

# C10A

## Solid-state cooking system

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Product brief



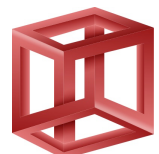
Figure 1. C10A solid-state cooking cavity with (optional) M2402A 500W sources

The C10A is a compact microwave oven system designed for 2.45 GHz solid-state cooking research and development. It consists of a purpose-built cavity with 15 microwave ports, integrated with coax-to-waveguide launchers, DC power supplies, and control and safety electronics in a structural frame. It is commonly ordered with 500 W M2402 or 250 W M2401 generator modules, but can also be used with other 3DRFE or customer-provided sources.

The C10A is also available as a bare rack-mountable cavity, with other power supply and launcher configurations, and with a high-performance 4.5 kW closed-loop liquid cooling system.

## Features

- Heavy-duty (1.6 mm stainless steel) cavity
- WR340 microwave ports on sides and bottom
- Interchangeable perforated and OFW (optical fine wire) top side viewing windows
- Removable bottom plate
- Microwave leakage detector, door interlocks
- USB-to-SPI generator interfaces
- 4 kW, 28–32 VDC power supply
- Liquid cooling distribution
- Cooking dimensions 33 x 31 x 17 cm



**Specification summary**

<b>Cavity</b>	
microwave ports	WR340 waveguide ports: 3 in left wall, 2 in right wall, 4 in back wall, 6 in (removable) bottom plate; 14 x filler plates for unused ports provided
viewing windows	door window with glass and perforated screen for visible-light viewing; top window for IR viewing and ventilation, two provided: perforated 304 SST screen (0.5mm holes, 0.75mm pitch, 0.2mm thick) optical fine wire mesh (0.03mm blackened SST wires, 0.25mm pitch)
ventilation fan	blower (12V, 0.5m <sup>3</sup> /min) can be installed at any unused port
cooking shelf	replaceable ceramic shelf, flush with bottom of door opening
door interlock switches	2 NO, 2 NC switches
construction	1.6mm (16ga) welded 304 stainless steel
inside dimensions (W x H x D)	330 x 168 x 308mm cooking (height limited by door aperture) 240mm overall height
outside dimensions (W x H x D)	482 x 310 x 400mm (7U rack mount)
net weight	13kg
<b>System electrical</b>	
safety interlocks	door open switch shuts off RF power (disables PAs); microwave leakage or E-stop button shuts off DC power to generators
microwave leakage detector	LED indicates normal (green), warning (yellow) at 0.5mW/cm <sup>2</sup> , latched fault (red) at 5mW/cm <sup>2</sup> , fault cleared by cycling main power; field strength can be read and thresholds set through USB interface
generator interfaces	8 x SPI/trigger/interlock interfaces controlled by USB or differential SPI, screw terminal blocks
external trigger interface	TTL input and output, jumper-selectable, screw terminal block
differential SPI interface	SCLK/SS/MOSI/MISO 100Ω LVDS, screw terminal block
leakage detector interface	I <sup>2</sup> C interface controlled through USB, screw terminal block
auxiliary DC power	5V @ 0.3A, 12V @ 0.8A, screw terminal block
DC power supply	4 x 28–32V, 1.6kW DC supplies (total limited to 4.4kW @ 240VAC, 20A), input 90–264VAC (output derated below 180V), 20A breaker, IEC C20
microwave launchers	4 x right-angle WR340 to N(f), 600W CW, 134mm long
<b>System physical</b>	
frame construction	aluminium 1" T-slot frame with 1/4"-20 nuts for instrument attachment
liquid cooling distribution	2 x 1:6 manifolds, each 1 x CPC HFC12 male to 6 x CPC PLC female, valved
dimensions (W x H x D)	490 x 615 x 485mm (frame alone), 606 x 645 x 590mm (including launchers, oven door, control box, cooling system connectors)
net weight	50kg (including cavity, 4 x launchers, 4 x M2402A generators)