## ■Specification

| Model | | | EIA-51d | EIA-51p | TIA-51d | TIA-51p |
|---|---|---|---|---|---|---|
| Type of protection | | | Exd Ⅱ B+$H_2$T4 | Expx Ⅱ T4X | Exd Ⅱ B+$H_2$T4 | Expx Ⅱ T4X |
| Frameproof enclosures | | | ● | | ● | |
| Pressureized apparatus | | | | ● | | ● |
| Measurement method | | | NDIR | | | |
| Component | | | CO, $CO_2$, $CH_4$, etc.*1 | | | |
| Measurement range | Minimum range | | 0 to 0.11 vol% (Depends on the component) | | 0 to 50 ppm (Depends on the component) | |
| | Maximam range | | 0 to 100 vol% (Depends on the component) | | 0 to 2000 ppm (Depends on the component) | |
| | Optional | | 100-90 to 50 vol% (Depends on the component) | | 0-20 to within less than 50 ppm (Depends on the component) | — |
| Range Ratio | | | — | | — | |
| Performance | Repeatability | Standard range | Zero : ±0.5% of full scale | | Zero : ±0.5% of full scale | |
| | | | Span : ±0.5% of full scale | | Span : ±0.5% of full scale | |
| | | Optional range | Zero : ±0.5% of full scale | | Zero : ±1.0% of full scale | |
| | | | Span : ±0.5% of full scale | | Span : ±1.0% of full scale | |
| | Linearity | | ±1.0% of full scale | | | |
| | Drift*2 | Standard range | Zero : ±2.0% of full scale/week | | | |
| | | | Span : ±2.0% of full scale/week | | | |
| | | Optional range | Varies by specification | | | |
| | Response time (from in let of analyzer) | | | | T90 within 20 seconds<br>T90 within 40 seconds (TIA optional range) | |
| Sample gas Condition | Gas composition | Flameproof enclosures | $O_2$ : 21% or less, no mist, no dust<br>The hazardous must be equivalent or less with electrical apparatus group Ⅱ B, gas and vapor-air mixture corresponding to tempe | | | |
| | | Pressurized apparatus | $O_2$ : 21% or less, no mist, no dust<br>The ignition temperature must be equivalent or less with electrical apparatus of gas and vapor-air mixture corresponding to temperature code T4. | | | |
| | Pressure | | Over 1.98 kPa | | | |
| | Flow rate | | Approx. 500 mL/min. | | | |
| | Temperature | | Ambient temperature | | | |
| | Exhaust | | Atmosphere pressure | | | |
| Materials in contract with sample gas | | | SUS304, SUS316, FKM, $CaF_2$, Au, etc. | | | |
| Calibration method | | | Standard : Manual correction, Option : Automatic correction | | | |
| Analog output | | | DC 4 to 20 mA (DC 0 to 16 mA/0 to 20 mA, DC0 to 1 V/0 to 5 V/1 to 5 V/0 to 10 V optional), 1 ch | | | |
| | Alarm setting | | Arbitrary setting is available with span range from -10% to +110% of output for current and voltage. Negative output values set to | | | |
| Contact Input-output (option) | | | 6 channels | | | |
| Digital connection (option) | Interface | | RS-485 | | | |
| | Protocol | | Modbus-RTU | | | |
| | Communication speed | | Selected from 19200 bps/9600 bps/4800 bps/2400 bps/1200 bps | | | |
| Environment conditions | Location | | Indoors | | | |
| | Operational Temperature | | -5 to 40 ℃ (away from direct sunlight and radiant heat) | | | |
| | Humidity | | 90% or less | | | |
| | Vibration | | Avoid large vibration sources (less than 100 Hz; 0.3 $m/s^2$) | | | |
| Utility | Protective gas for Pressurized apparatus composition | | Gas composition : $N_2$, Gas pressure : 196 to 690 kPa, Gas flow late : 10 L/min. (when purging), 500 mL/min. (when operating) De | | | |

*1 Consult HORIBA for measurement of the other components. *2 Guaranteed at normal ambient temp. ±5℃

## ■Recommended Measuring Ranges

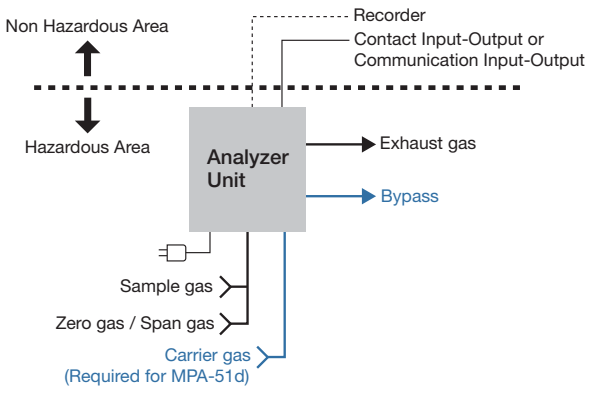
| | EIA-51d/51p | | TIA-51d/51p | |
|---|---|---|---|---|
| | Min. Range | Max. Range | Min. Range | Max. Range |
| CO | 0 to 0.21% | 0 to 100% | 0 to 50 ppm | 0 to 2000 ppm |
| $CO_2$ | 0 to 0.11% | 0 to 100% | 0 to 50 ppm | 0 to 1000 ppm |
| $CH_4$ | 0 to 0.21% | 0 to 100% | 0 to 50 ppm | 0 to 2000 ppm |
| $C_3H_8$ | 0 to 0.051% | 0 to 100% | 0 to 50 ppm | 0 to 500 ppm |
| NO | 0 to 0.21% | 0 to 100% | 0 to 100 ppm | 0 to 2000 ppm |
| $SO_2$ | 0 to 0.051% | 0 to 100% | 0 to 100 ppm | 0 to 500 ppm |

Consult HORIBA for applications other than those listed avobe.

| TCA-51d | TCA-51p | MPA-51d | MPA-51p | PMA-51d |
|---|---|---|---|---|
| Exd Ⅱ B+$H_2$T4 | Expxd Ⅱ T4X | Exd Ⅱ B+$H_2$T4 | Expx Ⅱ T4X | Exd Ⅱ B+$H_2$T4 |
| ● | | ● | | ● |
| | ● | | ● | |
| Thermal conductivity | | Magnetopneumatic | | Paramagnetic |
| $H_2$ | | $O_2$ | | |
| 0 to 10 vol% | | 0 to 5 vol% | | |
| 0 to 100 vol% | | 0 to 25 vol% | | |
| 0-1 to within less than 10 vol% 100-90 to 50 vol% | | 0-1 to within less than 5 vol% | | — |
| — | | Max.1:25 Max.4 range | | Max.1: 5 |
| Zero : ±1.0% of full scale | | Zero : ±0.5% of full scale | | Zero : ±0.1 vol% $O_2$ |
| Span : ±1.0% of full scale | | Span : ±0.5% of full scale | | Span : ±0.1 vol% $O_2$ |
| Zero : ±1.0% of full scale | | Zero : ±1.0% of full scale | | — |
| Span : ±1.0% of full scale | | Span : ±1.0% of full scale | | |
| | | Zero : ±1.0% of full scale/week | | Zero : ±0.05 vol% $O_2$ /week |
| | | Span : ±2.0% of full scale/week | | Span : ±0.05 vol% $O_2$ /week |
| Varies by specification | | Zero : ±1.0% of full scale/week | | Varies by specification |
| | | Span : ±3.0% of full scale/week | | |
| T90 within 20 seconds | | | | |
| erature code T4, and Hydrogen-air mixture. | | | | |
| $O_2$ : 21% or less, no mist, no dust<br>The hazardous must be equivalent or less with electrical apparatus of group Ⅱ C gas and vapor-air mixture corresponding to temperature code T4. | | $O_2$ : 21% or less, no mist, no dust<br>The ignition temperature must be quivalent or less with electrical apparatus of gas and vapor-air mixture corresponding to temperature code T4. | | |
| | | 14.7 to 24.5 kPa | | Over 1.98 kPa |
| | | Approx . 1.5L/min | | Approx . 300mL/min |
| | | | | |
| | | | | |
| SUS304, SUS316, FKM, glass, $SiO_2$, Au | | SUS304, SUS316, FKM | | SUS304, SUS316, Pt, glass, FKM |
| | | | | |
| | | | | |
| o zero. | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| w Point : -30˚C Saturated or less | | | | |

## ■System configuration

### Flameproof enclosures




### Pressurized apparatus