

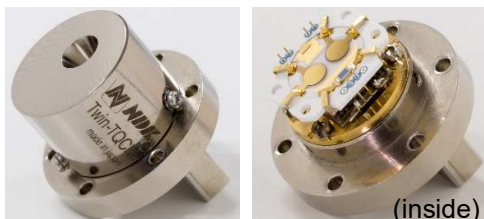
QTGA: QCM Thermogravimetric Gas Analysis



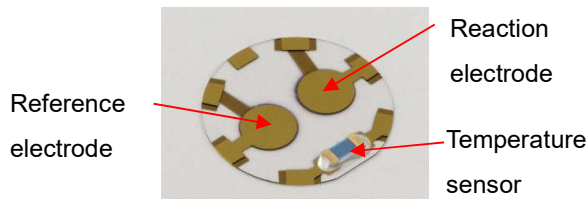
**Twin-QCM Sensing Unit (4ch)**  
Type: PSA-QS-1001



**Twin-QCM Sensing Unit (1ch)** ※  
Type: PSA-QS-1002



**Twin-CQCM Sensor Module**  
Type: PSA-QM-1001



**Quartz crystal sensor**  
Type: PSA-SG-1002T



### ■ Main Applications

- ASTM E 1559 method compliance
- Quantitative evaluation of outgas generated from materials and equipment

※ working with both  
CQCM & TQCM

### ■ Features

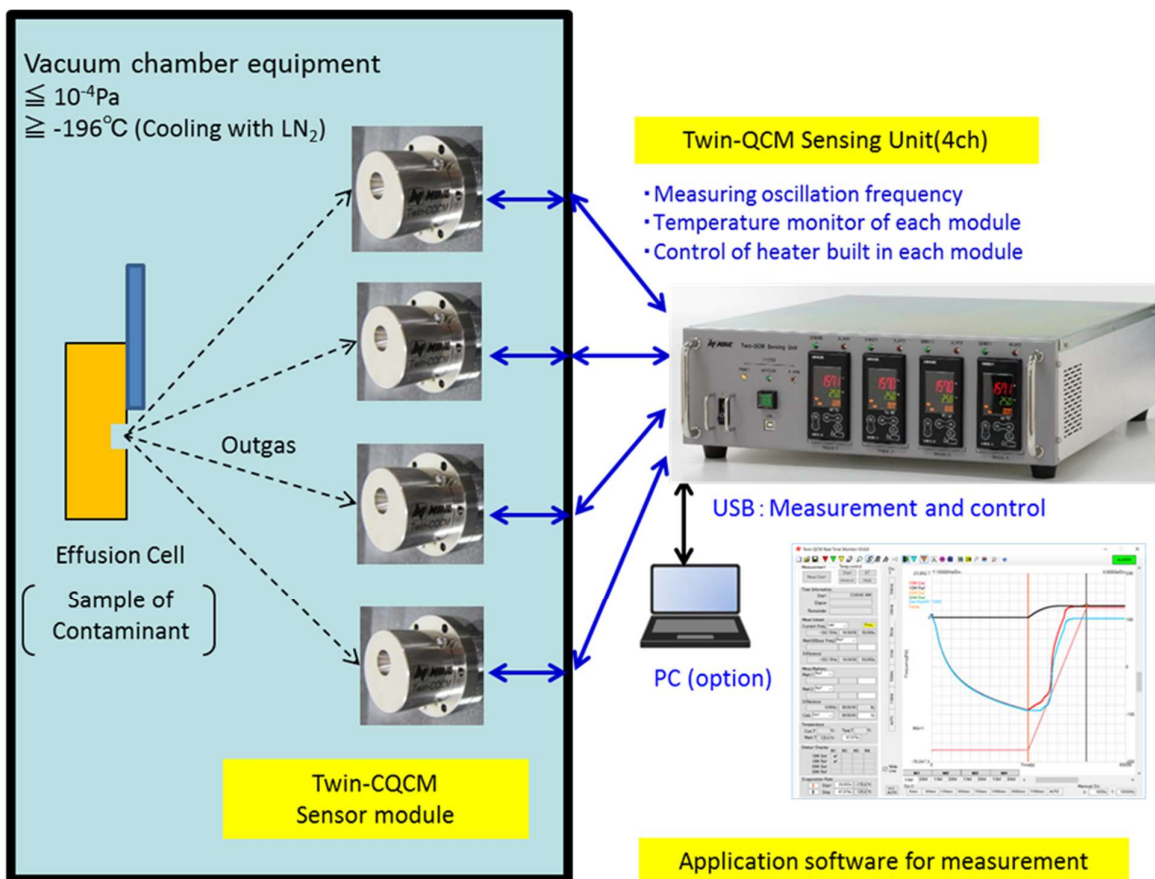
- Wide temperature range measurement supported from -196 ° C to + 125 ° C.
- Simultaneous real-time measurement with fundamental wave (wide frequency dynamic range) and 3<sup>rd</sup> overtone wave (high sensitivity)
- High-precision difference measurement with two electrodes formed on one crystal piece (Twin-TQCM)
- High-precision temperature monitor with a platinum sensor mounted on a crystal piece
- Easy crystal sensor replacement by clip structure (Crystal can be replaced by the users)

### ■ Specifications

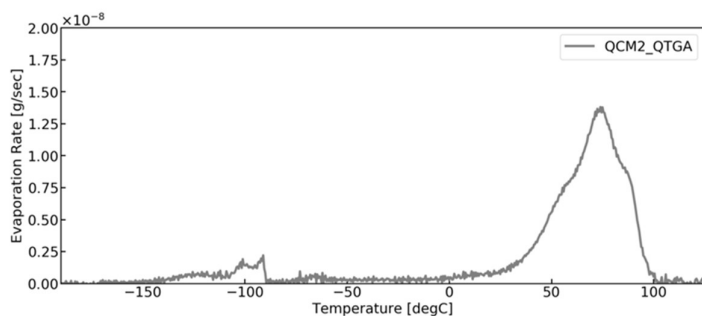
| Twin-QCM Sensing Unit                      | PSA-QS-1001  | PSA-QS-1002 | Twin-CQCM Sensor Module                           | PSA-QM-1001   |
|--|--|-------------|---|---|
| Number of simultaneous measurement modules | 1~4  | 1           | Output frequency                                  | 10.278MHz(Fundamental) 30.833MHz(3ot)   |
| Module control distance                    | Max20m   |             | Mass sensitivity                                  | 2.39x10 <sup>8</sup> (Hz/g) cm <sup>2</sup> (Fundamental)<br>7.17x10 <sup>8</sup> (Hz/g)cm <sup>2</sup> (3ot) |
| Frequency detection accuracy               | ≤ 1ppm   |             | Frequency sensitivity                             | 0.53ng/Hz (Fundamental)<br>0.18ng/Hz (3ot)  |
| Frequency measurement resolution           | 0.01Hz   |             | Senor lectrode area                               | 0.1257 cm <sup>2</sup> (per electrode)  |
| Temperature detection accuracy             | ≤ ±0.4°C   |             | Temperature sensor                                | Platinum resistance<br>Pt1000 Class F0.3  |
| Indication temp. range                     | -199°C ~ +150°C  |             | Operating temperature range                       | -196 ~ +125°C   |
| Temperature measurement resolution         | 0.1°C  |             | Differential frequency temperature characteristic | ≤ ±10ppm<br>+25°C standard (-80°C ~ +80°C)  |
| Measurement interval                       | ≥ 1s (Max60s)  |             | External Dimensions                               | Φ35.0x23.3(H)mm(Excluding protrusions)  |
| Operating temperature range                | +10 ~ 40°C   |             | Weight  | ≤ 100g  |
| Power supply voltage*                      | AC100V ~ AC240V (50/60Hz)                              |             | Heating Power                                     | ≤ 6W  |
| Power consumption                          | ≤ 120VA  | ≤ 100VA     | Oscillation circuit powe                          | ≤ 0.5W  |
| External Dimensions                        | 437(W) x 132(H) x 499(D) mm<br>(Excluding protrusions) |             | Measurement viewing angle                         | 20° (Half Angle)  |
| Weight                                     | ≤ 10kg   |             |   |   |

\* The power supply voltage may be limited depending on the country or region of use.

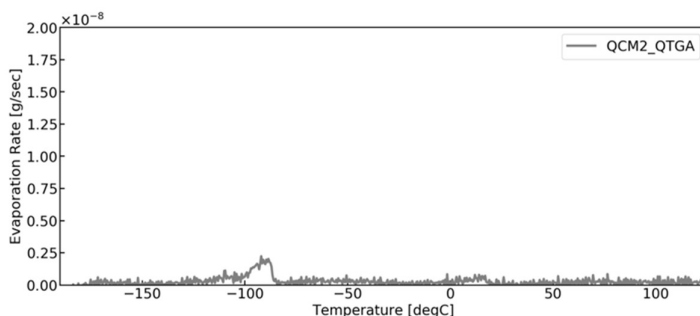
■ Measurement system example (Systems examples of compatible with ASTM E 1559 compliant tests )



■ Measurement of curing temperature and residual outgas of conductive adhesive



Hardening condition: at 200°C for 60 min.



Hardening condition: at 300°C for 60 min.

Residual outgas is removed by raising the hardening at 200°C for 60 minutes to 300°C  
 ⇒ Effective for verification of hardening conditions