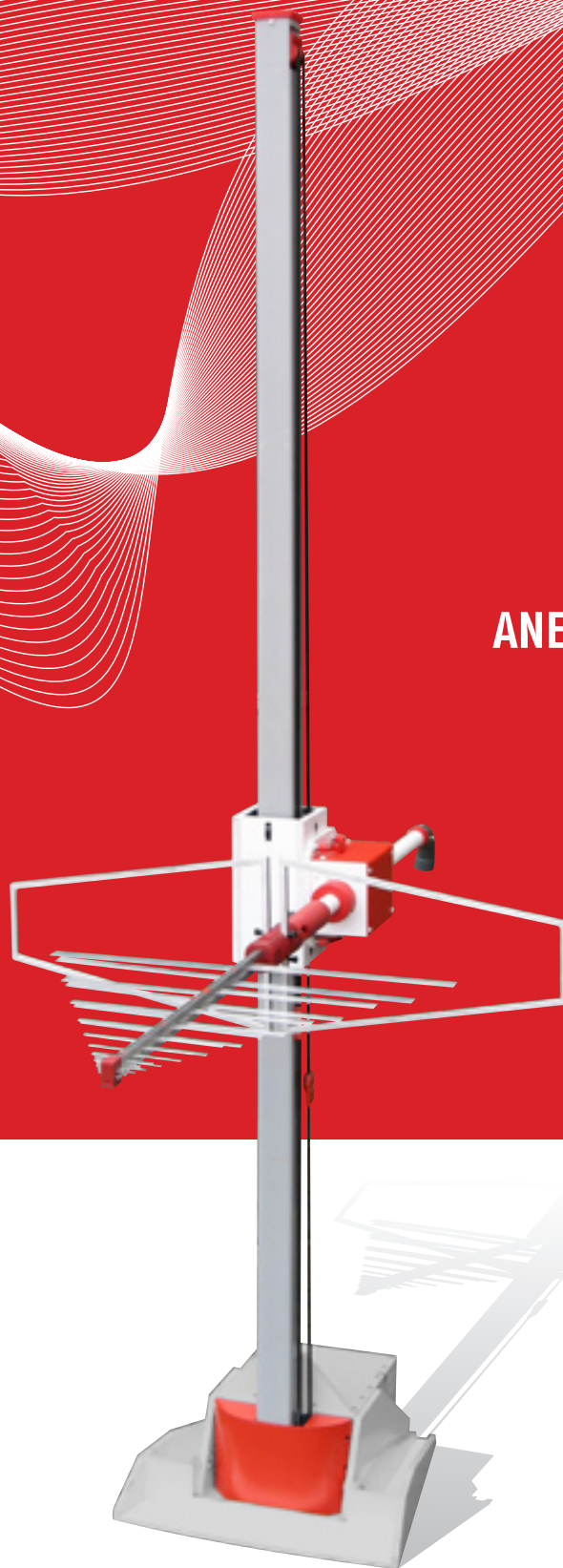




FRANKONIA

**POSITIONING DEVICES  
AND ACCESSORIES FOR  
ANECHOIC CHAMBERS, OATS  
AND SHIELDED ROOMS**



Antenna masts, Turntables, Controllers, Shielded video systems,  
Shielded audio systems and Optic converters

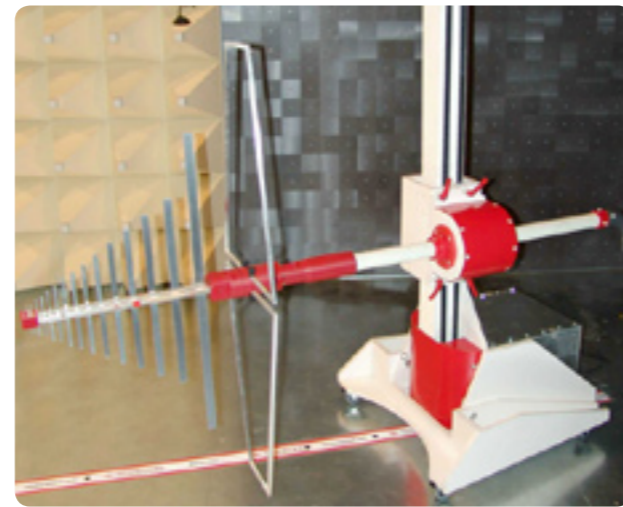
# FAM – FULLY AUTOMATIC ANTENNA MAST

## FAM – Fully automatic antenna mast

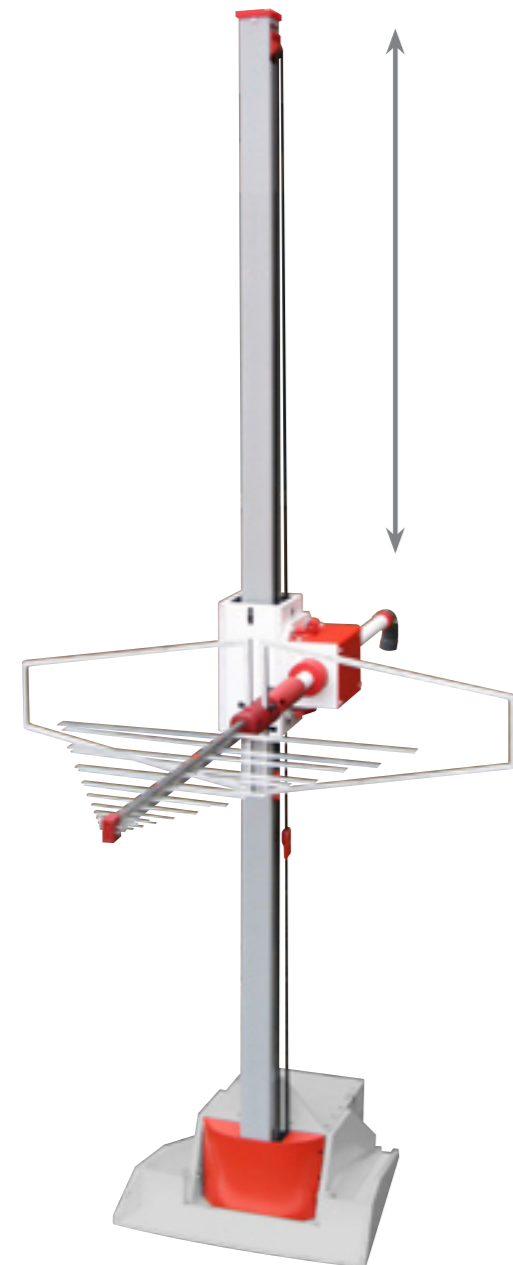
FRANKONIA's innovative range of positioning devices is entirely compatible with the EMC chamber environment.

Using a new optical communication bus, the system provides the possibility to control up to 15 devices along a single duplex fiber optic.

Available Sizes	
FAM 4	Frankonia Antenna Mast for 4.0m height scan
FAM 6	Frankonia Antenna Mast for 6.0m height scan



FAM 4 – Antenna Mast Detail



### Main characteristics:

- Vertical accuracy 5 mm
- Resolution 1 mm
- Polarization accuracy 0.2°
- 30 step adjustable vertical speed from 0.01 m/s to 0.50 m/s
- Fully automatic calculation of acceleration and deceleration ramps according to the weight of the antenna
- Manual tilting + / - 5°
- Mast positioning from 1.00 m to 4.00 m / 6.00 m
- Low noise, completely shielded hardware
- FRANKONIA optic communication bus
- Remote-controlled by controller type FC-02

FAM – Technical specifications	
Antenna height	1.0 m to 4.00 m (6.0 m)
Max. antenna weight	12 kg at cross beam section of the mast
Dimensions	760 mm x 800 mm x 4,200 mm (L x W x H)
Weight	95 kg
Power supply	230V, 50/60 Hz, 4A

# FSP – ANTENNA SUPPORT

## FSP – ANTENNA SUPPORT WITH PNEUMATIC POLARIZATION

FRANKONIA developed a complete range of positioning devices and controllers that are fully compatible with the Anechoic chamber environment. The FRANKONIA single axe positioner – FSP – is specifically designed for measuring at a fixed height. The polarization is made by the pneumatic motor.

The FSP is made of non-metallic parts (PVC and glass fiber) except for the 4 wheels. It is weatherproof and manually adjustable in height.

The control of the polarization is made by using our FC03 Controller.

Antenna adapters are available as an option.

FSP – Technical specifications	
Antenna height	adjustable from 0.6 m to 2.40 m
Max. antenna weight	8 kg
Polarization time (from 0° to 90°)	approx. 2 s
Pneumatic drive	adjustable from 0° to 180°
Dimensions	910 mm x 560 mm x 2,500 mm (L x W x H)
Weight	25 kg
Air supply	4–8 bar, controlled by a solenoid valve

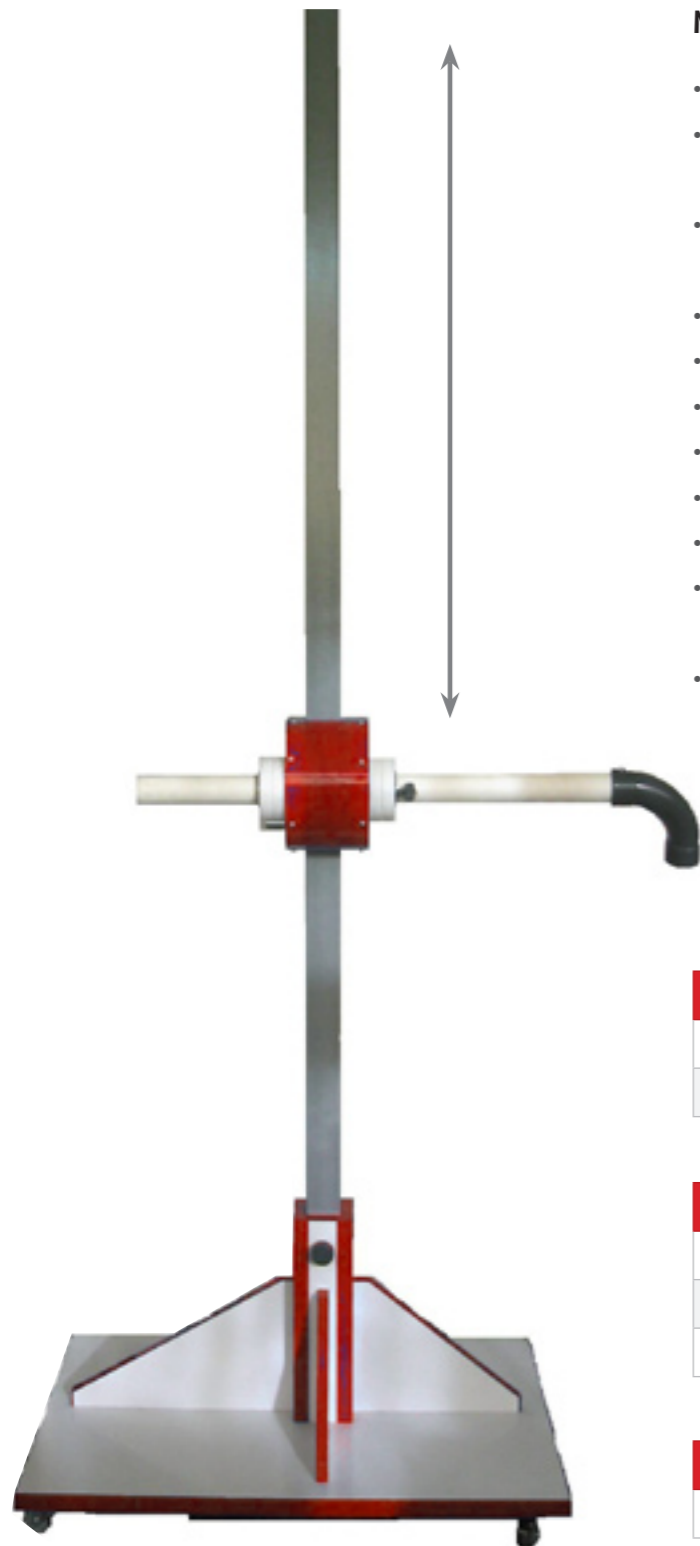


## FSM – MANUAL ANTENNA SUPPORT

The manual antenna support FSM is available for free space use and measurements in anechoic chambers. This support is made from non-metallic and low reflective material (except for the 4 wheels).

### Main characteristics:

- Manual adjustment of height
- Manual adjustment of the polarization 0° to 90° (vert./hor.)
- Fully transparent, weatherproof (plastic and fiberglass material)
- Position min: 0.70 m
- Position max: 2.00 m
- Mast cross section 60mm x 60mm
- Movable with 4 wheels
- Coaxial cable guide included
- Low storage requirement
- For antennas up to 6 kg depending on the antenna's centre of gravity
- Temperature range -10°C up to +35°C



### FSM – Technical specifications

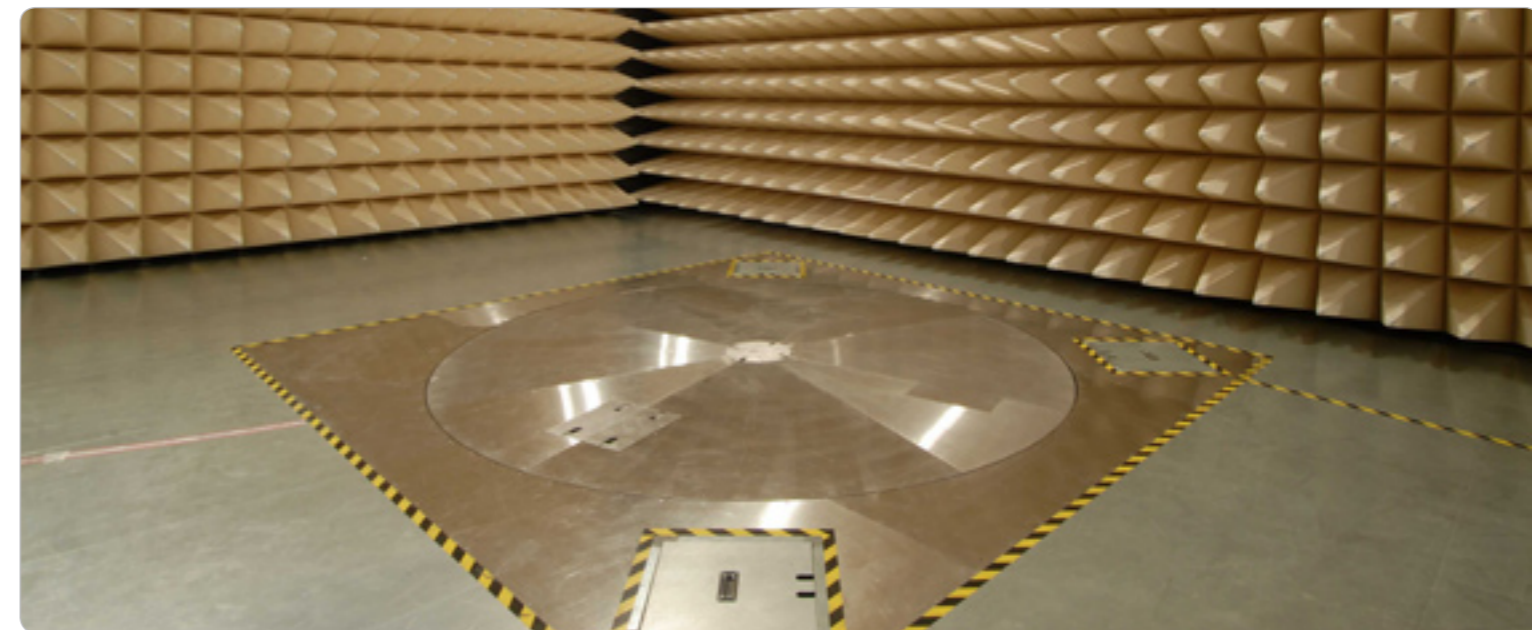
Dimensions	900 mm x 600 mm x 2200 mm (L x W x H)
Weight	20 kg

### FSM support accessories

Replacement wheels	
Replacement set of plastic screws	
Opposite weight for stability	

### FSM support option

Antenna support adaptors	
--------------------------	--



## FTM – FTD TURNTABLES WITH GROUND PLANE (M) OR DIELECTRIC SURFACE (D)

Frankonia offers a wide range of turntables which are fully compliant with the EMC chamber environment. The turntables are available in different sizes and with different options.

**FTM x - y / FTD x - y = turntable diameter x m and load capacity in tons.**

Our actual range covers: FTM (FTD) 1.50-0.50 (1.50 m – 500 kg)  
up to FTM (FTD) 8-20 (8.00 m – 20 tons)

### Labelling:

FTM refers to a turntable with metallic surface.  
FTD refers to a turntable with dielectric surface.

### FTM / FTD Specifications

Diameter	1.50 m to 8.00 m
Load	500 kg to 20 t

### Main characteristics

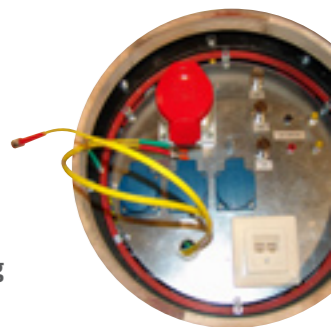
Accuracy	0.1°
Resolution	0.1°
Speed	Adjustable in 30 steps (from 12°/s to 0.5°/s)

### Accessories

Protective covers for apertures. The central panel is (min. 360 mm in diameter) available for any cables and connectors.

### Details:

- Fully automated speed variation
- Automatic reference research
- Offset possibility
- Adjustable software limits
- FRANKONIA high conductivity grounding-ring
- FRANKONIA optical communication bus



### Communication interfaces

The FTM/FTD series can be controlled by several FRANKONIA controllers.

FTS	Optical touch screen
FC02 / FC03	Automatic controller with GPIB IEEE 488.2 interface
FSOFT	Software for computer control using RS-232 interface

Options available like rotating connection panels or rotating exhaust system, fully integrated on request.

## FC02 – CONTROLLER FOR ANTENNA MAST FAM AND TURNTABLE FTM OR FTD

FRANKONIA developed a complete range of controllers offering very simple control of our positioning devices. Our controller FC02 is able in its basic version to control a turntable (FTM or FTD) and 2 antenna masts (FAM4 or FAM6). The communication with the devices is made along a duplex optic fiber (optical bus).



### Main characteristics:

- Able to control up to 15 devices
- Resolution 0,1°
- FRANKONIA optic bus system FSMA 660 nm
- Standard programming language SCPI
- Remote interface GPIB (IEE 488.2) and serial port RS-232
- Flash memory  
(possibility to upgrade the firmware via the RS-232 port)

#### FC02 controller – Technical specifications

Rack	19" 1U
Weight	2.5 kg
Dimensions	482.6 mm x 172 mm x 44.3 mm (W x L x H)
Power supply	115 / 230 V – 50Hz / 60Hz
Frequency	50 / 60 Hz

### Application Software:



The application software of the FC02 is running on Windows®95 OS up to Windows® Vista OS platform.

#### The software has 2 main functions:

1. Real time display of each device
2. Ability to control all devices via the optical bus

The software uses either the RS-232 serial port or the GPIB interface for positioning information and can be connected to the FC02 controller for real time display or control of 2 antenna masts and 1 turntable.

## FC03 – CONTROLLER FOR ANTENNA SUPPORT FSP AND TURNTABLE FTM OR FTD

The controller FC03 is able to control an antenna support type FSP and a turntable (FTM or FTD). The communication with the devices is made along a duplex optic fiber (optical bus) and air pressure tubes directly connected to the controller. The FC03 controller integrates all pneumatic connections – no additional parts are required. Air tubes are connected using fast push 6 mm connectors.



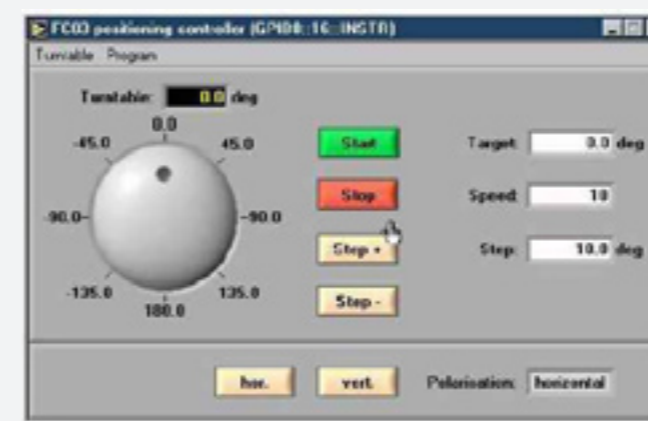
### Main characteristics:

- Resolution 0.1°
- FRANKONIA optic bus system FSMA 660 nm
- Standard programming language SCPI
- Remote interface GPIB (IEE 488.2) and serial port RS-232
- Flash memory  
(possibility to upgrade the firmware via the RS-232 port)

#### FC03 controller – Technical specifications

Rack	19" 1U
Weight	2.5 kg
Dimensions	482.6 mm x 172 mm x 44.3 mm (W x L x H)
Power supply	115 / 230 V – 50Hz / 60Hz
Frequency	50 / 60 Hz

### Application Software:



The application software of the FC03 is running on Windows®95 OS up to Windows® Vista OS platform.

#### The software has 2 main functions

1. Real time display of each device
2. Ability to control all devices via the optical bus

The software uses either the RS-232 serial port or the GPIB interface for positioning information and can be connected to the FC03 controller for real time display or the control of 1 pneumatic antenna support and 1 turntable.



For customers who don't use the automatic control or requesting only a simple and movable way for controlling positioning devices manually (e.g.: OATS), we have developed a touch-screen with direct optical connection to our positioning devices. This controller has been designed to be used with the wide range of FRANKONIA turntables (FTM or FTD) and antenna supports (FAM4 or FAM6).

### The FTS offers the following control:

- Definite positioning
- Initialization
- Manual mode
- Step moving

### Main characteristics:

- The FTS is delivered plug and play. It is controlled via a touch screen.
- The FTS display shows real time cursor movement.
- The FTS does not generate any additional noise within the chamber.
- The optic fibers can be up to a maximal length of 100m maximum.
- The FTS is extremely versatile and can be installed inside the FRANKONIA floor connection panels.
- The FTS cannot be used in parallel with any other controller in the FRANKONA range.

FTS – Technical specifications	
Dimensions	260 mm x 160 mm x 140 mm (W x D x H not including connection cables)
Weight	3.6 kg
Power supply	230V, 50 / 60 Hz, 25 W
Optic input & output	ST 660 nm

Accessories
Flash memory software
Power Cable
User manual
3m duplex fiber optic ST/ST 660nm

### FAS 3.0 – SHIELDED AUDIO SYSTEM:

The Frankonia audio system FAS 3.0 is able to work and guarantee high quality communications in any strong environment during EMI or EMS tests. The FAS 3.0 system is made of passive components inside the chamber, so they are not affected by high field strengths and don't generate any emission according to CISPR22. Developed in collaboration with automotive EMC labs, this system passes successfully all the requirements. Based on high quality components the FAS 3.0 is a full duplex system and guarantees a frequency response closed to HiFi requirements. (Very sensible with a signal/rate > 89 dB and a distortion rate of 0.007 %). High power speakers are installed into the chamber.



### Main characteristics:

- Avoids any interference problems
- Equipped with ultra low noise preamplifier, compressor, expander, feedback destroyer and several adjustable filters
- No batteries are necessary to operate the microphone
- Designed for continuous operation

### FOC S – FRANKONIA SHIELDED OPTICAL CONVERTERS:

Frankonia integrates any type of optical converters according to your request.

In order to avoid the generation of any additional noise when installing such equipments into a chamber, Frankonia delivers the part of optical converter into a shielded and filtered universal box located under the ground plane of the chamber.

### For signals crossing the shielding where filters are not available:

- IEEE 488.2
- USB 1 or 2
- Ethernet 10-100-1000BT
- Fire Wire
- Keyboard, video, mouse of a computer
- HDMI
- Etc ....



# FCS – SHIELDED CAMERA SYSTEM

## FCS – EMC SHIELDED CAMERA SYSTEM

Shielded high quality CCTV dome, including pan, tilt and zoom FCS is ideal for any kind of shielded rooms and anechoic chambers. Using a single phase power supply, 2 multimode fiber optics with ST connectors, this CCTV equipment can be installed anywhere within your facility.

### CCTV Main features:

- CCD color system (PAL)
- 460 lines
- Focal lens 1.4 – 64 mm, optic zoom 32x
- Digital zoom 96x automatic continuation with optic zoom
- Automatic and manual iris and focus
- Sensitivity 0.05 lux
- Internal synchronization
- Automatic white balance
- S/N ratio > 46 dB
- Pan tilt speed and adjustable from 0.1° to 200° / second
- Tilt area 360°
- Pan area 90°
- Effective pixels 724 (H) x 582 (V)



### Monitor and Controls:



The system is controlled by using a fully functional keyboard and a sensitive joystick.

All functions as pan, tilt and zoom can be directly controlled by the joystick.

The controller (1 x HU) is integrated in a low profile standard 19" rack.

FCS is delivered complete with a stainless steel case (200 x 200 x 300 mm).

The FCS is delivered with a 17" high quality and multi-input LCD monitor.

This professional versatile equipment guarantees the user 200 V/m immunity from 20 MHz up to 1 GHz according to ISO 11452-2 and from 1 GHz up to 18 GHz according to MIL STD 461E. Fully shielded, the FCS is compatible with CISPR22 emission requirements.

The FCS can be installed onto a shielded wall, integrated in the wall or ceiling absorbers or it can be fixed on the FRANKONIA designed internal wooden stand.

This compact system can be totally covered with either absorbers or tiles if required.



# FMC – FRANKONIA MOBILE CAMERA

## SHIELDED MOBILE COLOUR CAMERA AND AUDIO SYSTEM

The FMC is the best compromise offering a full monitoring of your EUT in every compact module. The FMC includes a video camera and an integrated audio system. It is powered by rechargeable 12V batteries.

The FMC was designed in order to be able to operate without any performance degradation and to guarantee high quality display of any EMC chamber environment. The transmission is made by a duplex optic fiber FSMA/FSMA.



17" LCD monitor connected to the controller.



Front of camera module including microphone and LED lighting



Rear of camera module with fibers connections and battery power supply cable



Battery pack, camera module and additional removable mini LCD monitor

### Main characteristics:

**Video:** PAL color Sony super HAD CCD with a resolution of 470 TV Lines. Min. Illumination: 0,95 lux and an optical zoom of 22 X and 10 X additional digital. Automatic white balance. Zoom and focus are remotely controlled

**Audio:** mono internal – Frequency range 60 to 15 kHz. High sensitivity. Line stereo mode

### SOPHISTICATED CONTROL:

The FMC features full remote control possibility available on the front panel of the controller. In order to facilitate the camera setup all the camera commands are also available on the rear side of the camera module and the display adjustment can be controlled on a removable mini LCD screen powered by the camera itself.



### Characteristics of the FMC module:

Dimensions:	140 x 70 x 70mm
Weight:	800g
Power supply:	6V
Optic connectors:	FSMA

### Elements included:

Camera module
2 batteries pack and charger
Set of cables and fibers
Controller and power supply
Mini LCD monitor
LCD monitor 17" and video audio cables



**FRANKONIA**

**Frankonia EMC Test-Systems GmbH**  
Daimlerstraße 17, 91301 Forchheim

Tel.: +49 (0) 91 91 / 73 666 - 0  
Fax. +49 (0) 91 91 / 73 666 - 20

Web. <http://www.frankonia-emv.com>  
Mail. [sales@frankonia-emv.com](mailto:sales@frankonia-emv.com)

**Frankonia GmbH**  
Industriestraße 16, 91180 Heideck

Tel.: +49 (0) 9177 / 98 500  
Fax. +49 (0) 9177 / 98 520

Web. <http://www.frankonia-emc.com>  
Mail. [info@frankonia-emc.com](mailto:info@frankonia-emc.com)