



# WIRED DCF TIME-CODE CLOCK

## TECHNICAL MANUAL

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**WESTERSTRAND URFABRIK AB**

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## General

Westerstrand analogue clock movement for wired DCF Time-Code from Master Clock, provides the possibility to create a time distribution system with high accuracy and high reliability.

The movement is intended for connection to a 2-wire bus which combines power supply and serial Time-Code. A built in microprocessor receives the Time Code, reads the position of the hands, and sets the clock to correct time.

The Time-Code, built up according to the DCF-format, contains information about year, month, day hour and minute. At each minute shift seconds are synchronised as well. The transmission speed is 1 bit/second.

24VDC power supply for the built in electronics is combined with the Time-Code.

Several types of movements are available.

## Installation

Connect the combined power supply / Time-Code bus.

Now the movement shafts will step forward to 12-position and wait for correct Time-Code.

## Synchronisation

When the movement has received and accepted an correct Time-Code, it will step forward to correct time by rapid impulses.

Automatic feedback control of the hands at 12.00 and 00.00.

In case the Time-Code would disappear, the clock continues by means of the built-in quartz crystal.

During a power failure the clock is temporarily stopped. After the restoration of power, the clock steps forward to the 12.00-position and waits for a Time-Code to be received . Then rapid impulses to correct time.

## Technical data

Connection	2-wire
Connection voltage	24VDC combined with serial Time-Code
Type of Time-Code	DCF-format
Microcontroller	PIC16C558
Temperature range	-20°C to +50°C

### Power consumption

Without second hand	
For clocks up to 400 mm	14 mA
For clocks 600 to 900 mm	20 mA

With sweeping second hand	
For clocks up to 400 mm, indoor	12 mA
For clocks up to 400 mm, outdoor	20 mA
For clocks 600 to 900 mm	27 mA

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## Connection to the movement

