

MCA527 V

DESCRIPTION

The MCA527 V is a cost-effective 2k multi-channel analyzer / multi-channel scaler module. High voltage supply for detector and preamplifier power supply are integrated as well as digital filtering technology.

Together with a detector it forms a small gamma spectroscopy system, which is well suited for the requirements of field measurements, whether for international safeguards, environmental monitoring, nuclear waste treatment plants, radioactive transport control or similar applications.

In addition, the MCA527 V supports a variety of different detectors and its 2k resolution is suitable to support all types of detectors in the 2k class. Since the MCA527 V works with digital filtering, it enables a wide range of filter settings and is also tolerant to widely differing signal shapes from the preamplifier. The application programs in our MCA software family are free of charge and allows operation of the device as a universal multi-channel analyzer, multi-channel scaler, universal counter, or oscilloscope.

The MCA527 V can be upgraded to the full functionality of the MCA527 on request.



KEY FEATURES	BENEFITS
Up to 2k channel resolution	<ul style="list-style-type: none"> • Best spectroscopy performance with NaI, CdZnTe, LaBr or similar detectors
Very low power consumption of 0.7W	<ul style="list-style-type: none"> • Long duration field measurement potential
Can be equipped with one or two high capacitive Li-Ion batteries on customer request	<ul style="list-style-type: none"> • More than 24h operation time without external power (depends on detector)
Dimensions in compact format Easy-view front panel layout	<ul style="list-style-type: none"> • Excellent operability and mobility
Digital filtering technology	<ul style="list-style-type: none"> • Allows a wide range of different filter settings
Upgradable to full MCA527 functionality	<ul style="list-style-type: none"> • Adaption to changed user requirements possible
Anodized aluminum housing with rubber seating	<ul style="list-style-type: none"> • Excellent electrical shielding and robustness

Technical Specification

MCA527 V

Spectrometric Performance		Amplifier Unit	
Example: Resolution FWHM (2k channels, 1µs shaping time, CZT 500mm ³ , count rate <10kcps, CS137 @662keV)	2.2%	Amplifier Type	DC coupled, offset adjustable
Throughput into memory (Input rate 150kcps, 0.2µs shaping time)	> 100.000cps	Bandwidth (3dB)	0 - 1.4Mhz
Operation Modes		Linearity	<0.1%
PHA (Pulse Height Analysis)	✓	Course Gain Step	10
MCS (Multichannel Scaling)	✓	Full Scale Input Range	±2.5V
Sample Mode (Transient Record)	✓	DC Offset Adjustment Range	(-10% to 90%) of full scale for positive input signals (-90% to 10%) of full scale for negative input signals
Oscilloscope Mode	✓	Analog Digital Converter	
Firmware Repeat Mode	✓	Sample Rate	10 MS/s
Digital Signal Processing		Resolution	14 bit
Trigger Filter	double differential filtering	Integral non-linearity	≤0.05%
Differential non-linearity	<1% (for 2k, @ 1µs shaping time)	MCA Power Supply	
Pile Up Rejection	✓	Input Voltage DC	9V - 14V
Pulse Pair Resolution	~400ns	Li - Ion Rechargeable batteries	Up to 2 batteries (19/38Wh)
Trigger Threshold Adjustment	automatically / manually	Power consumption (running, without detector, HV off)	0.7W
Shaping Time	0.1µs to 2µs, step 0.1	Power supply for Detector	
Flat Top Time	0µs to 15µs, step 0.1	Preamplifier Power Supply	±12V, ±60mA
Fine Gain Adjustment	0.5 to 6.5, step 0.0001	HV Supply	up to (+) or (-) 3600V
Channel Splitting	128, 256, 512, 1024, 2048,	Mechanical	
Max counts in a channel	2 ³² - 1	Dimensions L x W x H (mm)	181 x 111 x 45
Base Line Restorer	BLR with fixed averaging	Weight	820g
Pole Zero Adjustment	Decay time down to 40µs can be compensated	Housing Material	anodized aluminum
Peak Stabilization Modes	standard mode	Communication & Connections	
		Computer Interfaces	USB, Ethernet
		Connections	SHV for HV, BNC for signal, D-SUB9 for preamp supply
		Environmental Conditions	
		Operation Temperature Range	0°C – 50°C
		Humidity	≤90%, non-condensing
		IP Protection Class	IP42