

# WIDE RANGE GAMMA or NEUTRON AREA MONITOR

Model # FML-7B and FML-7C

## FEATURES:

- ON-LINE REAL-TIME MONITORING
- ALL PLUG-IN MODULAR
- RACK MOUNTING OR CASE
- SINGLE OR MULTI-CHANNEL
- RUGGED DETECTORS
- LOCAL OR REMOTE MONITORING  
(UP TO 4,000 m CABLE OPTIONAL)
- HIGH LEVEL ALARM, SOLID STATE, NON-CONTACTING
- FML-7B:** RS-232 OUTPUT FOR PRINTER OR PC AND  
REMOTE DISPLAY OUTPUTS
- FML-7C:** COMPLETE ETHERNET COMMUNICATIONS
- MICROPROCESSOR BASED DATA MEASUREMENT AND  
DISPLAY

**APPLICATION:** Area monitor in and around nuclear reactors, hot cells, irradiators and other facilities handling radioactive materials.

**GENERAL DESCRIPTION:** The **FML-7** Series Radiation Monitors incorporate a digital alarm ratemeter, power supply, alarm, amplifier, choice of rack or case, and reliable GM, BF<sub>3</sub> or scintillation detectors. Because of the plug-in modular construction, additional channels or functions can be added. Dependable detectors and circuit design prevent the system readings from falling even in very high fields. Front panel controls allow the alarm set point to be displayed. Alarm activation produces flashing red light on front panel and piercing intermittent 2000Hz tone.

**Optional** relay is also closed (or opened) for activation of remote alarms.

**Optional** stand-by battery power available.



FML-7B (Top), NEMA-4X Detector (Middle), **Optional** Submersible Detector (Bottom)

## •Description:

**Multi-channel FML-7 Area Monitor systems with up to 20 detectors enjoy the option of feeding the amplified detector pulses directly into TA's 20 counter Ethernet node, model ET-20.**

## Counter Channels

The ET-20 incorporates 20 discrete counters. This design gives much better counting statistics and level-of-confidence than systems using data-sampling or analog techniques.

## Data Analysis, Control, Display, Archiving, optional report generation

The ET-20 sets count times, alarm trigger levels, alarm mode (latching or non-latching) and other parameters. All data is automatically displayed, archived and available for graph / trend plotting. ET-20 and the detectors become a complete, user-friendly, 20-channel, area-monitor system that is capable of handling GM, Scintillation, Proportional and pulse output Ion Chambers for Gamma and Neutron monitoring.

## Data Transmission

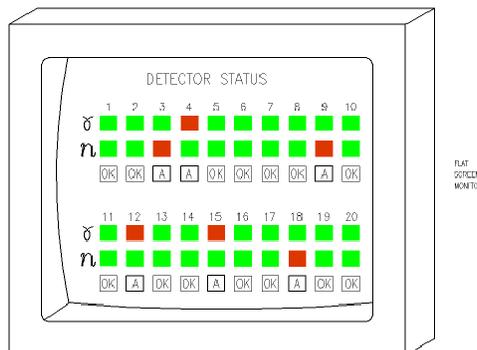
For Ethernet based RMS systems with more than 20 area monitor detectors, and for systems which include other detectors such as air and stack monitors, liquid monitors, etc., model ET-20 serves as an Ethernet node which allows two way data flow to the main TA-RMS server and operators console, even over very long distances.

**TA** TECHNICAL ASSOCIATES

7051 ETON AVENUE, CANOGA PARK, CA 91303  
TELEPHONE: (818)-883-7043 \* FAX: (818) 883-6103  
e-mail: [tagold@nwc.net](mailto:tagold@nwc.net) \* [www.tech-asociates.com](http://www.tech-asociates.com)

# WIDE RANGE GAMMA or NEUTRON AREA MONITOR

Model # FML-7B and FML-7C



## SPECIFICATIONS

### •Range:

•Gamma: 4 decade dynamic range 0.1 mR/hr to 1 R/hr \* (artificial background supplied by internal radiation source in probe)

\*Other ranges available to 1,000 R/hr or down to 0.01 mR/hr or  $10^{-6}$  to 10 Sv/h.

•Neutron:  $10^4$  to  $10^8$  Neutron/cm<sup>2</sup>/second.

•Accuracy: +/- 10% of decade

### •Detector:

•Gamma: Energy compensated halogen quenched GM detectors, in ruggedized probe with internal radiation source. Supplied with 8ft. cable. (Up to 500ft. of cable can be supplied as an **Option**.)

**Optional** high range systems use High Range GM detectors. Detector is supplied with Counter Channels with 8 ft. cable (up to 500 ft. of cable can be supplied as an option).

•Neutron: Neutron Scintillator ZnS(Ag) or Proportional BF<sub>3</sub> detector.

•Anti-Saturation: Circuitry is incorporated to prevent readings from falling below full scale in over range conditions (tested to 1,000 R/hr).

•High Voltage Output: Counter Channels 0 to +1500V at 200  $\mu$ A continuously adjustable.

•Energy Dependence: Gamma:  $\pm 20\%$  from 100KeV to 1.2 MeV.

•Energy Range: Neutron: 0.01 to >20MeV.

•Temperature: Operating range between -30°C and 50°C; drift less than 17% per °C at room temperature. 0-95% humidity non-condensing.

•Readout: Large, easy to read Roentgen or Sievert display. User programmable.

•Front Panel Controls: Alarm Level Set, Display Alarm Set Point, Alarm Reset Pushbutton Power On-Off, Switch

•Alarms: Alarm level Counter Channels is adjustable over entire range. Alarm indicators include flashing red light and beeper.

•Power: 105-125 V (or 200-240 V), 50-60 Hz. Optional 12 Volt operation. Optional standby batteries, normally under continuous charge, automatically provide power for one week in event of AC power failure.

•Mounting: Electronics are normally furnished in FM-7 case but can be furnished uncased with mounting bars for rack or NEMA-4 (hostile environment) cabinet.

### •Options:

Multiple channel systems.

Solenoid activated check source for system calibration.

Remote alarm-flasher-howler.

Remote meter readout with alarm.

Analog output for chart recorder - model **FIL-7DPA**

Standby batteries.

Cable to 500 feet.

**TA** TECHNICAL ASSOCIATES

7051 ETON AVENUE, CANOGA PARK, CA 91303  
TELEPHONE: (818)-883-7043 \* FAX: (818) 883-6103  
e-mail: [tagold@nwc.net](mailto:tagold@nwc.net) \* [www.tech-as-associates.com](http://www.tech-as-associates.com)