

DEWE-Crankangle-CPU

- Universal clock conditioner for angle based data acquisition, especially suited for combustion analyzer applications
- Isolated input for crank angle (CA) or encoder sensors
- Quadrature encoder input supports X1, X2 and X4 modes
- CA input is free programmable - number of teeth and holes (i.e. 60-2 encoder)
- CA input supports pickup sensors or TTL signals
- Absolute long time stable



The DEWE-CRANKANGLE-CPU offers a universal clock multiplier suited especially for combustion analyzer applications where angle synchronous data acquisition is needed. A wide range of angle sensors is supported:

- Quadrature encoder (X1, X2 or X4)
- Pulses + trigger (CDM)
- Car's built-in crank-angle sensor with up to 3 gaps; e.g. 60-2-2-2
- Car's built-in crank-angle sensor with double teeth ; e.g. 36+1

In-car crank angle sensors, such as 60-2, deliver a non-equidistant pulse signal because a few pulses per revolution are missing to get information about the absolute crank shaft position. To make such sensor signal useful for e.g. combustion analyzer application, the gaps have to be filled up and the angle resolution must be increased to get accurate angle position information. There is a free definable clock multiplier from 1 to 100 to reach sufficient angle resolution.

A clock divider and auxiliary I/O signals for customized controlling are included as well. Programming is done via RS-232 or RS-485 interface.

An optional level converter CA-CPU-ADAP-LVDS-RS422 is available to convert LVDS / RS422 to TTL level. This enables connection of crank angle sensors with LVDS (e.g. AVL 365C, Kistler 2614A) or RS422 output to the DEWE-CRANKANGLE-CPU.

DEWE-CRANKANGLE-CPU			
Input sources		System specification	
Quadrature encoder		Programming interface	R-S232 or RS-485
Modes	X1, X2 and X4	Supply voltage	9 to 15 V
Signal level	TTL, protected to 25 Volt	Power requirements	1 W, without sensor power
Edge sensitivity	rising or falling	Maximum sensor supply	5 W @ 5 Volt, 2 W @ ± 15 Volt
Maximum input frequency	1 MHz	Dimensions	165 x 115 x 50 mm (6.5 x 4.5 x 2 in.)
CDM Sensor		Weight	740 g (1.63 lbs)
Signal level	TTL, protected to 25 Volt	Environmental	
Edge sensitivity	rising, falling or both	Operating temperature	0 °C to 60 °C (standard)
Maximum input frequency	1 MHz	Storage temperature	-20 °C to +70 °C
In car CA sensor		Humidity (operating)	10 % to 80 %, non condensing 5 % to 95 %, rel. humidity
Sensor types	Inductive or hall effect (TTL)	Vibration	
Input voltage, inductive	up to ± 80 Volt	Operating test temperature	MIL-STD 810F 514.5 procedure I
Switching levels	0.5 or 2 Volt	Frequency range	5 to 200 to 5 Hz; 5 x 12 min each direction
Supported sensor types	Free programmable	Displacement amplitude	± 3.5 mm (5 to 8.45 Hz)
Number of „holes“	1, 2 or 3	Acceleration amplitude	1 g (8.45 to 92 Hz)
Number of teeth between holes	3 to 127	Displacement amplitude	92 to 113 Hz: ± 0.029 mm
Maximum input frequency	100 kHz	Acceleration amplitude	1.5 g (113 to 200 Hz)
Clock multiplier / divider		Shock	
Programmable factor	1 to 100 or bypass	non operating test procedure	
Programmable divider	1 to 100	MIL-STD 810F 516.5 procedure I	
Output signals		$\frac{1}{2}$ sinus 11 ms 10 g	
Maximum output frequency	1 MHz	3 shocks positive, 3 shocks negative	
Output level	TTL/CMOS		
Maximum current	50 mA		