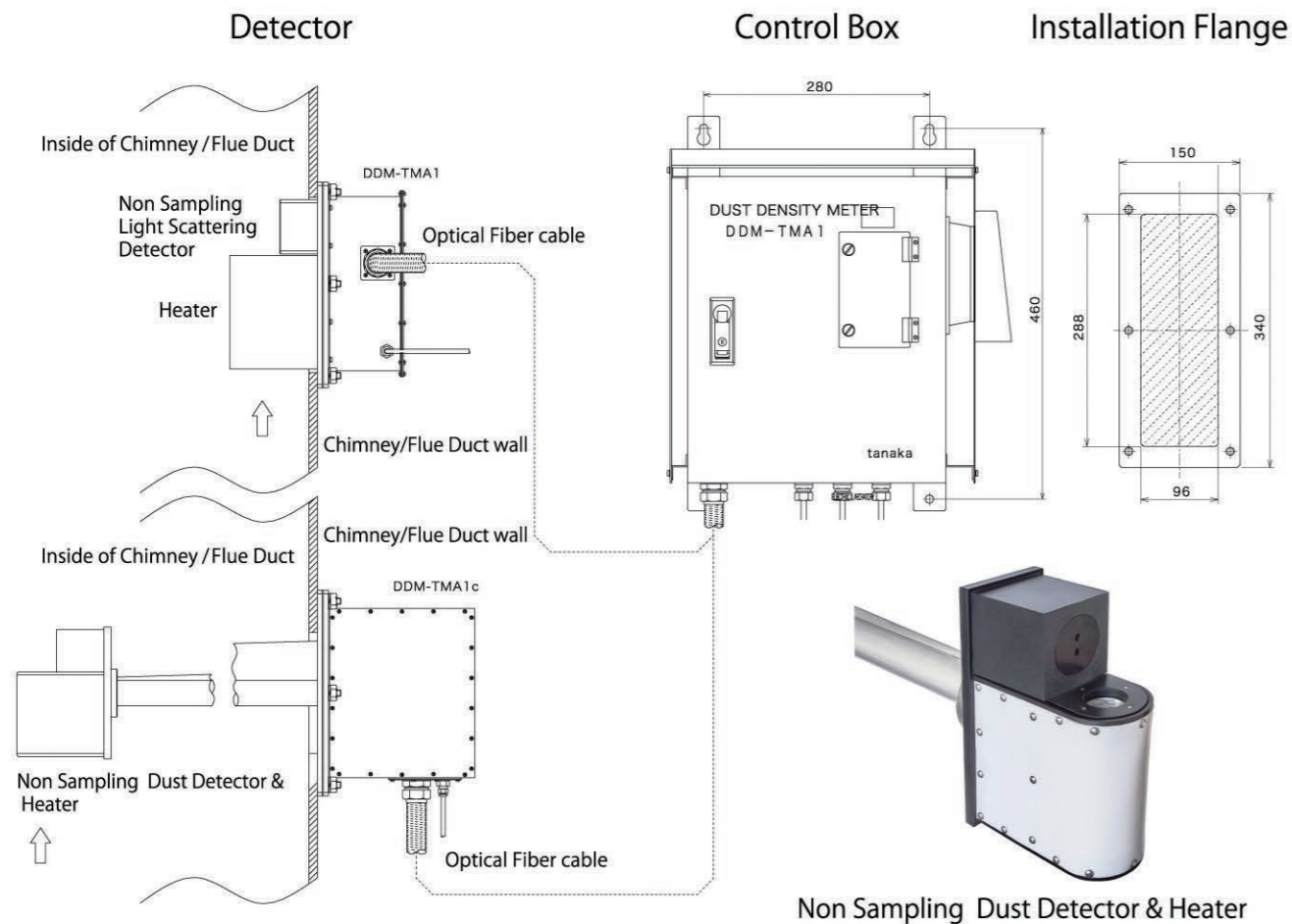


# DDM-TMA1 & DDM-TMA1c

Non-sampling Light Scattering  
Dust Concentration Monitoring System  
for Wet Flue Gases

High sensitivity  
Durable and reliable  
Ultra low maintenance  
Simple installation



Specifications	
detector method	non sampling light scattering method with heater scattered light method
light source	LED
measuring range	0~100mg/Nm3 equivalent 0~100% output *measuring ranges are variable
external output	DC4~20mA isolation output (load resistance 550Ω<) RS-232C I/F output
display	digital indicator of 0~100%
fault indicator	main controller's power failure, abnormal spanning, abnormal internal voltage, heater failure
zero span calibration	AC/DC200V, 0.1A automatic or manual (default factory setting) AC/DC200V, 0.1A
ambient temperature correlation coefficient	external output ±2%/10℃(20℃) 0.9 or above
flue gas temperature analysis	from 45℃ up to 250℃
flue gas speed	approximately up to 12m/Sec
flue gas pressure	up to 10kPa
power supply	control unit : AC100V±10% (50/60Hz), 200VA heater:AC200V±10% (50/60Hz), 1.8kVA
ambient temperature protection class	-10~50℃(operational temperature)
dimensions	IP54 detector : 340x150x272mm flange hole : 288x96mm Control box : 414x378x230mm
optical fiber cable weight	Φ5mmx2.3m detector : approximately 10kg(optical fiber cable is not included) control box : approximately 20kg



Tanaka Electric Laboratory Co., Ltd.  
solution provider for industries and environment

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## Tanaka Electric Laboratory

is ISO9001 certified, serving high quality and reliable services and products over 55 years, has been a leading company for dust monitoring systems in Japan. Tanaka Electric Laboratory dust monitoring systems are high quality, reliable, robust, and easy to use and to maintain. They have been used in major electric power plants, iron mills, waste plants in Japan and South Asian countries and the product quality has been proven in the fields over 25 years.

## Compliance and CSR

have recently been increasingly known by the industries that emit flue gas into the atmosphere. The dust contained in flue gas can cause environmental pollution and health issues, and reducing the dust emitted from a plant/factory is a global demand. In many countries the governments enforce air pollution laws. \*CSR: Corporate Social Responsibility

## Tanaka Electric Laboratory dust monitoring systems

has helped run a plant/factory more cleanly and efficiently and to establish corporate compliance and CSR. The features of Tanaka Electric Laboratory dust monitoring systems are:  
>the industry proven accuracy >reliability, robustness, durability >simple installation > easy maintenance.

## Tanaka Electric Laboratory Light Scattering Detector

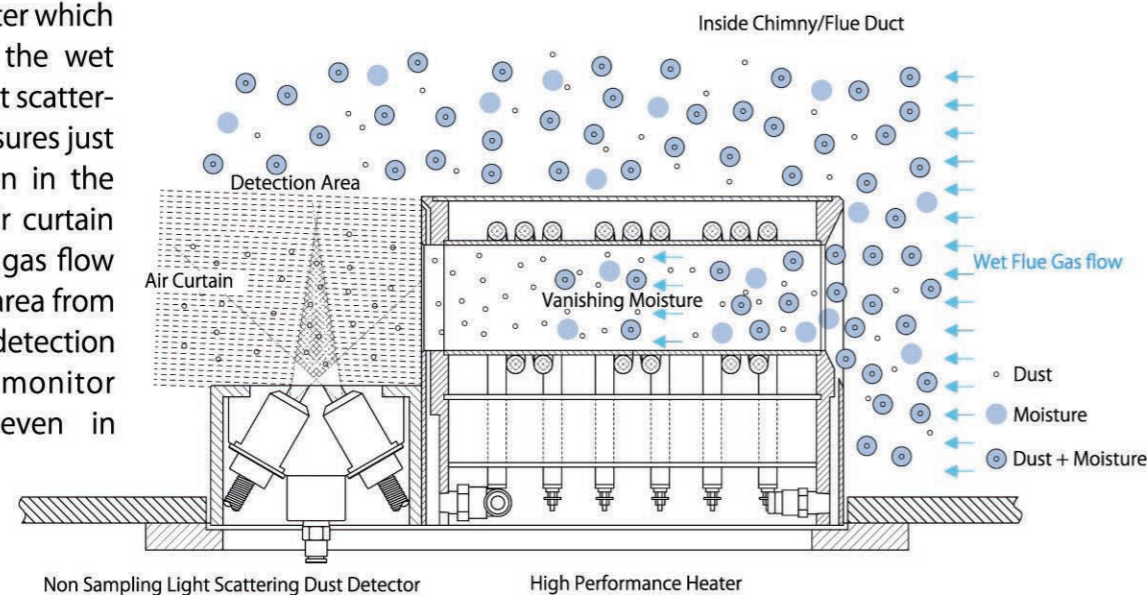
provides reliable monitoring in harsh conditions such as highly

electrically charged gas, high humidity gas, and variable velocity gas, and the detector has an excellent sensitivity. The light scattering method uses an optical sensor and provides excellent noise resistance. Its unique detector design and integrated purge air system makes the detector almost maintenance free. In addition, the installation of the detector is very simple as well.

## DDM-TMA1

(its nick name is Tamaichi) is designed to measure the dust concentration in wet flue gases. The measuring principle of DDM-TMA1 is Non-sampling Light Scattering method. The wet

flue gas passes inside of the high performance heater which vanishes the mist in the wet flue gases, and the light scattering dust detector measures just the dust concentration in the wet flue gases. The air curtain prevents the wet flue gas flow around the detection area from interfering with the detection area. DDM-TMA1 can monitor dust concentration even in heavy wet flue gases.



## DDM-TMA1c

is designed for CEMS in order to measure the dust concentration within 30% center area of flue gas duct. This model is also non-sampling method as same as our other products, and no effects from variable velocity gas. Its unique detector design based on duct wall mount type DDM-TMA1 and detector is installed at head of probe. Light scattering light signal will send by fiber optics inside of this probe.

## Easy Installation and maintenance

The installation of DDM-TMA1 is simple and costs you less. DDM-TMA1 is made of two major components; detector with heater and control box. The detector and the control box are connected by optical fiber cables. To install the detector you need just one hole on a stack and minimal work space. The control box is small and light weight. It can be easily installed anywhere and can be isolated from high heat and static magnetic field from the stack for maximum accuracy and reliability.



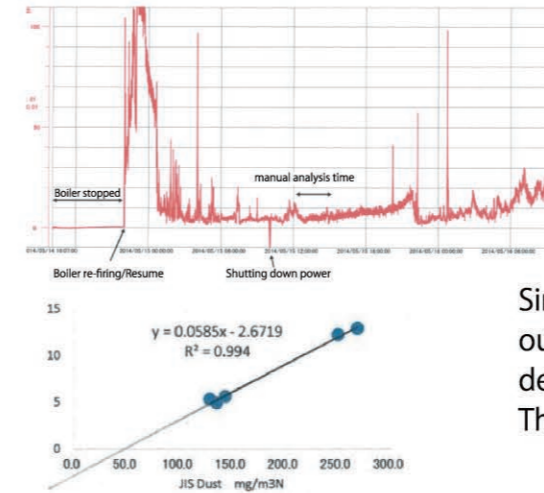
## Approvals / Field-Proven Performance

Paper Mill, Heavy Oil Boiler Scrubber Output.

DDM-TMA1 detected the dust in the wet flue gas.

Oil Power Plant, Mixed Fuels Boiler  
DDM-2001 at EP outlet

DDM-TMA1 at desulfurization outlet



DDM-TMA1 JISZ8808 calibration curve (correlation coefficient is 0.994)



Simultaneously measuring the dust concentration in dry flue gas at EP outlet with DDM-2001 and the dust concentration in wet flue gas at desulfurization outlet with DDM-TMA1 for reconciliation with the results. The both dust detectors' results are reconciled.



## Features

- directly monitor dust concentration in wet flue gases at real time
- consistent and accurate; no sampling, no error caused by irregular sampling air flow (sampling method)
- easy installation; you only need one hole for installation; simple design, compact, and light weight; fit in a small space
- easy maintenance; purge air minimizes the dust buildup on the optical detectors and the heater
- automatic self calibration, can be calibrated, maintained, or fixed while a plant is running, and flue gas is still running
- field-proven accuracy; the measured value's correlation coefficient with the Isokinetic Sampling method is very high, in compliance with JIS Z8852 which is a Japanese government standard method for monitoring dust in flue gases

## Applications

- coal/heavy oil power plants
- iron mills
- Paper mills
- waste water sludge plant
- metal refinery
- scrubber wet dust collector outlet
- any facilities which use flue gas desulfurization (FGD) or/and Wet EP

## Benefits

- Improve plants' productivity
- reduce running cost
- improve plant equipment life time

## Patent

- China Patent. CN106248628B 26/march/2019
- Japan Patent. ( No.5453607, No.5976885, No.6204941 )