Rev. 1 - 7 January 2019

DT4700

Desktop Clock Generator

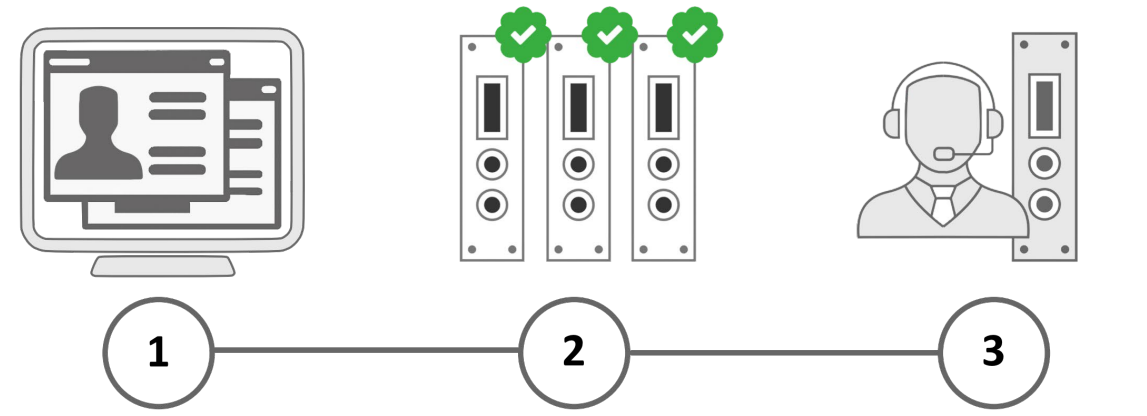
CAEN
Tools for Discovery

User Manual
UM6525

Register your device

Register your device to your **MyCAEN+** account and get access to our customer services, such as notification for new firmware or software upgrade, tracking service procedures or open a ticket for assistance. **MyCAEN+** accounts have a dedicated support service for their registered products. A set of basic information can be shared with the operator, speeding up the troubleshooting process and improving the efficiency of the support interactions.

MyCAEN+ dashboard is designed to offer you a direct access to all our after sales services. Registration is totally free, to create an account go to https://www.caen.it/become-mycaenplus-user and fill the registration form with your data.



https://www.caen.it/become-mycaenplus-user/

Purpose of this Manual

This document is the DT4700 User's Manual; it contains information about the installation, the configuration and the use of the unit.

Change Document Record

Date	Revision	Changes
27 July 2018	0	First release
7 January 2019	1	Added specifications of Ferrite for power supply cables

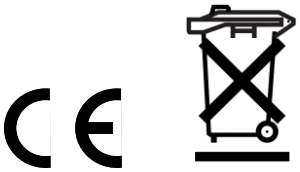
Disclaimer

CAEN will repair or replace any product within the guarantee period if the Guarantor declares that the product is defective due to workmanship or materials and has not been caused by mishandling, negligence on behalf of the User, accident or any abnormal conditions or operations.

CAEN declines all responsibility for damages or injuries caused by an improper use of the Modules due to negligence on behalf of the User. It is strongly recommended to read thoroughly the CAEN User's Manual before any kind of operation. *CAEN reserves the right to change partially or entirely the contents of this Manual at any time and without giving any notice.*

Disposal of the Product *The product must never be dumped in the Municipal Waste. Please check your local regulations for disposal of electronics products.*

Made In Italy : We stress the fact that all the boards are made in Italy because in this globalized world, where getting the lowest possible price for products sometimes translates into poor pay and working conditions for the people who make them, at least you know that who made your board was reasonably paid and worked in a safe environment. (this obviously applies only to the boards marked "Made in Italy", we cannot attest to the manufacturing process of "third party" boards).



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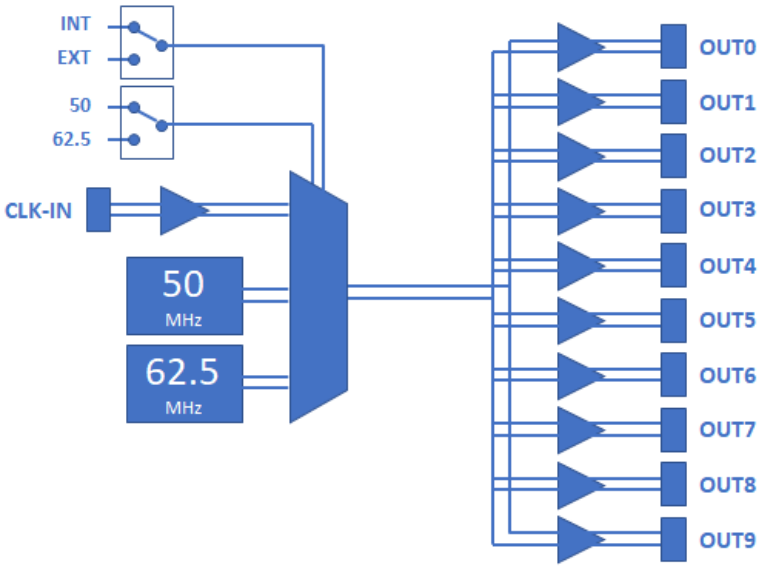
1. Module description

Overview

The DT4700 Clock Generator is a compact and easy to use desktop module that allows an easy synchronization of CAEN VME, NIM and desktop digitizers. It features 10 LVDS outputs, compatible with A317 clock distribution cable, each providing 50 or 62.5 MHz clock signal (switch selectable) required for the synchronization procedure. It also allows to be operated as a fan-out of a clock coming from an external source (switch selectable; guaranteed Frequency Range from 0 to 300MHz) or as a general purpose fan-out.

The DT4700 can be powered through the USB port or, using the included power split cable, from your digitizer power supply.

Block diagram



2. Technical specifications

Packaging

The DT4700 is a Desktop module housed in a 160 W x 55 H x 170 L mm^3 enclosure. The kit includes:

1 DT4700 Clock Generator

1 PSAC05R 050L6 Wall Mount Power Supply with micro USB & Euro plug

2 A317L Clock Distribution Cables

1 A318 - Cable Adapter Single Ended to Differential

1 Power Supply split cable for +12V External Power Supply

1 Snap-On Ferrite WE 742 715 3 for power supply cables

Power requirements

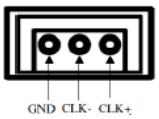
The DT4700 can be powered in two ways:

- by 5V@240mA via the Micro USB port
- by 5÷12V @240mA via the 12V 2.1mm power jack

Front and rear panel

External components

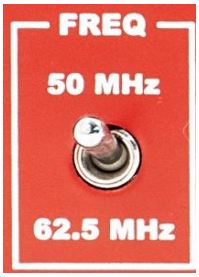
CLOCK OUT AMP MODU 3-102203-4 (3-pin)



Clock signal output

PWR Green LED — Power ON

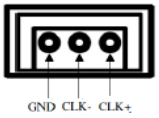
EXT CLK Green LED — External Clock source active



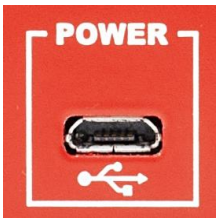
FREQ 2-position switch — Internal 50 or 62.5 MHz clock selector

CLOCK 2-position switch — Internal or External clock source selector

CLK IN AMP MODU 3-102203-4 (3-pin)



External clock source input



POWER USB Micro USB — USB power input

12V 2.1mm DC Power Jack — +12V DC Input

ON/OFF Power switch — ON/OFF switch

Technical specifications table

Packaging	Desktop module; 160 W x 55 H x 170 L mm^3 Weight 1.65kg
Clock Output	10 LVDS output
Internal generator frequency	50 or 62.5 MHz clock signal (switch selectable)
External Clock Input	AC coupled (diff. LVDS, ECL, PECL, LVPECL, CML), Zdiff= 110 Ohm; single ended NIM/TTL available by A318 cable; Guaranteed Frequency Range= from 0 to 300MHz
Frequency temperature stability	±50 ppm
Period jitter	2 ps RMS
Operating temperature	-40 ÷ +85°C
Storage temperature	-55 ÷ 125°C
External power supply	PSAC05R-L6M WWW.PHIHONG.COM; DC Output Voltage 5V; Load 0-1.0A; INPUT: AC Input Voltage Rating 100 to 240V AC; AC Input Voltage Range 90 to 264V Ac; AC Input Frequency 47 to 63Hz; Input Current 0.3A (RMS) max at 115V AC/max load; 0.15A (RMS) max at 230V AC/max load; Leakage Current 5uA max at 240V AC, 50Hz; Inrush Current <30A for 240V AC at max load (Cold start at ambient 25°C); Input Power Saving 0.075W; OUTPUT: Output Power 5W; Efficiency DOE Level VI and CoC V5 Tier2; Ripple 200mV max; ENVIRONMENTAL: Temperature Operation 0 to +40°C; Non-operation -40 to +85°C; Humidity 90%RH Max; Emissions Complies with FCC Class B; Complies with EN55032 Class B; AS/NZS 3548; Immunity EN50082-1: EN 61000-4-2, Level 4; Air Discharge +/-15KV; Contact +/-8KV; EN 61000-4-5, Level 3,1KV; Dielectric Withstand (Hi-pot) Test; Primary to Secondary: 3000V AC 10mA, 1 minute; FEATURES: Short-Circuit Protection: The output can be shorted permanently without damage whenever it operates within input voltage range and temperature range specified in this specification . Output current not exceeding 0.95A (RMS). Over-Voltage Protection No to exceed 7.2V DC. Over-Current Protection Not to exceed 1.2A (RMS). DC Output Connector 2.1 x 5.5 center positive standard (P model). Micro-B USB (L6M model)

3. Operating Modes

Installation

Prior to shipment this unit was inspected and found free of mechanical or electrical defects. Upon unpacking of the unit, inspect for any damage, which may have occurred in transport. The inspection should confirm that there is no exterior damage to the unit, such as broken knobs or connectors, and that the panels are not scratched or cracked. Keep all packing material until the inspection has been completed. If damage is detected, file a claim with carrier immediately and notify CAEN. Before installing the unit, make sure you have read thoroughly the safety rules and installation requirements, then place the package content onto your bench; you shall find the kit parts as described at p.5:

– Connect the DT4700 CLOCK OUT to the CLOCK IN input of the devices to be synchronized, using the A317L cables or equivalent;

– Connect the DT4700 to a power supply source in one of the following ways:

- by the PSAC05R 050L6 External Power Supply with EURO wall plug, connected to the DT4700 via the Micro USB port
- by an external PC, connected to the DT4700 via the Micro USB port
- by a +12V External Power Supply (not provided in the kit), such as the Switchbox Mod. FRA045-S12-4, or even a linear type, providing +5V ÷ +12V and, at least, 240mA; for this purpose, the Power Supply split cable provided with the kit can be used for picking the +12V Power Supply from a switching power supply, already used by a CAEN desktop digitizer; the +12V Power Supply source must be connected to the 12V 2.1mm power jack.

– Install the WE 742 715 3 Ferrite around the power supply cable (whether the PSAC05R 050L6 wall mount power supply or the Split cable is used)

CAUTION: ECL INPUTS ARE SUSCEPTIBLE TO DAMAGE FROM ESD (ELECTROSTATIC DISCHARGE). TO PREVENT THE RISK OF DAMAGING, THE USER SHOULD NEUTRALIZE ANY STATIC ELECTRIC CHARGE BUILT UP ON THE BODY (e.g. TOUCHING AN EARTHED OBJECT) BEFORE HANDLING THE ECL CONNECTORS

Internal Clock Distributor Mode

Once installed, select the desired clock frequency and Power up the DT4700 through the ON/OFF rear switch. Set the CLOCK switch to “INT”; the front panel Clock Out channels will provide the clock signal at the selected frequency.

External Clock Distributor Mode

Once installed, fed the rear panel CLK IN with an external clock source and Power up the DT4700 through the ON/OFF rear switch. Set the CLOCK switch to “EXT”; the front panel Clock Out channels will provide the clock signal with the same frequency of the external source; the green “EXT CLK” LED on the front panel will turn on as the External Clock Distributor Mode is active. If the external source provides single ended, NIM or TTL, signals, then use A318 cable adapter to connect it to the DT4700.

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