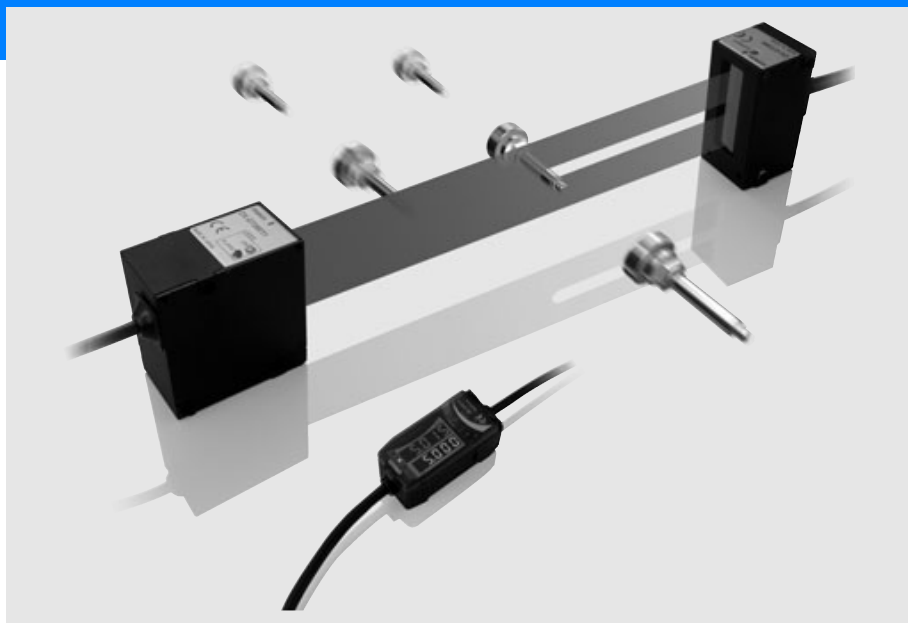


# Smart Laser Micrometer ZX-GT

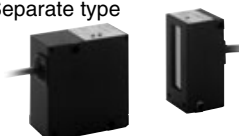
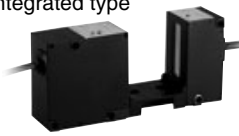
- High accuracy: 5-10 µm
- All surfaces
- Long sensing distance: < 500 mm
- Line width up to 28 mm
- Calculation unit for multiple heads
- Fast sampling time: 0.5 ms
- PC software for setup




ZX-GT

## Ordering Information

### Sensors

| Appearance   | Optical system | Measuring width | Sensing distance | Resolution | Output type  | Model        |
|--|----------------|-----------------|------------------|------------|--------------|--------------|
| <br>Separate type   | Through-beam   | 28 mm           | 0 to 500 mm      | 10 µm      | NPN          | ZX-GT28S11   |
|  |                |                 | 40 mm            |            | PNP          | ZX-GT28S41   |
| <br>Integrated type |                |                 |                  |            | NPN          | ZX-GT2840S11 |
|  |                |                 | PNP              |            | ZX-GT2840S41 |              |

### Controller


| Appearance  | Power supply | Output type | Model    |
|---|--------------|-------------|----------|
|  | DC           | NPN         | ZX-GTC11 |
|   |              | PNP         | ZX-GTC41 |

### Accessories (Order Separately)

#### Set of Interface Unit and Setup software PCs

| Output type | Model     |
|-------------|-----------|
| NPN         | ZX-GIF11A |
| PNP         | ZX-GIF41A |


#### Interface Unit(RS-232C/Binary output)

| Appearance  | Power supply | Output type | Model    |
|---|--------------|-------------|----------|
|  | DC           | NPN         | ZX-GIF11 |
|   |              | PNP         | ZX-GIF41 |

Setup software PCs

| Name             | Model    |
|------------------|----------|
| Smart Monitor GT | ZX-GSW11 |

Calculating Units

| Appearance  | Model   |
|---|---------|
|  | ZX-CAL2 |

Receiver-Controller Extension Cable

| Cable length | Model          |                | Quantity |
|--------------|----------------|----------------|----------|
|              | Standard cable | Flexible cable |          |
| 1 m          | ZX-XGC1A       | ZX-XGC1R       | 1 m      |
| 2 m          | ZX-XGC2A       | ZX-XGC2R       |          |
| 5 m          | ZX-XGC5A       | ZX-XGC5R       |          |
| 8 m          | ZX-XGC8A       | ZX-XGC8R       |          |
| 20 m         | ZX-XGC20A      | ZX-XGC20R      |          |

Up to two extension cables can be connected. However, be sure to limit the total extension cable length between the receiver and the Controller to 30 meters (including the receiver cable).

Specifications

Sensor

| Item                                      | ZX-GT28S11   | ZX-GT2840S11    | ZX-GT28S41  | ZX-GT2840S41    |
|---|--|-----------------|---|-----------------|
| Output type                               | NPN  |                 | PNP   |                 |
| Appearance                                | Separate type  | Integrated type | Separate type   | Integrated type |
| Light source                              | Visible semiconductor laser diode (wavelength 650 nm, CLASS 1 of EN60825-1/IEC60825-1, CLASS OF FDA(21CFR 1040.10 and 1040.11) |                 |   |                 |
| Measuring width                           | 28 mm  |                 |   |                 |
| Sensing distance                          | 0 to 500 mm  | 40 mm           | 0 to 500 mm   | 40 mm           |
| Minimum sensing object                    | 0.5mm dia. <sup>(*)1</sup>   | 0.2 mm dia.     | 0.5 mm dia. <sup>(*)1</sup>   | 0.2 mm dia.     |
| Linearity                                 | ±0.1%F.S. <sup>(*)2</sup>  |                 |   |                 |
| Resolution                                | 10 μm (number of process values to average: 16) <sup>(*)3</sup>  |                 |   |                 |
| Temperature characteristic                | ±0.01%F.S/C <sup>(*)4</sup>  |                 |   |                 |
| Indicators (emitter)                      | Laser ON indicator (green), laser alarm indicator (red)  |                 |   |                 |
| Indicator (receiver)                      | Optical axis setting indicator (green)   |                 |   |                 |
| Laser OFF input/sync input                | ON: Short-circuited with 0 V or 1.5 V max.<br>OFF: Open (leakage current: 0.1 mA max.)   |                 | ON: Short-circuited with power supply voltage or power supply voltage -1.5 V max.<br>OFF: Open (leakage current: 0.1 mA max.) |                 |
| Laser deterioration alarm output          | NPN open-collector output<br>30 VDC 20 mA max.<br>Residual voltage 1.2 V max.  |                 | PNP open-collector output<br>30 VDC 20 mA max.<br>Residual voltage 2 V max.   |                 |
| Power consumption (emitter)               | 30 mA max.   |                 |   |                 |
| Power supply voltage (emitter)            | 24 VDC +10%, -15% ripple (p-p) 10% max.  |                 |   |                 |
| Dielectric strength                       | 1,000 VAC, 50/60 Hz for 1 min  |                 |   |                 |
| Insulation resistance                     | 20 MΩ (at 500 VDC megger)  |                 |   |                 |
| Operating ambient illumination (emitter)  | 3,000 lx (incandescent light)  |                 |   |                 |
| Operating ambient illumination (receiver) | 1,000 lx (incandescent light) <sup>(*)5</sup>  |                 |   |                 |
| Ambient temperature                       | Operating: 0 to +40°C Storage: -15 to +50°C(with no icing or condensation)   |                 |   |                 |
| Ambient humidity                          | Operating and storage: 35 to 85% (with no condensation)  |                 |   |                 |
| Vibration resistance (durability)         | 10 to 150 Hz Single-amplitude: 0.75 mm for 80 min each in X, Y and Z directions  |                 |   |                 |
| Degree of protection                      | IEC60529 IP40  |                 |   |                 |
| Cable length                              | 2 m  |                 |   |                 |
| Material                                  | Case: aluminum die-cast, Lens: glass   |                 |   |                 |
| Weight (packed state)                     | Approx. 550 g  | Approx. 570 g   | Approx. 550 g   | Approx. 570 g   |
| Accessories                               | Laser warning labels, Instruction Sheet  |                 |   |                 |

F.S.: 28 mm measuring range of receiver

\*1: Distance between emitter and receiver: 500 mm, measurement object at 250 mm from receiver. Glass ends of chamfer 0.1 mm or more can be detected in glass edge measurement mode. (at binary level 70%)

\*2: Linearity is given to be a typical error with respect to an ideal straight line when the distance between the emitter and receiver is 100 mm and light is blocked at a distance of 50 mm from the receiver. (On the ZX-GT2840□□, the measurement object is measured at a distance of 20 mm from the receiver.)

\*3: The amount of fluctuation (±3σ) in the analog output when the distance between the emitter and receiver is 100 mm and a ZX-GTC□□ is connected

\*4: Change in the light cutoff value on one side when the distance between the emitter and receiver is 100 mm and the light is half-cutoff at a distance of 50 mm from the receiver (On the ZX-GT2840□□, the measurement object is measured at a distance of 20 mm from the receiver.)

\*5: Standard mode (NORM) used

Controller

| Item   |                             | ZX-GTC11  | ZX-GTC41   |
|--|-----------------------------|---|--|
| Output type  |                             | NPN   | PNP  |
| Measurement cycle <sup>(1)</sup>   |                             | 1.5 ms (standard mode (NORM))<br>0.5 ms (high-speed mode (FAST)) <sup>(2)</sup>   |  |
| Samples to average   |                             | 1/2/4/8/16/32/64/128/256/512/1024/2048/4096   |  |
| Analog output <sup>(3)</sup>   |                             | For current output: 4 to 20 mA/F.S., max. load resistance 300 Ω<br>For voltage output: ±4 V, (±5 V, 1 to 5 V <sup>(4)</sup> ), output impedance 100 Ω   |  |
| Timing input, bank switching input, zero reset input, reset input          |                             | ON: short-circuited with 0V or 1.5V max.<br>OFF: Open (leakage current: 0.1 mA max.)  | ON: short-circuited with power supply voltage or power supply voltage -1.5V max.<br>OFF: Open (leakage current: 0.1 mA max.) |
| HIGH/PASS/LOW Judgment output <sup>(5)</sup><br>Sync output <sup>(6)</sup> |                             | NPN open-collector output<br>30 VDC 50 mA max.<br>Residual voltage 1.2 V max.   | PNP open-collector output<br>30 VDC 50 mA max.<br>Residual voltage 2 V max.  |
| Indicator  |                             | Judgment output indicator: HIGH (orange), PASS (green), LOW (orange)<br>Main display (red) Sub-display (yellow) Bank 1/2 (orange), zero reset (green)   |  |
| Main functions   | Number of registered setups | 2 banks   |  |
|  | Measurement Mode            | Interrupted beam width measurement, incident beam width measurement, outer diameter measurement, center position measurement, IC lead pitch, IC lead width judgment, specified edge measurement, wire position measurement, glass edge position measurement |  |
|  | Display during measurement  | Measured value, resolution, threshold, voltage output value, current output value (number of display digits can be changed)   |  |
|  | Zero reset functions        | Offset setting of zero reset value, zero reset value memory   |  |
|  | Hold                        | Sample hold, peak hold, bottom hold, peak-to-peak hold, average hold, delay hold  |  |
|  | Timer functions             | ON delay, OFF delay, one-shot   |  |
|  | Adjustment functions        | Optical Axis adjust mode/light intensity writing mode, variable binary level, variable edge filter, analog output scaling   |  |
|  | Calculation                 | 2 Possible on up to two Controllers (Calculation Unit ZX-CAL2 is required for connecting Controllers to each other.) A-B, A+B, width  |  |
|  | Other                       | Measurement cycle setting, threshold setting, hysteresis setting, initialization, key lock  |  |
| Temperature characteristic   |                             | ±0.005%F.S./°C  |  |
| Current consumption  |                             | 150 mA max. (including receiver)  |  |
| Power supply voltage   |                             | 24 VDC +10%, -15% ripple (p-p) 10% max.   |  |
| Dielectric strength  |                             | 1,000 VAC, 50/60 Hz for min   |  |
| Insulation resistance  |                             | 20 MΩ (at 500 VDC megger)   |  |
| Ambient temperature  |                             | Operating: 0 to +50°C Storage: -15 to +60°C (with no icing or condensation)   |  |
| Ambient humidity   |                             | Operating and storage: 35 to 85% (with no condensation)   |  |
| Vibration resistance(durability)   |                             | 10 to 150 Hz Single-amplitude: 0.35 mm for 80 min each in X, Y and Z directions   |  |
| Degree of protection   |                             | IEC60529 IP20   |  |
| Cable length   |                             | 2 m   |  |
| Material   |                             | Case: PBT (polybutylene terephthalate), Cover: Polycarbonate  |  |
| Weight (packed state)  |                             | Approx. 330 g   |  |
| Accessories  |                             | Instruction Sheet   |  |

\*1: The first response time is "measurement cycle x (number of samples to average setting + 1) + 1 ms" max. For the second response time onwards, the specified measurement cycle time is output.  
 \*2: The response time in the high-speed mode (FAST) for the IC lead pitch and IC lead width judgment modes is 1 ms.  
 \*3: Current/voltage can be switched using the switch provided on the rear of the Controller.  
 \*4: Can be set by the analog output scaling function.  
 \*5: The error (ERR) state is displayed when all HIGH/PASS/LOW outputs turn OFF.  
 \*6: Normally, wire the sync output wire directly to the emitter's sync input wire and run the Controller in the standard mode. On an NPN type Controller, use an NPN type emitter, and on a PNP type Controller, use a PNP type emitter. Wiring of the sync wires is not required when the Controller is run in the high-speed mode.  
 (Note, however, that the Controller becomes more susceptible to the influence of ambient light in this case.)

ZX-GT

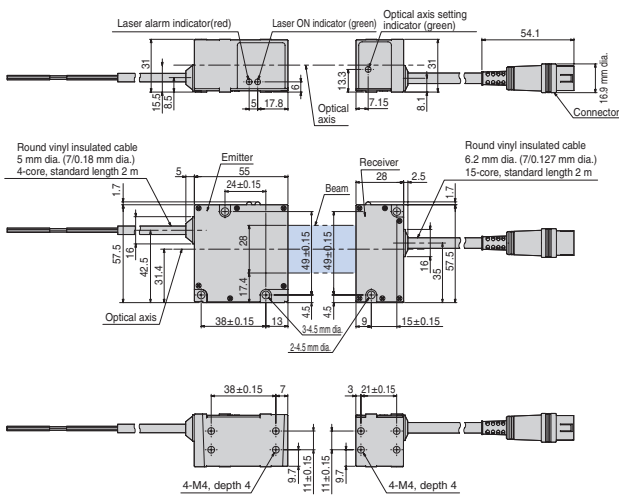
**Interface Unit**

| Item                                  | ZX-GIF11/-GIF11A   | ZX-GIF41/-GIF41A  |
|---------------------------------------|--|---|
| Compatible Controller                 | ZX-GTC11   | ZX-GTC41  |
| Indicator                             | Power ON (green), Controller communications (orange), Controller communications error (red), RS-232C communications (orange), RS-232C communications error (red), binary output (orange) |   |
| Communications port                   | RS-232C (9-pin D-sub connector)  |   |
| 12-bit binary output (D11 toD0, GATE) | NPN open-collector output<br>30 VDC 20 mA max.<br>Residual voltage 1.2 V max.  | PNP open-collector output<br>30 VDC 20 mA max.<br>Residual voltage 2 V max. |
| Power supply voltage                  | Supplied from Controller (power consumption: 60 mA max.)   |   |
| Dielectric strength                   | 1,000 VAC, 50/60 Hz for 1 min  |   |
| Insulation resistance                 | 20 MΩ (at 500 VDC megger)  |   |
| Ambient temperature                   | Operating: 0 to +50°C Storage: -15 to +60°C (with no icing or condensation)  |   |
| Ambient humidity                      | Operating and storage: 35 to 85% (with no condensation)  |   |
| Vibration resistance(durability)      | 10 to 150 Hz Single-amplitude: 0.35 mm for 80 min each in X, Y and Z directions  |   |
| Degree of protection                  | IEC60529 IP20  |   |
| Cable length                          | RS-232C 0.5 m, binary output 2 m   |   |
| Material                              | Case: PBT (polybutylene terephthalate), Cover: Polycarbonate   |   |
| Weight (packed state)                 | ZX-GIF□1A: Approx. 550 g<br>ZX-GIF□1: Approx. 330 g  |   |
| Accessories                           | ZX-GIF□1A: Setup Software (CD-ROM), 2 clamps, Instruction Sheet<br>ZX-GIF□1: 2 clamps, Instruction Sheet   |   |

## Dimensions

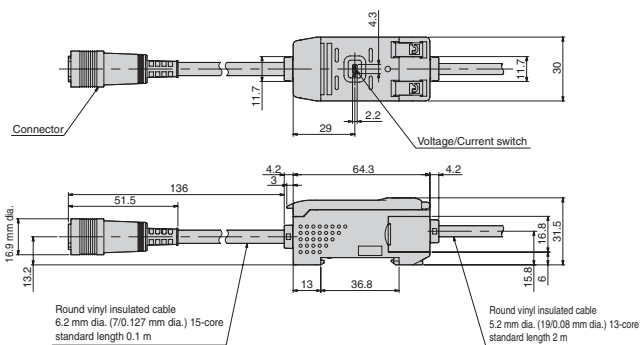
### Sensor

Separate type: ZX-GT28S11/-GT28S41



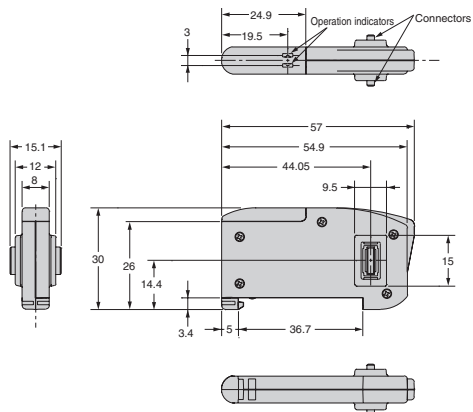
### Controller

ZX-GTC11/-GTC41

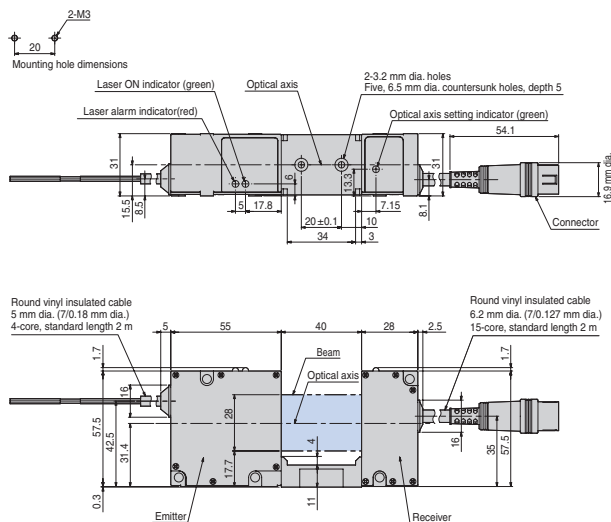


### Interface unit

ZX-CAL2

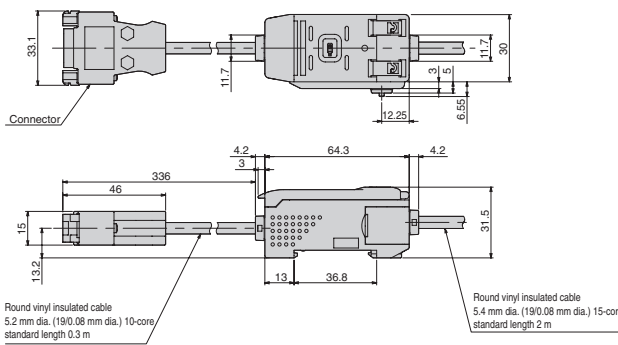


Integrated type: ZX-GT2840S11/-GT2840S41



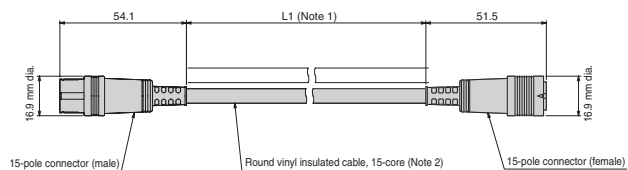
### Calculating unit

ZX-GIF11/-GIF41



### Receiver-controller extension cable

ZX-XGC□A/-XGC□R



Note 1: ZX-XGC1A/R : 1M  
 ZX-XGC2A/R : 2M  
 ZX-XGC5A/R : 5M  
 ZX-XGC8A/R : 8M  
 ZX-XGC20A/R : 20M  
 Note 2: Standard cable: 6.2 mm dia.  
 Flexible cable: 6.1 mm dia.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.  
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.