

MICROME GAS MUON TELESCOPE

COSMIC RAYS TO IMAGE THE WORLD

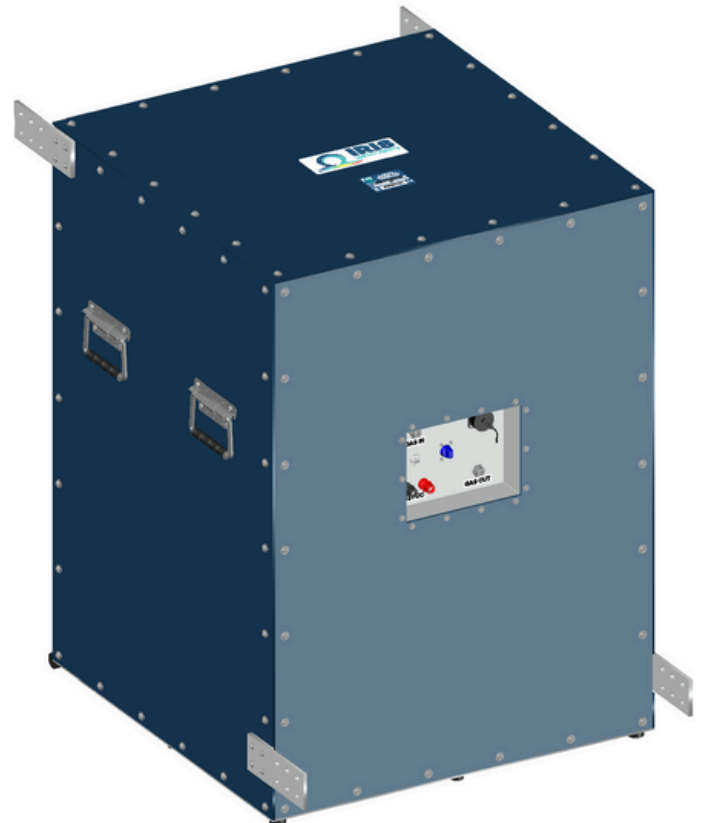


FROM THE PYRAMIDS TO THE SUBSURFACE

Started as a research project to unveil the secret of the Khufu's pyramid. The micromegas muon telescope technology is brought to you by Iris Instruments to take advantage of the unmatched efficiency and resolution of its muon reconstruction. It allows to extract every details of the target object density map. Already deployed in many different environments (archeological sites, tunnel boring machines, mine tunnels, quarries, border control points, nuclear industry,...), it will suit many different applications. It provides a timestamped muon trajectory parameter list to allow for an in-depth analysis either in static imaging or in temporal variations.

STATE OF THE ART PARTICLE DETECTORS IN A FIELD READY INSTRUMENT

The instrument is compact and sturdy : it will handle many deployment environment. From confined places to rough transport whinned up into a helicopter, the instrument can be brought to nearly any site. With its modular strut legs, it can be easily aimed at any direction above the horizon. When in place, a simple 12V supply will bring it to life either from grid power or a battery backed solar power array, the instrument will tolerate voltage variations from the battery. The gas it needs to operate is readily available in premixed compressed gas bottles. This gas is non toxic, non flammable and harmless for the environment. The low gas consumption of the instrument will allow its operation for several months with a single bottle.



MICROMEGAS MUON TELESCOPE

CHARACTERISTIC	VALUE
Dimensions (L x l x h in mm)	664 x 664 x 900
Weight (kg)	90kg without shielding
Possible inclination	Continuous from zenith to horizon
Low energy shielding	Optional, up to 50mm thick
Power supply	9-18VDC (12VDC nominal) Battery compatible
Power consumption	< 50 W
Gas mixture	Ar : 93%Vol CO2: 5%Vol iC4H10: 2%Vol
Gas consumption	< 1.5L/h @ 1atm
Gas supply	6mm tube @ 2bar (max 6bar)
Spatial resolution	< 300 μ m
Active area	500x500mm ²
Field of view	64° to 100°
Angular resolution	Up to 750 μ rad @ 64°FoV Up to 1.5mrad @ 100°FoV
Communication	Ethernet (SSH/HTTP)
Data produced	Timestamped muon position and direction in telescope reference frame in ROOT tree
Consumed supply	Desiccant molecular sieve (CAS : 70955-01-0)