



- [illegible]

- The peak/ bottom hold function, is for displaying the peak value and bottom value.
- When the zero set function is executed while the peak bottom hold function is set to "Peak hold" or "Bottom hold", the held measured value will be reset.



- ### <Zero set setting>

Press the UP key and DOWN key simultaneously for 3 seconds

### <Zero set release>

Press the UP key and DOWN key simultaneously for 6 seconds

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- The key lock function means that key operations are not accepted to prevent incorrect changes to the setting conditions in each setting mode.  
When the key is locked, "LoC" will appear on the numeric display if the key is operated.

Press the **TEACH** key and **DOWN** key simultaneously for 3 seconds

Automatic

Press the TEACH key and DOWN key simultaneously for 3 second

Automatic

- The PRO indicator (yellow) will turn ON when the PRO mode is set.
- When the DOWN key is pressed for 3 seconds or more in the middle of the PRO MODE setting, the display returns to the measurement display.

Item	Default setting	Description
Response speed setting	<b>M.r50</b>	Set the response time <b>"M.r50"</b> :High precision 10ms, <b>"5Ed"</b> :Standard 5ms, <b>"FASt"</b> :High speed 1.5ms
Output operation	<b>L-on</b>	Select the control output operation mode, <b>"L-on"</b> :Light-ON, <b>"d-on"</b> :Dark-ON
Sensing output setting	<b>--f-</b>	Set the sensing output <b>"--f-"</b> :Nomal sensing mode <b>"_n_1"</b> :1-point teaching (window comparator mode) <b>"_n_2"</b> :2-point teaching (window comparator mode) <b>"_n_3"</b> :3-point teaching (window comparator mode)
Analog output setting	<b>u.out</b>	Set the analog output <b>"Low"</b> :Voltage output(4-20mA) <b>"u.out"</b> :Current output(0-5V)
Judgment output setting	<b>nPN</b>	Setting judgment output type <b>"nPN"</b> :NPN output <b>"pnp"</b> :PNP output
Hysteresis setting	<MD-030> <MD-050> <b>0.010 0.03</b> <MD-100> <MD-200> <b>0.01 0.2</b> <MD-400> <b>0.8</b>	Set the hysteresis width MD-030: 0.001mm-5.00mm MD-050: 0.01mm-15.00mm MD-100: 0.02mm-35.00mm MD-200: 0.1mm-80.0mm MD-400: 0.2mm-200.0mm
External input setting	<b>0SEt</b>	Set the external input <b>"0SEt"</b> :Zero set function <b>"tECh"</b> :Teaching function <b>"L-oF"</b> :Light emitting stop function, <b>"trig"</b> :trigger function
Timer setting	<b>non</b>	Set the timer operation.The timer time is fixed at 5ms <b>"non"</b> :NO timer, <b>"oFd"</b> :OFF-delay timer, <b>"onD"</b> :ON-delay timer, <b>"oSD"</b> :ONE-shot timer
Display setting	<b>Std</b>	The display of the measured value can be changed <b>"Std"</b> :Normal, <b>"InVE"</b> :Invert, <b>"oFSt"</b> :Offset
Hold setting	<b>oFF</b>	Set the control output and the analog output operation when a measurement error occurs (insufficient light intensity, saturation of light intensity, out of measurement range) <b>"oFF"</b> :Hold OFF, <b>"on"</b> :Hold ON
ECO setting	<b>oFF</b>	The digital display can be set to go OFF when key operation is not performed for 30 seconds. Current consumption can be reduced <b>"oFF"</b> :ECO OFF, <b>"on"</b> :ECO ON
Reset setting	<b>no</b>	Restore to initial state (factory state) <b>"no"</b> :Reset NG, <b>"yES"</b> :Reset OK
Zero setting	<b>oFF</b>	Zeroing is saved in memory based on external input. <b>"oFF"</b> :Memory save invalid, <b>"on"</b> :Memory save valid
Version information		<b>"s888"</b> :Motherboard version, <b>"s888"</b> :Display board version <b>"L888"</b> :Laser currentversion

**Measurement display**

0.300 mm

TEACH

UP / DOWN

**High precision**

Hr 50 mm

TEACH

UP / DOWN

**Standard**

Std mm

TEACH

UP / DOWN

**High speed**

FASt mm

TEACH

UP / DOWN

**Response time setting**

Press for 3 seconds

SPED mm

UP / DOWN

**Light-ON**

L-on mm

TEACH

UP / DOWN

**Dark-ON**

d-on mm

TEACH

UP / DOWN

**Output operation setting**

L-d mm

TEACH

UP / DOWN

**3-point teaching**

Window comparator mode

A.3 mm

TEACH

UP / DOWN

**1-point teaching**

Window comparator mode

A.1 mm

TEACH

UP / DOWN

**2-point teaching**

Window comparator mode

A.2 mm

TEACH

UP / DOWN

**Sensing output setting**

SEns mm

TEACH

UP / DOWN

**Normal sensing mode**

E-rf mm

TEACH

UP / DOWN

**Window comparator mode**

A.1 mm

TEACH

UP / DOWN

next paper

The diagram illustrates the navigation sequence for setting various parameters on a CNC control system. The sequence is as follows:

- Analog output setting**: A.out (mm). Sub-menus: Voltage output (1.out, mm), Current output (I.out, mm).
- Judgment output setting**: nPSE (mm). Sub-menus: NPN output (nPn, mm), PNP output (PnP, mm).
- Hysteresis setting**: HYS (mm). Sub-menus: Memory Enable (on, mm), Memory Disable (off, mm).
- External input setting**: InPt (mm). Sub-menus: Zero set function (0Set, mm), Teaching function (tECh, mm), Trigger function (Tr 19, mm).
- Timer setting**: dELy (mm). Sub-menus: No timer (non, mm), OFF-delay (ofd, mm), ON-delay (ond, mm).
- Display setting**: dISP (mm). Sub-menus: Normal (Std, mm), Invert (InVE, mm), Offset (oFSt, mm).
- Hold setting**: Hold (mm). Sub-menus: Hold OFF (off, mm), Hold ON (on, mm).
- ECO setting**: ECO (mm). Sub-menus: ECO OFF (off, mm), ECO ON (on, mm).
- Reset setting**: rSEt (mm). Sub-menus: Reset NG (no, mm), Reset OK (YES, mm).
- Version information**: vEr (mm). Sub-menus: Motherboard version (6001, mm), Display board version (5001, mm), Laser current version (L012, mm).
- Response time setting**: SPED (mm).

Navigation instructions:

- UP/DOWN: General navigation between main settings.
- TEACH: Key used to enter sub-menus and confirm settings.
- UP key: Increases hysteresis width.
- DOWN key: Decreases hysteresis width.
- Press UP key and DOWN key simultaneously - 3 seconds: Used for the Zero set function.
- UP/DOWN Light emitting: Used for the Trigger function.

Basic model	MD-030	MD-050	MD-100	MD-200	MD-400			
Reference distance	30mm	50mm	100mm	200mm	400mm			
Detection range	25-35mm	35-65mm	65-135mm	120-280mm	200-600mm			
linearity	±0.1%	±0.1%	±0.1%	±0.2%	±0.3%			
Repetition accuracy	10μm	30μm	70μm	200μm	800μm			
Light source	Visible semiconductor laser wavelength 650nm, maximum output 1mW, Class 2 laser(IEC/GB/FDA)							
Spot size	50μm	70μm	120μm	300μm	500μm			
Light-receiving device	CMOS							
Supply voltage	12-24V DC±10% Power supply rippleP-P10%							
Consumption current	Below 40mA(24V DC)							
Judgment output	<NPN> Maximum inflow current: 50mA Applied voltage below 30V DC Residual voltage: 1.5V Leakage current: below 0.1mA		<PNP> Maximum outflow current: 50mA Maximum applied voltage below 30V DC Residual voltage: 1.5V Leakage current: below 0.1mA					
Output action	Switchable: ON in light/ ON in non-light							
Output short-circuit protection	Equipped with(automatic reset type)							
Analog output	4-20mA(Load impedance:below 300Ω); 0-5V(Output impedance100Ω)							
Response time	Switchable: 1.5ms/5ms/10ms							
External output	<NPN> No contact input. Invalid: +8~+V DC or disconnected Effective: 0~+1.2VDC Input impedance: about 10kΩ		<PNP> No contact input. Invalid: 0V~+0.6V DC or disconnected Effective: +4V~+V DC Input impedance: about 10kΩ					
Action indicator light	Power green LED; Laser, OUT, ZERO, AL, PRO yellow LED							
Digital display	4-bit break code display							
Temperature characteristic	0.05%/F.S./℃							
Use ambient illumination	Incandescent with surface illumination up to 3000lux							
Ambient temperature range	Working time: 0-40℃; Storage time: -15℃ to 65℃							
Ambient humidity range	Working time: 0-40℃; Storage time: -15℃ to 65℃							
Impact resistance	Acceleration 500m/s², XYZ 3 times in each direction							
Shock resistance	10-55Hz double amplitude 1.5mm, XYZ for 2 hours in each direction							
Cable length	24AWG 5-core composite cable; Length: 2m							
Protection class	IEC IP67							
Material	Shell body: Cast aluminum; Front cover: PMMA							

Error display	Content	Solutions
<div> <div> <div>Keep OFF</div> <div>Keep ON</div> </div> <div> <div>----</div> <div>Measurement fluctuer</div> </div> </div>	The amount of reflected light is insufficient and the detected object is out of the detection range.	- Please confirm whether the detected object is within the measuring range. - Adjust the mounting Angle of the sensor.
E-01	The flash memory is damaged or has reached the end of its useful life.	- Please consult our company.
E-11	Detect excessive current caused by short circuit of the output load.	- Please cut off the power supply to confirm the load.
E-21	The semiconductor laser is damaged or has reached the end of its useful life.	- Please consult our company.
E-31	Failed to measure correctly during zero adjustment. The zero setting function cannot be used because the display is set to offset.	- Please confirm whether the detection distance is within the specification range. - Please set the display to something other than offset.
E-41	Failure to measure properly when performing instruction.	- Please confirm whether the detection distance is within the specification range.
E-90 E-91 E-92 E-93	System error.	- Please consult our company.

- This product is develop/manufactured for use in industrial environments.
- Be sure to perform wiring with the power off.
- Mistaken wiring may cause malfunction.
- Avoid parallel wiring with high-voltage and power lines, or using the same wiring duct. Otherwise, it may cause malfunction due to induction.
- Check the power supply change so that the power input does not exceed the rated value.
- If a commercially available conversion regulator is used in the power supply, be sure to ground the case ground (F.G.) terminal of the power supply.
- When using equipment that generates interference around the sensor installation (changeover regulator, inverter motor, etc.), be sure to ground the frame ground (F.G.) terminal of the equipment.
- Please avoid using it in the transition state when the power is turned on.
- For cable extension, use a cable of 0.3mm<sup>2</sup> or more for a full length of up to 10m.
- Do not bend the lead-in portion of the cable with brute force, and avoid applying pressure such as pulling.
- Although it varies by type, light from quick-start type and high-frequency bright light type fluorescent lamps and solar energy, etc. may affect detection, so please take care to avoid direct light entry.
- Do not use outdoors.
- Do not attach water, oil, fingerprints and other substances that refract light, or substances that block light, such as dust and garbage, to the light throwing and receiving surfaces of this product. In case of adhesion, wipe with a soft cloth or lens paper that does not generate dust.
- Be careful to avoid organic solvents such as thinner, strong acids, strong bases, oils and grease.
- When sweeping the light throwing window/light receiving window on the head of the sensor, be sure to do so with the power off.
- The directionality of this product may deviate. When using this product, keep the optical axis of the mounting bracket etc. adjustable.
- The memory has a write life of about 100,000 times. "ON" ; Please note the write life when using the memory save valid.



**ViziFuzE**  
INDUSTRIAL LASER SENSOR