ISO-14001
ISO-9001

SPECIFICATION SHEET

FLASH POINT ANALYZER

Model: FPA

This analyser measures the flash point of oil products such as light gas oil and kerosene. It is widely used for process and quality control in oil refineries.

FEATURES

- Conformity with flameproof explosion protected construction (JIS d2G4).
- Fully automatic measurement controlled by microprocessor based programmer.
- Correlation with the test method for flash point of oil products (JIS K2265) and ASTM standards.
- Utilises CDI ignition device with ceramic electrode. This gives reliable and high spark ignition.

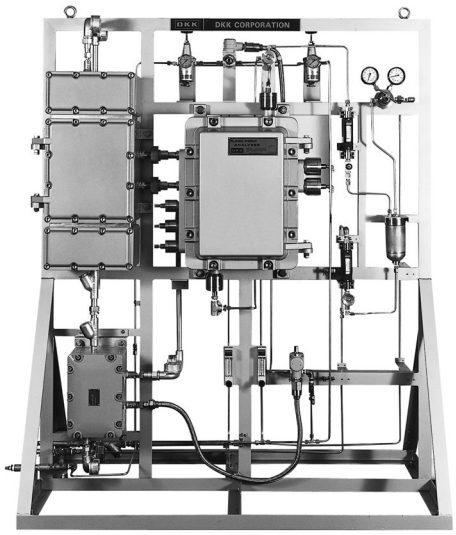
STANDARD SPECIFICATIONS

• Analyzer Section

Product Name	:	Flash point analyser
Model	:	FPA
Measurement Object	:	Flash point of oil product (gas oil and Kerosene)
Measurement Method	:	Batch, spark ignition
Explosion Protection Standard	:	Flameproof explosion protected construction (JIS d2G4), certification NO.34291
Measurement Ranges	:	0~100°C
Temperature Sensor	:	Thermocouple
Measurement Cycle	:	2~10 min.
Repeatability	:	within ±1%FS (for mV/I range)
Power Requirements	:	Refer to specs. of controller
Power Consumption	:	Refer to specs. of controller
Stabilizing Time	:	3 hours
Ambient Temperature	:	0~40°C
Installation Site Conditions	:	Avoid direct sun light and provide a rainproof construction when installed outdoors.
Paint Colour	:	Metallic silver (analyser frame)
Dimensions	:	1500(w) x 800(d) x 1800(h) mm
Weight	:	Approx. 600kg for integrated construction of analyser and preconditoner
Sample Moisture Content	:	Max. 500ppm
Sample Supply	:	0.2~0.5L/min.
Sample Pressure	:	0.4MPa
Sample Temperature	:	Below expected flash point by at least 10°C
Sample Viscosity	:	Max. 3CP at 50°C
Piping Connection		
Sample inlet	:	Rc1/2(PT1/2F)
Sample outlet	:	Rc1/2(PT1/2F)
Air inlet	:	Rc1/4(PT1/4F)
Instrument Air		
Pressure	:	0.4~0.7MPa
Consumption	:	0.5NL/batch (max.)

• Sample preconditioner

Dehydration Ability	:	1% moisture is reduced to several hundred ppm
Sample Inlet Connection	:	Rc 1/2(PT1/2F)
Sample Temperature	:	20~40°C



Mounting	:	Same rack as analyzer
Sample Pressure	:	2MPa (max.)
Sample Flow Rate	:	0.5~1 L/min.

Alternative piping connections are available on request.

• Controller

Model	:	U-32
Programming	:	Program setting using keypad
Minimum Setting Range	:	1 sec.
Time Indication	:	Digital display
Paint Colour		
Frame	:	Munsell N1.5
Body	:	Munsell N7
Dimensions	:	288(w) x 195(d) x 192(h) mm Refer to drawing of dimensions
Weight	:	Approx.16.5kg
Mounting	:	Panel mount
Installation Site	:	Safe area (Indoor)
Ambient Temperature	:	0~40°C
Power Requirements	:	100VAC ±10%, 50/60Hz
Power Consumption	:	500VA (inclusive of analyser)
Outputs		
Contact switching	:	Interruption signal (1 contact) (2 sec. Make-signal is supplied for connection to resistive load.)
Contact rating	:	110V AC 0.1A or 30V DC 0.5A
Analogue signal	:	Ignition point temperature hold output (isolated from input, 4~20mA DC max. load 600Ω or 1~5V DC, min. load 100kΩ
Output Correction Function	:	Correction to manually determined ignition point is possible from the programmer keypad.

Related Equipment

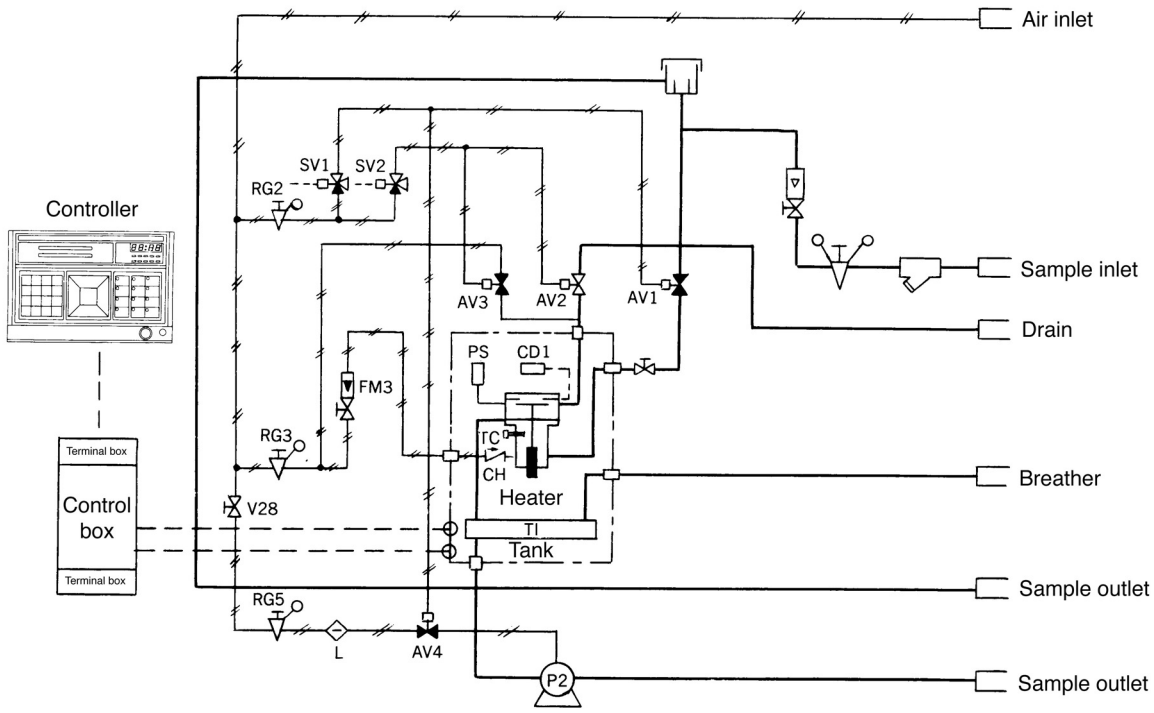
- Chart Recorder
- Circulation for constant temperature water (explosion proof)
- Sample Recovery System
- Thermal convertor

Contact DKK-TOA for further information.

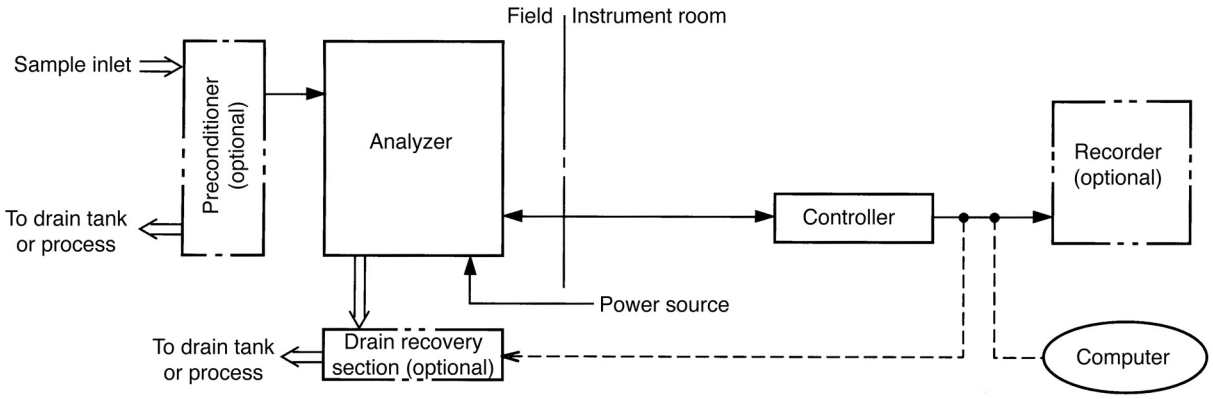
PRINCIPLE OF OPERATION

The sample is introduced into the cell by opening AV_1 for a fixed time. Surplus sample falls into the tank by overflowing. When AV_1 closes, the sample temperature in the cell rises to the preset temperature to start ignition. This ignition is repeated until the sample flashes. When the pressure sensor detects the pressure rise due to flashing, the IC thermocouple detects the sample temperature and this is determined as the flash point. When measurement is finished, AV_1 opens to introduce sample and closes when the cell temperature drops below a preset value. Surplus sample overflows and falls into the tank. The above operation is repeated. Air is continuously supplied at a constant flow rate.

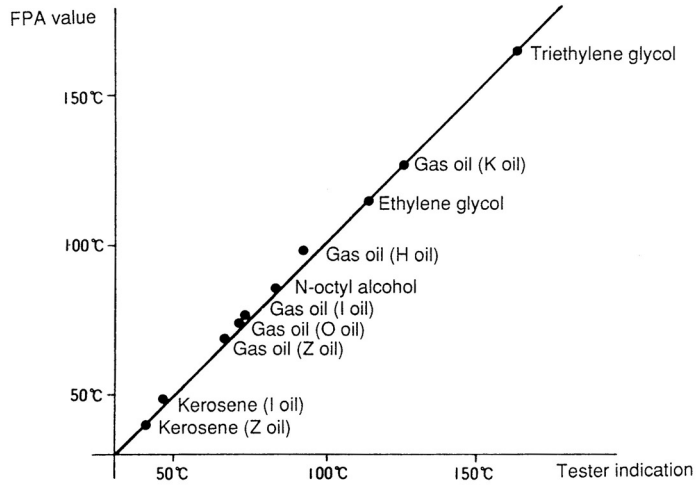
MEASUREMENT SYSTEM DIAGRAM



SYSTEM CONFIGURATION



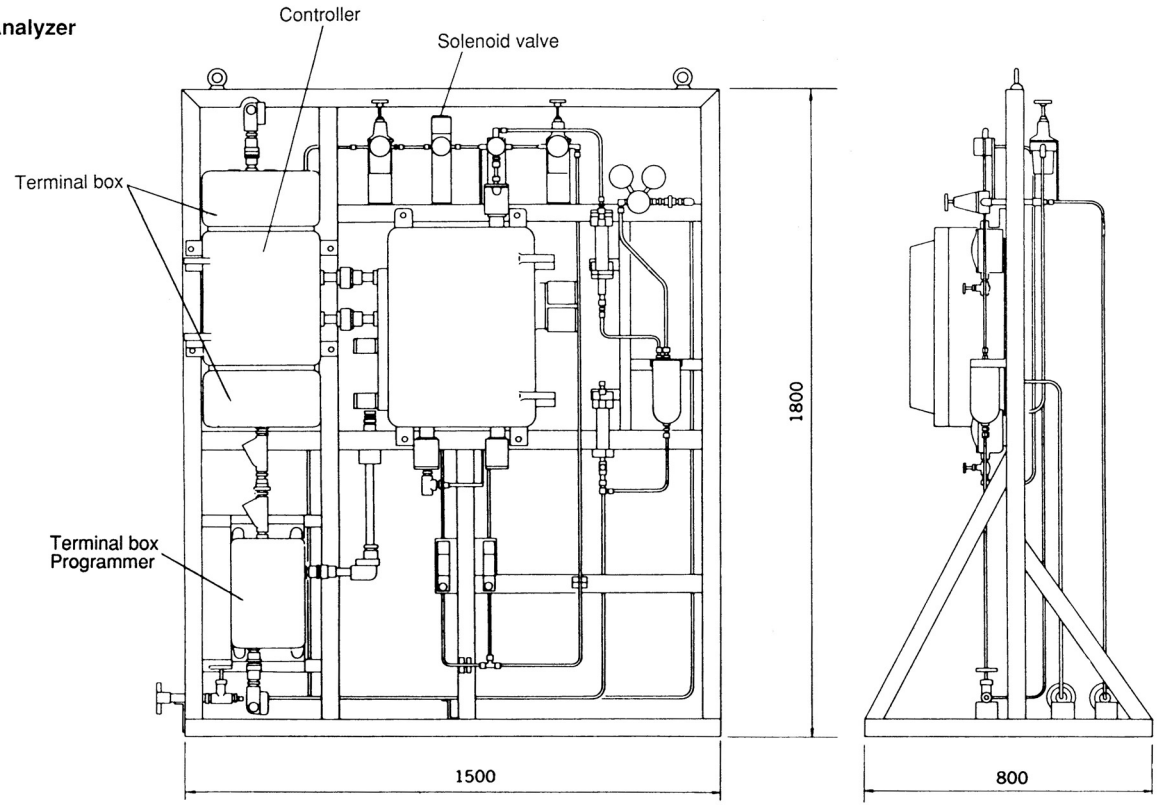
EXAMPLE OF SAMPLE MEASUREMENT



DIMENSIONS

Unit: mm

• **Analyzer**



PRODUCT CODE

FPA-1- □□□□□□□□□□□□

- Power source
  - 1 ····· 100 V AC 50/60Hz (Standard)
  - 2 ····· 110 V AC 50/60Hz
- Measurement range
  - 1 ····· 0~100℃ (Standard)
- Transmission output
  - 1 ····· 4~20mA DC (Standard)
- Sample pressure
  - 1 ····· 0.4~1.0MPa (G) (Standard)
  - 2 ····· 0.4MPa (G) or less (Sampling pump required)
  - 3 ····· 1.0MPa (G) or more (Relief valve required)
- Cooler (Sample temp.)
  - 0 ····· Nil (with FP sample value, -10℃ or less)
  - 1 ····· With open cooler (150℃ or less)
  - 2 ····· Panel cooler (200℃ or less)
  - 3 ····· With enclosed cooler (300℃ or less)
- Coalescer (Water contents in sample)
  - 0 ····· Nil (Less than 500ppm)
  - 1 ····· Coalescer, 1 unit (within 501~1000ppm)
  - 2 ····· Coalescer, 2 units (within 2000ppm)
- Preconditioner filter (Sludge content within sample)
  - 0 ····· Nil
  - A ····· Y-shaped strainer with single unit (Pressure: 1.0MPa (G) or less)
  - B ····· Y-shaped strainer with double units (Pressure: 1.0MPa (G) or less)
  - C ····· Bucket filter with single unit (Pressure: 1.0MPa (G) or less)
  - D ····· Bucket filter with double units (Pressure: 1.0MPa (G) or less)
- Waste water recovery unit (Returning point pressure)
  - 0 ····· No recovery unit + no pump (Return/atmospheric pressure, free drain)
  - 1 ····· No recovery unit + with pump (Return/atmospheric pressure, free drain)
  - 2 ····· With recovery unit + no pump + drain pump (air)
  - 3 ····· With recovery unit + no pump + drain pump (electronic)
  - 4 ····· With recovery unit + with pump + drain pump (air)
  - 5 ····· With recovery unit + with pump + drain pump (electronic) (Not applicable for 100V type)
- Preconditioner filter (Cooling water)
  - 0 ····· Nil
  - 1 ····· Y-shaped strainer with single unit (Pressure: 1.0MPa (G) or less)
  - 2 ····· Y-shaped strainer with double units (Pressure: 1.0MPa (G) or less)
  - 3 ····· Bucket filter with single unit (Pressure: 1.0MPa (G) or less)
  - 4 ····· Bucket filter with double units (Pressure: 1.0MPa (G) or less)
- Instrument air (for AIR operated valve)
  - A ····· Above 0.4MPa (G) (Standard)
  - B ····· Below 0.4MPa (Booster pump required)
- Std. Solution tank (for calibration)
  - 0 ····· Nil
  - 1 ····· Standard tank (10L) + air/N_2 or pressure
- Rack type
  - 1 ····· Open rack (P16F) (Standard)
  - 2 ····· Open rack (P16F) + roof
- Piping work
  - 0 ····· Nil (Standard)
  - 1 ····· Steam trace + insulator
  - 2 ····· Cool water trace + heat insulator
  - 3 ····· Insulator
  - 4 ····· Heat insulator
  - 5 ····· High pressure (above 1.0MPa (G)) schedule 40 or above
  - 6 ····· Welding (apart from screwed connection type)

Custom spec. code;	
Numeric digit:	9
Alphabet:	Z

Note 1. Controller must be ordered separately.

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⚠ CAUTION Do not operate products before consulting instruction manual.