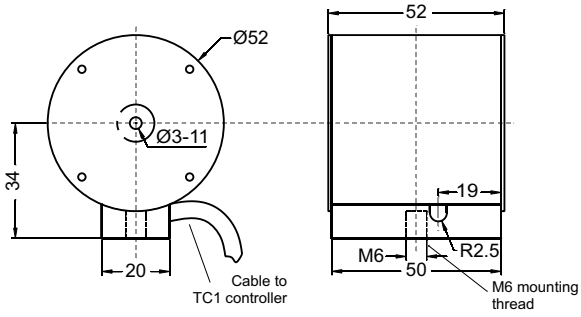
Crystal Ovens

Many of widely used nonlinear crystals are susceptible to ambient humidity, for example KD*P, BBO, LBO. Protective coatings applied to the surface can reduce degradation to some extent only. To improve the protection of surfaces of the crystals from the degradation it is desirable to keep the crystals at higher than ambient temperature, which helps avoid condensation on the crystal surfaces.

In addition, if the crystal is used for harmonics generation, the phase-matching angle depends on crystal temperature. For example, the output power of second harmonics generator based on KD*P crystal can decrease by 50 % if the crystal temperature changes just by one degree, hence for good laser stability precise crystal temperature stabilization is necessary. EKSMA OPTICS offers various solutions for precise crystal heating. CH series crystal ovens provide reliable, stable performance and can accommodate wide range of crystals.

TC1 • CO1 TEMPERATURE CONTROLLER TC1 WITH OVEN CO1



TC1 and CO1 dimensions

TC1 together with CO1 is a high temperature set (up to 200 °C) consisting of thermocontroller TC1 and crystal oven CO1. TC1 has two independent outputs and can control two CO1 ovens simultaneously. Trough RS232 computer interface it can be controlled from PC. Actual crystal temperature is shown on LED display.

The nonlinear crystal is mounted into adapter before insertion into oven CO1. Such design facilitates handling and replacement of the crystal. The nonlinear crystal can be sealed with fused silica windows in order to provide extra protection. The standard adapters are 15, 30 and 50 mm length with apertures of 3×3, 4×4, 5×5, 6×6 mm size. Customized adapters for crystals up to 12×12 mm size are available. In addition, adapters for Brewster-cut and PPLN crystals are available too.

SPECIFICATIONS

Model	TC1+CO1-30	TC1+CO1-50
Quantity of ovens possible to connect to one controller TC1	2	1
Temperature tuning range	RT – 200 °C	
Maximum crystals dimensions	12×12×30 mm	12×12×50 mm
Sealing (optional)	FS windows	
Accuracy	± 0.5 °C	
Long-term stability	± 0.1 °C	
Resolution	0.1 °C	
Powering requirements	90–264 V, 47–66 Hz	
Power consumption	45 W	
Sensor type	PT1000	
Output connector	DB9	
Serial interface	RS232 (DB 9)	
Dimensions, Dia×D	Ø52×52 mm	Ø52×72 mm

Specifications are subject to changes without advance notice.

Code **	Description, features	Price, EUR
Thermocontroller TC1		
TC1	Thermocontroller, Fuzzy logic, RT-200 ºC, can control two CO1 ovens, long-term stability ±0.1 ºK, worldwide mains	711
Crystal Ovens for TC1		
For crystal length up to 30 mm		
CO1-30-y/y	Standard crystal sizes *	570
CO1-30-y/z	Custom crystal sizes	625
CO1-30S-y/y	Sealed, standard crystal sizes *	860

** Sizes 3×3, 4×4, 5×5, 6×6,12×12 are standard.* *** y/y, y/z – crystal size.*

Code **	Description, features	Price, EUR
Crystal Ovens for TC1		
For crystal length up to 50 mm		
CO1-50-y/y	Standard crystal sizes *	699
CO1-50-y/z	Custom crystal size	713
CO1-50S-y/y	Sealed, standard crystal sizes *	–
For Brewster-angle cut crystal		
CO1-30BA-y/y	For Brewster-angle cut crystal	719
CO1-30BAS-y/y	Sealed, for Brewster-angle cut crystal	969
For PPLN crystals		
CO1-30PP-y/y	For PPLN crystals	656
Mounting accessories		
Crystal holders		
AD1	Spare crystal holder for CO1-30 oven	98
AD2	Spare crystal holder for CO1-50 oven	116
Mounting stages for crystals ovens		
MS-4	Adapter for CO1 oven mounting on tilt stage. Tilt stage should be ordered separately	–

** Sizes 3×3, 4×4, 5×5, 6×6,12×12 are standard.* *** y/y, y/z – crystal size.*

CH3 OVEN FOR NONLINEAR CRYSTALS

On request we can manufacture ovens for crystals with aperture up to 60×60 mm or even larger.

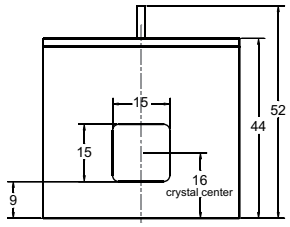
CH3-15 is a compact oven with build-in thermocontroller for temperature up to 60 °C. It is ideal for larger aperture crystals like KD*P. The crystals with up to 15 × 15 mm dimensions can be mounted. CH3-30 model can fit crystals with up to 30 mm length.

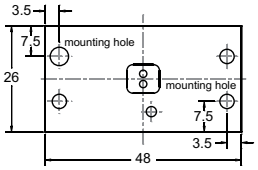
Each oven is made exactly for specified crystal, so it cannot be used for different size crystals.

SPECIFICATIONS

Model	CH3-20	CH3-30
Temperature tuning range near preset	± 5 °C	
Maximum crystals dimensions	15×15×20 mm	15×15×30 mm
Preset temperature	30-60 (80) °C	
Long-term stability	± 0.2 °C	
Powering requirements	12-15 V DC	
Power consumption	6 W	
Sensor type	NTC Thermo resistor	
Output connector	Molex 2 pin	
Dimensions, W×H×D	48×44×26 mm	48×44×36 mm

Specifications are subject to changes without advance notice.





CH3 dimensions

Code **	Description, features	Price, EUR
CH3-20 – fixed temperature crystal ovens, temperature tuning range ±5 °K, crystal length up to 20 mm		
CH3-20-y/y-x	Standard crystal sizes *	374
CH3-20-y/z-x	Non-standard crystal size	425
CH3-20-y/y-80	For temperature up to 80 °C	450
CH3-30 – fixed temperature crystal ovens, temperature tuning range ±5 °K, crystal length up to 30 mm		
CH3-30-y/y-x	Standard crystal sizes *	425
CH3-30-y/z-x	Non-standard crystal size	476
CH3-30-y/y-80	Version for temperature up to 80 °C	489
Mounting accessories		
MS-1	Two axis tilt adjustment 5 degrees range, suitable for all types of CH3, CH4 or CH7 crystal ovens	180
MS-2	Two axis tilt stage, adjustment in 5 degree range, fits two pc. of CH3, CH4 or CH7 ovens	310
MS-3	Adapter for CH3, CH4 or CH7 mounting on rotary stage, 15 degrees fine tuning, angle read-out. Rotary stage should be ordered separately	70
Power supply PS-12		
PS-12	Power supply for CH3, CH4 or CH7 crystal oven, 100-240 VAC mains, +12 VDC output	64

** Sizes 3×3, 4×4, ...,15×15 are standard.* *** y/y, y/z – crystal size, x – preset temperature in degrees of Celsius (30-60 °C range).*