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Tab – *“Distributed Clocks”*

The tab displays information about the cycle time setting and the Distributed Clocks, see below.

Call

In the ctrlX CORE web interface:

side navigation → EtherCAT Master → Click on the EtherCAT master instance in the overview table → Click on tab “Distributed Clocks”

Displayed information

Table entry	Description
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<i>“DC mode”</i>	<p>set and active (in brackets) DC mode:</p> <ul style="list-style-type: none"> ■ <i>“Auto”</i> <ul style="list-style-type: none"> ■ Default setting ■ Automatic selection of the synchronization mode ■ <i>“Free Run”</i> <ul style="list-style-type: none"> ■ Cyclic communication without clock synchronization ■ There is no regulation of the distributed clocks ■ <i>“Bus Shift”</i> <ul style="list-style-type: none"> ■ Distributed Clocks active ■ Slaves are synchronized with the EtherCAT Master ■ The EtherCAT Master provides the system time and writes it into the bus reference clock (moving the bus time) ■ <i>“Link Layer Reference Clock”</i> <ul style="list-style-type: none"> ■ Distributed Clocks active ■ Slaves are synchronized with the EtherCAT Master ■ The clock integrated in the EtherCAT Master link layer is used as a reference clock for synchronization. The setting guarantees the highest synchronization precision but requires special hardware. <p>WARNING Do NOT use the setting <i>“Link Layer Reference Clock”</i> if you are simultaneously synchronizing to an external clock, such as an NTP server. This can result in unpredictable behavior!</p>
<i>“Cycle time”</i>	set cycle time
<i>“Sync Offset”</i>	Display of the Sync Offset in percent and as absolute effective value
<i>“Sync window monitoring”</i>	<p>Indicates whether Sync window monitoring is active, including the active monitoring window.</p> <p>If this option is enabled, the synchronization of the Distributed Clocks is monitored in all slaves.</p> <p>The "system time difference" (register 0x092C) is read cyclically by each slave.</p> <p>If the system time difference is smaller than the monitoring window for all slaves, synchronization is considered to be adjusted ("DC in Sync" status).</p>

Table entry	Description
<i>“Continuous propagation compensation”</i>	Indicates whether continuous runtime compensation is active
Slave overview table	<p><i>“Status”</i></p> <ul style="list-style-type: none"> ■ Green: The slave is connected correctly and does not report an error ■ Red: The slave is not connected or reports an error <p><i>“Name”</i></p> <p>Configured device name of the slave</p> <p><i>“Address”</i></p> <p>EtherCAT address</p> <p><i>“State”</i></p> <p>Operating state of the EtherCAT slave</p> <p><i>“System time difference”</i></p> <p>System time difference in ns (ESC register 0x09C2)</p> <p>The value is only displayed if Sync Window Monitoring is active and is only valid if „Distributed Clocks“ is configured.</p> <p>The first slave at the bus, for which the option "Distributed Clocks" is activated, provides the reference clock.</p> <p><i>“DC support”</i></p> <p>Indicates whether the controller of the EtherCAT slave supports „Distributed Clocks“ (32 / 64 bit).</p>

Related topics

- ↳ Window - *“EtherCAT Master”*
- ↳ EtherCAT Master app – Basics
- ↳ Side navigation – node EtherCAT Master