> <p>If, after the switching off of Y1 within a time (ta) < (t), Y1 is switched on again, the time function starts over again.</p>	<p>Ventilation management in the building industry:</p> <p>Once a certain trigger event has been reached, such as the reaching of a certain room temperature, ventilation continues to run for a pre-defined time before returning to its idle state. This guarantees efficient air purification without reacting to temporary fluctuations and simultaneously minimizes unnecessary switching cycles of the exhaust air system.</p>
<p>Delay on make / break (K or F) K in the case of the 600DT / F in the case of the 600XU</p> <p>Delay on Make/Break</p>	<p>With the control signal Y1, the trip time delay starts and, <u>once it has lapsed</u>, the recovery time delay starts immediately. The set time (t) is valid for both the trip time and for the recovery time delay.</p>	<p>Maintenance management in the production industry:</p> <p>After a fault (response time), normal production should not resume immediately. The response time serves as a buffer in order to correct potential short-term faults before the system switches back to normal operation. This can prevent damage to machinery caused by the premature resumption of production.</p>

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Conditions for the execution of the time functions

Time function(s):	Explanation:	Application example/area of use:
Interval after break (negative edge ***) (L or H) L in the case of the 600DT / H in the case of the 600XU  <p>Interval after Break</p>	<p>The timer relay triggers when the control signal Y1 <u>stops</u> and the configured time (t) starts to count down.</p> <p>If, after the switching off of Y1 within a time ($t_1 < t$), Y1 is switched on again, the time function starts over again.</p>	<p>Time-controlled industrial alarm management:</p> <p>In an industrial monitoring system, an alarm is triggered after a certain signal (negative edge) has been detected. However, this does not happen immediately, but rather only once a predefined time period has lapsed. This prevents an unnecessary alarm from being triggered in case of short-term fluctuations. Only persistent faults result in an alarm activation.</p>
Single shot (P or I) P in the case of the 600DT / I in the case of the 600XU  <p>Single Shot</p>	<p>With this time function, a control signal Y1 can be <u>extended</u> by the configured time (t).</p>	<p>Time-controlled pump control units in wastewater systems:</p> <p>The pump generally stops immediately if a tank is full. In case of a temporarily elevated liquid requirement, it can occur that it is not required to stop immediately after achieving the maximum fill level. The function prevents redundant switching on and off processes and extends the life of the pumps.</p>
Retriggerable single shot (Q or J) Q in the case of the 600DT / J in the case of the 600XU  <p>Retriggerable Single Shot</p>	<p>The time relay is <u>reset</u> by each new control signal Y1 and the pre-programmed delay time (t) starts again from the beginning.</p> <p>The pulse time (t_a) must not be longer than the set time (t).</p>	<p>Gate control in logistics:</p> <p>After pressing the pushbutton, the gate opens and the pre-defined time starts to lapse. If the pushbutton is pressed again or if a passing object is detected by a light barrier, the elapsing time is extended and the function starts over.</p>
Latching relay (R or K) R in the case of the 600DT / K in the case of the 600XU  <p>Latching Relay</p>	<p>This function enables the timer relays to be switched on/off via Y1 <u>with each control pulse</u>.</p>	<p>Industrial lighting control:</p> <p>A permanent switch on/off process can be realised with a button. This allows the light in a room to be controlled with several buttons, for example, without having to set up an elaborate cross-connection.</p>
Cummulative delay (negative edge ***) 1. Delay (on break) with totalise (T or Ai) T in the case of the 600DT / Ai in the case of the 600XU  <p>Delay on Break with Totalise</p>	<p>1. The time of the negative edge of the control signal ((t1), (t2)...) is <u>added up</u> until it corresponds to the configured delay time (t) and <u>the relay switches on</u>.</p>	<p>1. Bulk material processing in pneumatic conveyor systems:</p> <p>To ensure that conveyance only takes place with sufficient pressure in the system, a pressure monitoring system with a timer relay and cumulative trip time delay can be used. The cumulative trip time delay ensures that the pressure in the system is stable before the conveyor system is activated. This prevents unwanted activations due to short-term pressure fluctuations.</p>
2. Interval with totalise (U or Bi) U in the case of the 600DT / Bi in the case of the 600XU  <p>Interval with Totalise</p>	<p>2. The time of the negative edge of the control signal ((t1) and (t2)...) is <u>added up</u> until it corresponds to the configured delay time (t) and <u>the relay switches off</u>.</p>	<p>2. Refrigeration system control in a food storage facility:</p> <p>The refrigerator system normally switches off once the storage temperature has reached the desired value. The time function ensures that the system does not switch off immediately if the temperature briefly falls below the threshold value (e.g. as a result of the temporary opening of a warehouse door). This prevents the unnecessary switching on/off of the system and extends the life of the system while also optimising energy consumption.</p>

*** Negative edge = voltage change from high to low