

# Multi-Point Toxic Gas Detection System

## MODEL : FPM-80A

FPM-80A detects toxic gases simultaneously up to 80 points in a single unit, also providing a significant reduction in operating and maintenance costs by supporting safe and stable plant operations with high reliability gas detection and less downtime.

### High reliability and non-stop operation

- Powerful pumps makes gas detection up to 120m (400 ft) distance only within 1 minute.
- Hot swap for power-supply units, pumps, and PCs to make maximum capacity and minimum downtime at every Fab.

### User friendly operation

- Easy-to-read and easy-to-operate touch panel

### Long-life gas detection tape cassette

- Long life & cassette tape type provides significant reduction in maintenance frequency
- 180 days tape is the longest lifetime
- Cassette tape type provides anyone with easy replacement which takes only within 1 minute.
- Cassette tape type is the best solution to avoid any tape problems such as tape twisting and tape jams.

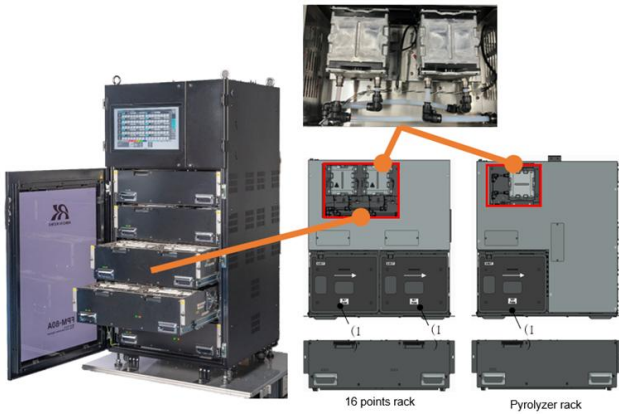
### Smart management function to monitor the status remotely from higher level

- Available for various communication protocols.
- Gas tracer function leads to immediate checks without going on site.
- Cassette tape type with RFID tag leads to check the rest of tape life.



## High reliability and non-stop operation

Dedicated and powerful pump for each analyzers detects each points in 120m (400ft) distance in less than 1 minute.



**\*Note;**

- Able to detected 80 points in 120m full length.
- Stable flow and suction with auto-calibrate mode.
- Able to manual adjust based on customer requirements.

Hot swap for power-supply units, pumps, and PCs to make maximum capacity and minimum downtime at every Fab.



### Power-supply units



### Pumps



### Raid PC



## Long-life gas detection tape cassette

FPM-80A designed for easy operation prevent human error (wrong selection / missed-leading). Cassette-tape is protected by hard cover and is no need to worry about tape polluted or damaged by chemicals, environment and poor handling.

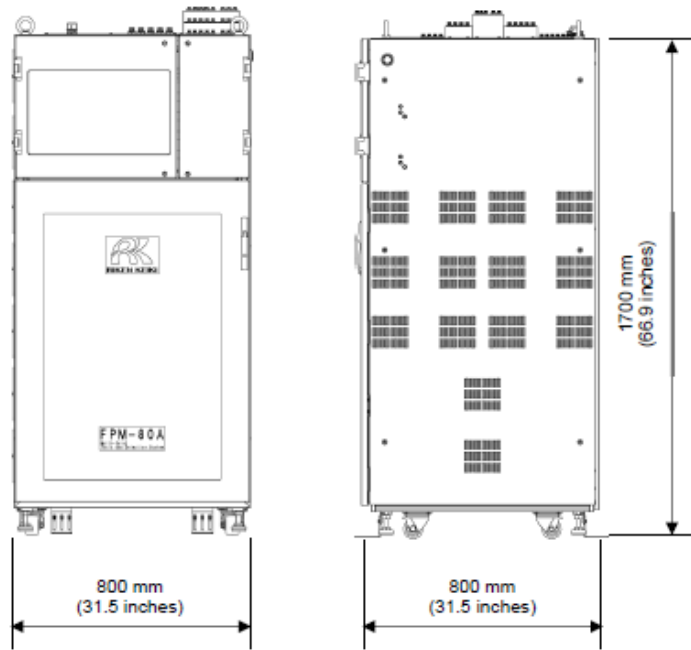


**180** days tape is the longest lifetime.

**\*Note;**

- No gas calibration is required
- The cassette-tape can be easily replaced without any alignment and technical involvement

## Exterior Drawing



## Main Optional Functions

### External Output Specifications

For external outputs, the following optional configurations can be selected according to practical application requirements:

- Option 1:  
Common contact output (48 points, normally de-energized)
- Option 2:  
Individual contact output (1st X 80 points + 2nd X 80 points, normally de-energized)
- Option 3:  
Individual analog output (80 points, 4–20 mA)

## Sensor list

Tape model	FML-202E									FM-024E	FM-025E
Gas group	Hydride-1					Hydride-2	Hydride-3	Hydride-4	Ammonia	NO <sub>2</sub>	
Gas	PH <sub>3</sub>	H <sub>2</sub> S	AsH <sub>3</sub>	SiH <sub>4</sub>	B <sub>2</sub> H <sub>6</sub>	AsH <sub>3</sub> (Low range)	H <sub>2</sub> Se	GeH <sub>4</sub> <sup>※2</sup>	NH <sub>3</sub>	NO <sub>2</sub> <sup>※1</sup>	
Range	1500	20.0	150	30.0	1000	15.0	500	2000	150	30	
Display Unit	ppb	ppm	ppb	ppm	ppb	ppb	ppb	ppb	ppm	ppm	
1st alarm	300	1.0	50	5.0	100	5.0	50	200	25.0	3.0	
2nd alarm	600	2.0	100	10.0	200	10.0	100	400	50.0	6.0	
Zero suppression(LDL)	30	0.2	6	0.2	20	1.4	15	20	5.0	0.1	
1 digit	1	0.1	1	0.1	10	0.1	1	10	0.1	0.1	
Measuring Cycle /sec	30	30	60	60	60	180	120	300	20	60	
Tape model	FM-106			FM-015			FM-106				
Gas group	Mineral acid			Oxidizer			Pyrolyzer-1	Pyrolyzer-2			
Gas	HF	HBr	HCl	Cl <sub>2</sub>	F <sub>2</sub>	ClF <sub>3</sub>	NF <sub>3</sub>	C <sub>2</sub> F <sub>6</sub>	C <sub>4</sub> F <sub>6</sub>		
Range	20.0	20.0	15.0	3200	3000	3000	40	5.0	5.0		
Display Unit	ppm	ppm	ppm	ppb	ppb	ppb	ppm	ppm	ppm		
1st alarm	3.0	2.0	2.0	500	500	500	10	2.0	2.0		
2nd alarm	6.0	4.0	4.0	1000	1000	1000	20.0	4.0	4.0		
Zero suppression(LDL)	0.4	0.3	0.2	30	40	60	0.5	0.2	0.2		
1 digit	0.1	0.1	0.1	10	10	10	0.1	0.1	0.1		
Measuring Cycle /sec	20	20	20	20	20	20	20	20	20		

※1テープ交換周期 最大60日。 ※2 使用温度範囲10~35℃

Model	FPM-80A
Detection principle	Chemical Tape Method
Detected gases	Toxic gases (see list of gases to be detected)
Display	19 inch touch panel (contents: gas name, gas concentration, days remaining on tape, flow rate, etc.)
Detection tape replacement cycle	180 days (The maximum tape replacement interval for NO <sub>2</sub> is 60 days.)
Detection point	Up to 80 points
Detection method	Pump suction type (1 pump per rack (Max. 8 points))
Sampling flow rate	2.5 L/min (per point)
Sampling distance	Up to 120 m (Approx. 400 ft.)
Sampling piping	OD φ6.35 mm (1/4 inch) × ID φ4.35 mm, PTFE tube
Exhaust line piping	OD φ10.0 mm × ID φ8.0 mm, Gas-out integration : (undecided: inner tube)
Exhaust line distance	Max. 15 m (49 ft)
Alarm Setpoint	See list of gases to be detected
Gas Alarm Type	2-stage alarm (H-HH)
Gas Alarm Operation	Auto reset or self-latching
Trouble alarm*Self diagnosis	System error / Sensor error / Flow rate error / Communication error / Tape replacement notice
Trouble alarm indication	Color display (orange)/contents on touch panel
Trouble alarm action	Auto reset or self-latching
Functions	Alarm trend display/event history display/alarm test (communicated to host system side)
Power cable	CVV and other cables, 3-core 100 VAC AWG10 (5.5 mm <sup>2</sup> ) or more, 220 VAC AWG14 (2.0 mm <sup>2</sup> ) or more
Power supply	Single phase three-wire VAC100V to 240V ±10%·50/60Hz
Current consumption (max)	100 VAC: 23.0 A 240 VAC: 9.6 A
Power consumption(max)	80 points Normal specification: 1.0 kVA, Pyrolyzer specification: 2.3 kVA*
Initial clear	Normal specification: 3min, Pyrolyzer specification: 30 min*
Tape storage	Storage conditions: Stored in a refrigerator (10°C or below) / Storage period: 6 months
Operating temperature	+5°C to 35°C(no sudden changes)
Operating humidity	30 to 60 %RH (no condensation)
Usage altitude	Less than 2,000 m (6562 ft) above sea level
Pollution Degree	Level 2
Overvoltage Category	II
External size	Approx. 800 (W) × 1,700 (H) × 800 (D) mm (Approx. 31.5(W) × 66.9(H) × 31.5(D) inch) (Excluding protruding parts)
Weight	Approx. 400 kg (881 lbs)
Color	Black (Munsell N-1)



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