

Digital Amplifier Detachable Photoelectric Sensor



DS Series

Laser Type Sensor Head	DSR -800	DSTC-200-M8
	DSR -5000	DSTA-200-M8
	DSD -100	
	DSTC-200	
	DSTA-200	

Instruction Manual

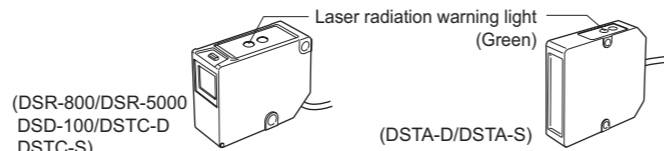
* Thank you for purchasing the DS Series. We hope you are fully satisfied with this product and enjoy its performance.

* Carefully read this instruction manual and keep it for future reference.

Precautions for using laser

■ Laser emission warning light

Confirmation of laser emission is available with the laser emission warning light. It starts lighting after turning the power on and keeps lighting while the laser is being radiated. It is also possible to confirm with the exclusive amplifier unit.



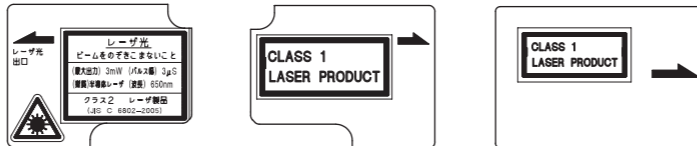
■ Laser label

This product is classified as a Class 2 (II) Laser Product by JIS C6802 / IEC / FDA Laser Safety Standard as this radiates the visible laser beam. The warning label and the description label in English are attached on the side face of the sensor head indicating the CLASS 2/Class II.

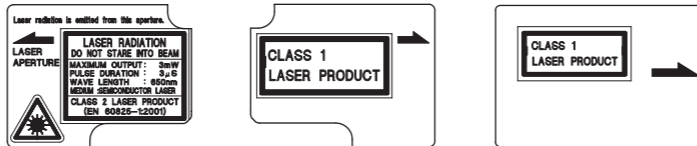
* The emitters DSTC-D/DSTA-D and DSTC-S/DSTA-S of DST-200/M8 and DSTA-200/-M8 are rated as Class II by the FDA standard (when exporting to the US). However, the class 1 is applied for the JIS/IEC standard.

Exchange the label enclosed with the product.

● Japan

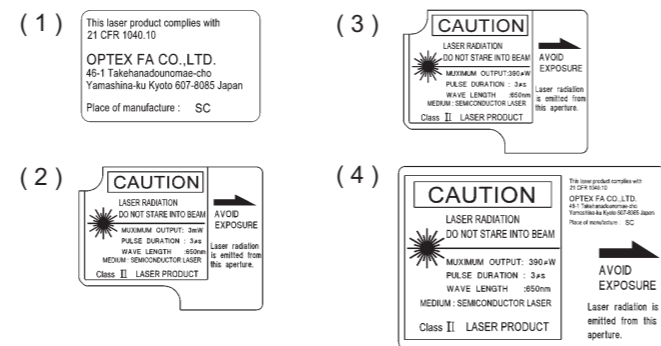
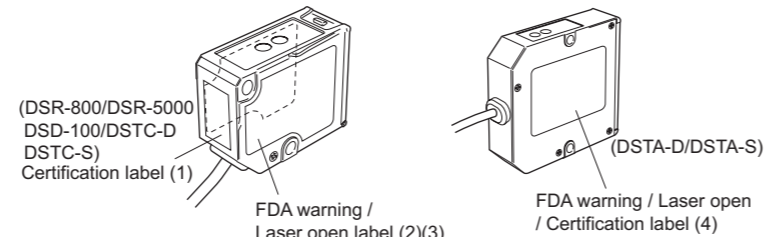


● Other countries (except US)



● US

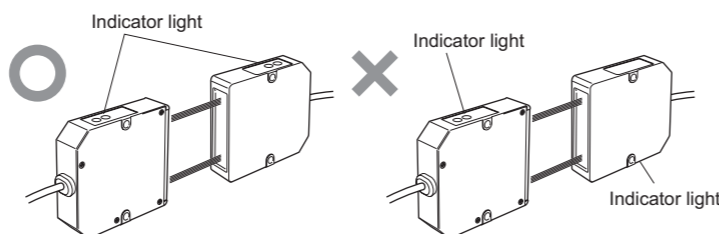
When exporting this machine to the US, the US laser control, FDA (Food and Drug Administration) is applied. This product has been already reported to CDRH (Center for Devices and Radiological Health). For details, contact our Customer Service.



■ Precautions in using DSTA-200 / DSTA-200-M8

When using DSTA-200 or DSTA-200-M8 for length measurement, follow the instructions below.

- Emitter is applied to gray cable and Receiver is applied to black one.
- Install the sensor so that the sensor of flood beam is positioned in the center of the light receiving part. (Install so that the indication value of amplifier unit is ● maximum.)
- Install the flooding/receiving device in the same direction. Refer to each label or indicator light as a standard.



Specifications

Model	Retro reflection type		Diffuse reflection type	Through beam type	Through beam/Length measurement type
	DSR-800	DSR-5000	DSD-100	DSTC-200	DSTA-200
Cable	DSR-800		DSD-100	DSTC-200	DSTA-200
M8 Relay-type	-		-	DSTC-200-M8	DSTA-200-M8
Emitter M8	-		-	DSTC-S	DSTA-S
Detector M8	-		-	DSTC-R	DSTA-R
Adaptable amplifier unit	DSA-M □ □ / DSA-M □ □ -M8 / DSA-S □ □				
Light source	Visible light semiconductor laser 650nm				
Output	max. 3mW		max. 390 μW		
IEC/JIS CLASS	CLASS 2		CLASS 1		
FDA CLASS	Class II				
Detection distance	Long	8 m	0.5...50 m	1 m	2 m
	Standard	5 m	0.3...35 m	0.7 m	2 m
*1	Fast	2 m	0.1...20 m	0.25 m	Length measurement mode: 0.5 m (Only Long and Standard)
Beam size	*2	Approx. 2 mm φ	Approx. 1 mm φ	Approx. 2 mm φ	Approx. 30 x 2.5 mm
		(Distance: 2 m)	(Distance: 1 m)	(Distance: 2 m)	(Distance: 2 m)
Repeat accuracy	*3	0.2 mm	0.2 mm	0.2 mm	0.3 mm
Indicator light	Laser radiation indicator light: Green		Output indicator light: Orange		
Operating temperature/humidity	-10 to +55°C/35 to 85 %RH (No condensation or freezing)				
Store temperature/humidity	-25 to +70°C/35 to 85 %RH (No condensation or freezing)				
Ambient light	3,000 lx (Incandescent light)		10,000 lx (Sunlight)		
Shock resistance	10 to 55 Hz Double-amplitude 1.5 mm 2 hours at each direction of X, Y and Z				
Protection category	IP67				
Material	PC (Case, Cover)		PMMA / Glass (Front glass)		
Weight (including the codes)*4	45g		90g		115g

* 1 DSD-100 : With white paper (90 % of 200 x 200 mm)

DSR-800 : With the reflector MP-45 (accessory)

DSR-5000 : With the reflector P250F (accessory)

* 2 Defined with center strength 1/e² (13.5%). There may be leak light other than the specified spot size. The sensor may be damaged when there is a highly reflective object around the targets

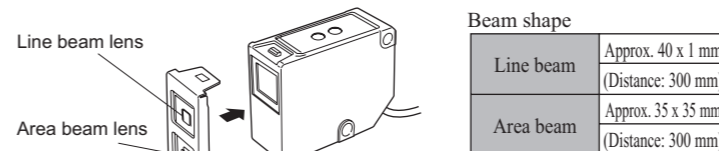
* 3 Right angle to sensing axis. (to 2m)

* 4 The weights of DSTC-200 and DSTA-200 include the emitter and the detector.

Accessories and others

■ Lens attachment (Model BL-W130L-1:Optional)

Installing the attachment to DSR-800·DSR-5000 allows two types of beam shape: Line beam and area beam. Attach the beam-shape lens and the optical axis to use together.



Beam shape	
Line beam	Approx. 40 x 1 mm (Distance: 300 mm)
Area beam	Approx. 35 x 35 mm (Distance: 300 mm)

* The beam form may depend on the individual products.

* Do not use for DSD-100. Uninstallable to DSTA-200, DSTA-200-M8, nor DSTA-S.

■ MP-45 Reflector (attached to DSR-800·DSR-5000)

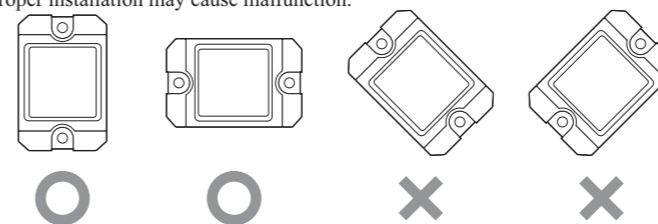
● Instruction for use

1. When cleaning, blow off or lightly wipe with a soft cloth. Do not use thinner, benzene or kerosene.
2. Avoid strong push of the reflecting surface or direct impact. Doing so may result in damaging the prism and deteriorating the performance.
3. Avoid using outside or under the environment where oil or water scatters.

● Installation procedure

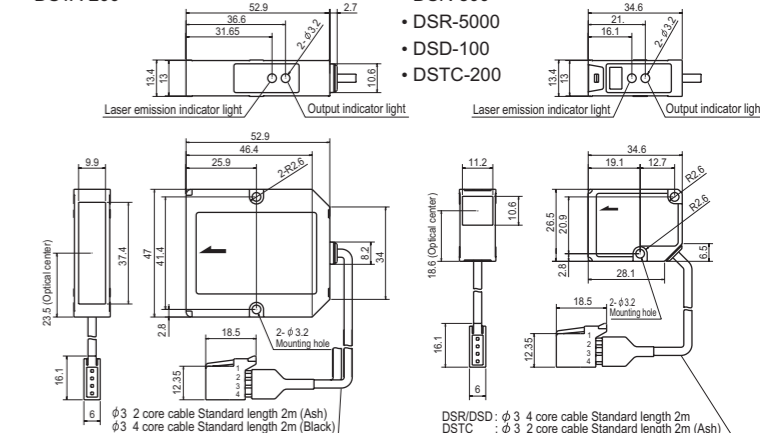
Refer to the figure below and use in the correct direction.

Improper installation may cause malfunction.

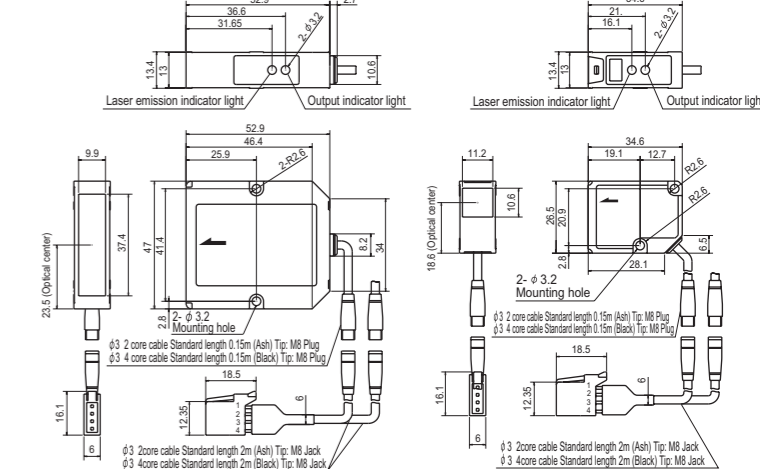


DIMENSIONAL DRAWING

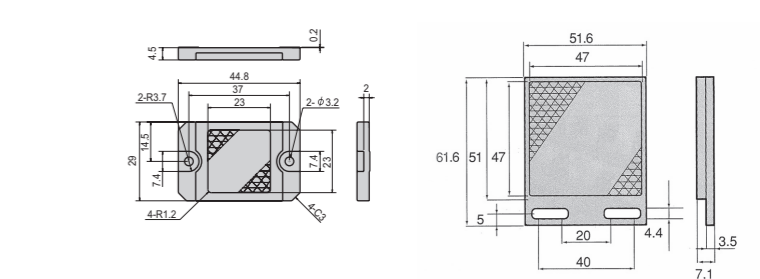
● DSTA-200



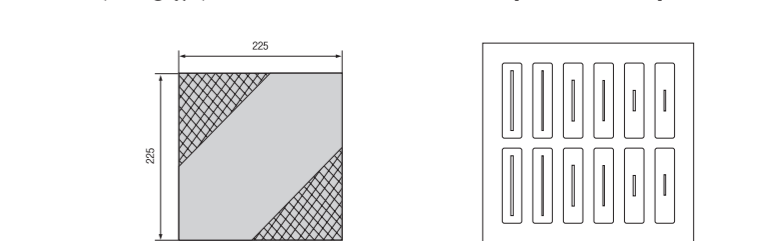
● DSTA-200-M8



● MP-45



● MP-225 (Cutting type)



- The product specification may change without notice for improvement.
- For any inquiry, please contact the manufacture/vendor below.

OPTEX FA CO., LTD.

Head office: Mitsui Seimei Kyoto Yamashina BLDG 6F, 46-1 Takehanadounomae-cho, Yamashina-ku, Kyoto 607-8085 Japan
 TEL: +81-(0)75-594-8123
 FAX: +81-(0)75-594-8124

Website <http://www.optex-fa.com>

Safety Precautions

Carefully read and understand the safety precautions before operation.

The important information is provided to protect your health and property.

Do not apply any other installing or operating procedure other than that described in this manual.

■ Meanings of Safety Symbols



WARNING

Indicates a possible hazard that may result in death, serious injury, or serious property damage if the product is used without observing the stated instructions.



CAUTION

Indicates a possible hazard that may result in personal injury or property damage if the product is used without observing the stated instructions.

Mandatory Requirements



WARNING

- This product is not an explosion-proof construction. Do not use the product under flammable, explosive gas or liquid environment.
- Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
- The light source of this product applies the visible light semiconductor laser.
- Do not disassemble or modify the product since it is not designed to automatically stop the laser emission when open. Disassembling or modifying at customer's end may cause personal injury, fire or electric shock.
- Do not stare into the laser beam directly, install at eye-level of the people around, nor expose the beam to the human body intentionally.
- Use the exclusive amplifier unit to connect the product. Not doing so may result in an accident or product damage.
- Wiring or disconnecting with the power ON is danger. Never fail to turn OFF the power supply.

This product cannot be used as a safety device to protect human body.

Operating Precautions



CAUTION

- Installing in the following places may result in malfunction:
 1. A dusty or steamy place
 2. A place generating corrosive gas
 3. A place directly receiving scattering water or oil
 4. A place suffered from heavy vibration or impact
- Do not use the sensor outside nor expose the detection surfacedirectly to ambient light (laser light, incandescent light and sunlight).
- Do not use the sensor in transient state after power on approx. 100 ms).
- The sensor performance may depend on the individual units.
- Wipe off dirt on the emitting/receiving parts to maintain correct detection. Also, avoid direct impact on the product.



Laser Type Amplifier Unit
D2SA-M□ D2SA-S□
D2SA-M□-M8 D2SA-S□-M8

Instruction Manual

Thank you for purchasing DSA Series. We hope you are fully satisfied with this product and enjoy its performance.
Carefully read this instruction manual and keep it for future reference.

Safety Precautions

Carefully read and understand the safety precautions before operation. The important information is provided to protect your health and property. Do not apply any other installing or operating procedure other than that described in this manual.

Meaning of Safety Symbols

WARNING Indicates a possible hazard that may result in death, serious injury, or serious property damage if the product is used without observing the stated instructions.

CAUTION Indicates a possible hazard that may result in personal injury or property damage if the product is used without observing the stated instructions.

Mandatory Requirements

WARNING This product is not an explosion-proof construction. Do not use the product under flammable, explosive gas or liquid environment. Do not use the product in water. Do not disassemble, repair, or convert the product. Failure to do this may cause failure, fire, or electric shock. Operate within the rated range.

This product cannot be used as a safety device to protect human body.

Operational Precautions

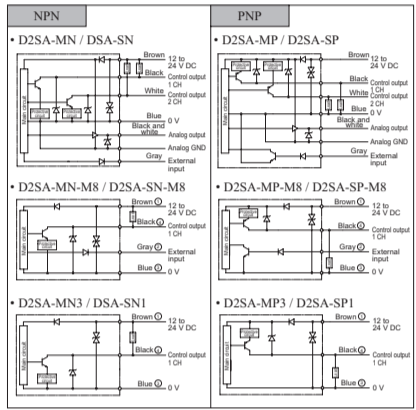
CAUTION Use the specified sensor head to connect this product. Any use other than specified will cause accident or product damage. It is dangerous to wire or attach/remove the connector with the power on. Make sure to turn off the power before operation. Make sure to use the product with the protective cover attached and closed. Installing in the following places may result in malfunction:
1. A dusty or steamy place
2. A place generating corrosive gas
3. A place directly receiving scattering water or oil.
4. A place suffered from heavy vibration or impact.
The product is not designed for outdoor use. Do not use the sensor in transient state after power on (approx. 100 ms). Do not wire with the high voltage cable or the power line. Failure to do this will cause malfunction by induction or damage. The sensor performance or digital display values may depend on the individual units or the condition of detected product.

Specification

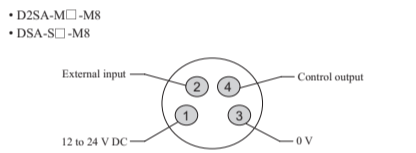
Model	Advanced Model (2CH)		Standard Model (1CH)	
	Base unit	Handset	Base unit	Handset
Cable type	D2SA-M(N/P)	D2SA-S(N/P)	D2SA-M(N/P)3	D2SA-S(N/P)1
M8 connector type	-	-	D2SA-M(N/P)-M8	D2SA-S(N/P)-M8
Adaptable sensor head	DS Series			
Power source, voltage	12 - 24 V DC ± 10% including a ripple			
Consumption current	45 mA or less / 24 V			
Response time	60µs/500µs/2ms (Fast/Standard/Long)			
Control output	NPN / PNP Open collector			
Load current	100 mA or less. Residual voltage: 1.8 V or less			
Indicator light	Laser emission indicator light: Green, Output Indicator light: Orange (1.2CH) Teaching indicator light: Red Channel indicator light: Green (1.2CH)			
Digital display	7 segment 8 digit display			
Timer function	OFF, On delay, Off delay, One-shot			
Timer time	1 ms - 9 s			
Mutual interference prevention function	Yes: Up to 4 machines			
Output method	Light on / Dark on Switching type in the function			
Analog output	Current output 4 - 20 mA			
External input setting	Teaching, synchronizing input, floodlight off, counter reset)		External input setting (teaching, synchronizing input, floodlight off, counter reset)	
Setting input/output	Output setting (2CH output + Alarm output) * Settable only with D2SA-M□-M8			
Operating temperature/humidity	-25 to +55°C / 35 to 85% RH (No freezing)			
Store temperature/humidity	-40 to +70°C / 35 to 85% RH (No condensation)			
Shock resistance	10 to 55 Hz Double amplitude 1.5 mm 2 hours for each direction of X, Y, and Z			
Protective category	IP50			
Material	PC: Case and cover			
Weight (including the codes)	Cable type: 65 g M8 connector type: 30 g			

*1 Operating temperature may differ according to the number of connection. See as follows:
1 - 3 machines(s): -25 to +55°C
4 - 8 machines: -25 to +50°C
* When not using analog output.
* Base units and handsets of the advanced or standard models can be connected with any combination. However, some combination may be restricted. For details, contact our Customer Service.

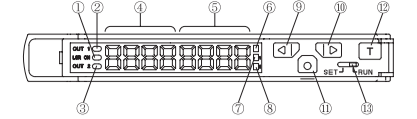
Input/Output Schematic



Pin layout



Each Part



No.	Name	Function
1	Laser emission indicator light	Turns on while the amplifier is powered.
2	1CH output indicator light	Turns on when the output of 1 CH is ON.
3	2CH output indicator light	Turns on when the output of 2 CH is ON.
4	Main monitor (Red)	Displays light intensity, function, and the number of counts.
5	Sub monitor (Green)	Displays the threshold, function selection, and the number of counts.
6	Teaching mode indicator light	Turns on in the Teaching mode.
7	Valid channel indicator light (1 CH)	Keeps turning ON when the monitor display value, adjustment, and the function setting are valid to 1 CH.
8	Valid channel indicator light (2 CH)	Keeps turning ON when the monitor display value, adjustment, and the function setting are valid to 2 CH.
9	UP button	RUN mode: Displays or changes the threshold. Function mode: Selects the function or changes the numerical values.
10	DOWN button	RUN mode: Switches to the Function mode. (0.5 ± 0.2) Function mode: Fix the selection.
11	Mode button	RUN mode: Switches the channel. Function mode: Returns to RUN mode or performs scaling. Set mode: Run the teaching.
12	Teaching button	RUN mode: Switches the channel. Function mode: Returns to RUN mode or performs scaling. Set mode: Run the teaching.
13	SET/RUN selection switch	Switches between Teaching mode and RUN mode.

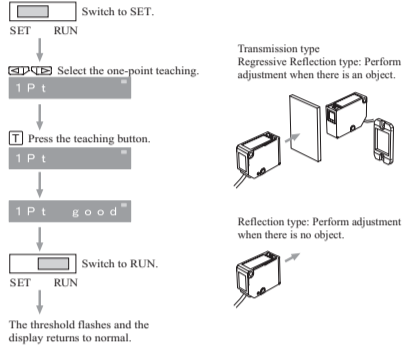
* The button function varies in each mode: RUN mode, Function mode, and SET mode.
* As D2SA-M□/D2SA-S□/DSA-S□/DSA-S□-M8 are 1 output (1CH) type, ④ and ⑤ do not turn on. The channel switching of ④ also becomes invalid.

Adjustment

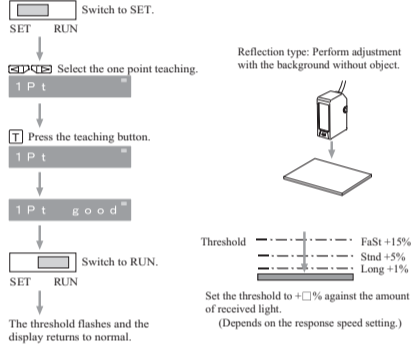
The available teaching depends on "5.3 Detection Mode setting." Refer to below:

Setting	Teaching
Standard detection (St n)	All teachings are valid.
Edge detection (h d J / h d L)	No teaching is valid.
Differential detection (d i F F)	Only one point teaching is valid.

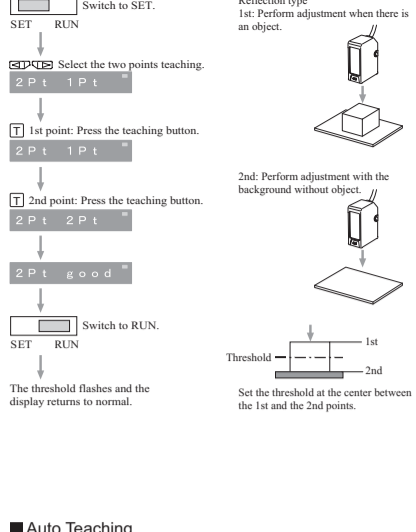
Setting Maximum Sensitivity



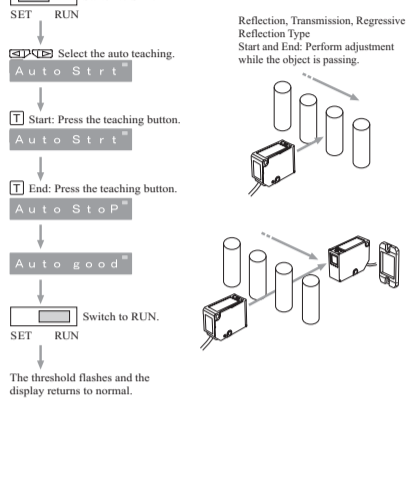
One Point Teaching



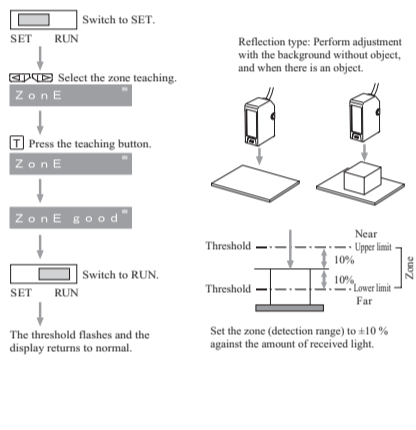
Two Points Teaching



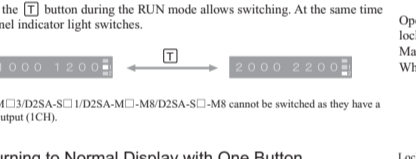
Auto Teaching



Zone Teaching



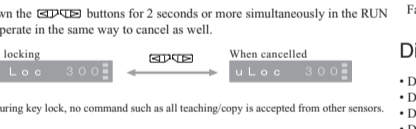
Switching Channel



Returning to Normal Display with One Button

Pressing the [T] button for 2 seconds or more in setting each function enables to return to the normal display (RUN mode) without using Exit (Exit).
* Invalid while setting the timer time, number of count, or span slant.

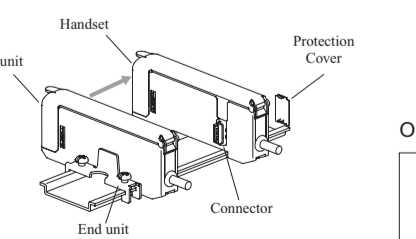
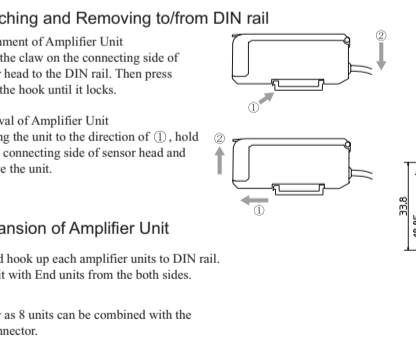
Key Lock



Reset "Peak/ Bottom hold"

Peak/Bottom hold can be reset by operating with amplifier itself at the time of analog output.

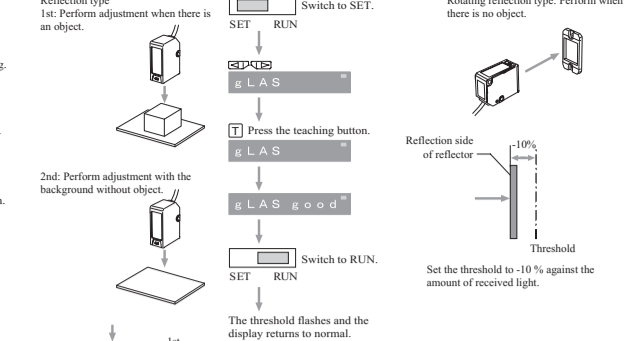
Setting Amplifier Unit



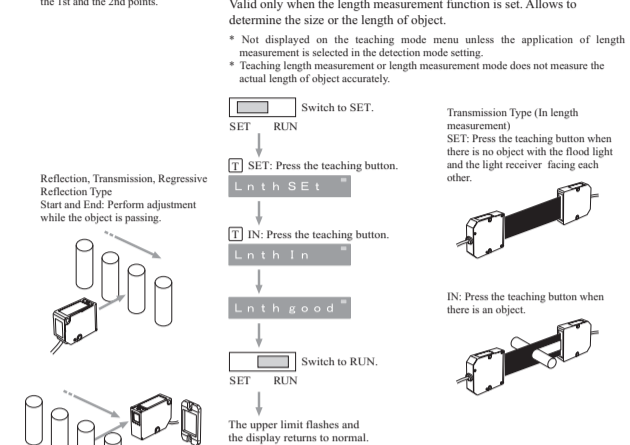
Options

End Unit: BEF-BE01-W190 (2 pcs)
The product specification may change without notice for improvement.
For any inquiry, please contact the manufacturer/vendor below.
OPTEX FA CO., LTD.
Head office: Mitsui Seimei Kyoto Yamashina BLDG 6F, 46-1
Takehanadounmae-cho, Yamashina-ku, Kyoto
607-8085 Japan
TEL: +81-(0)75-594-8123
FAX: +81-(0)75-594-8124
Website: http://www.optex-fa.com

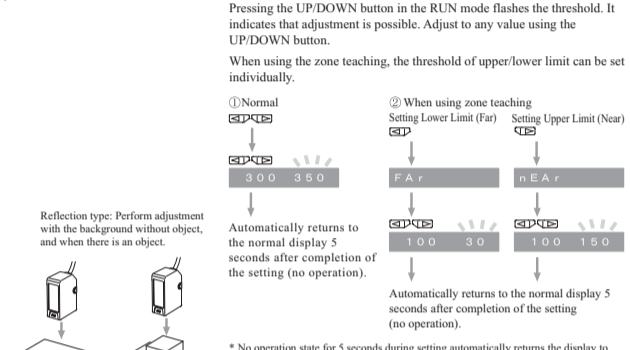
Teaching Transparent Object



Teaching Length Measurement



Manual Adjustment

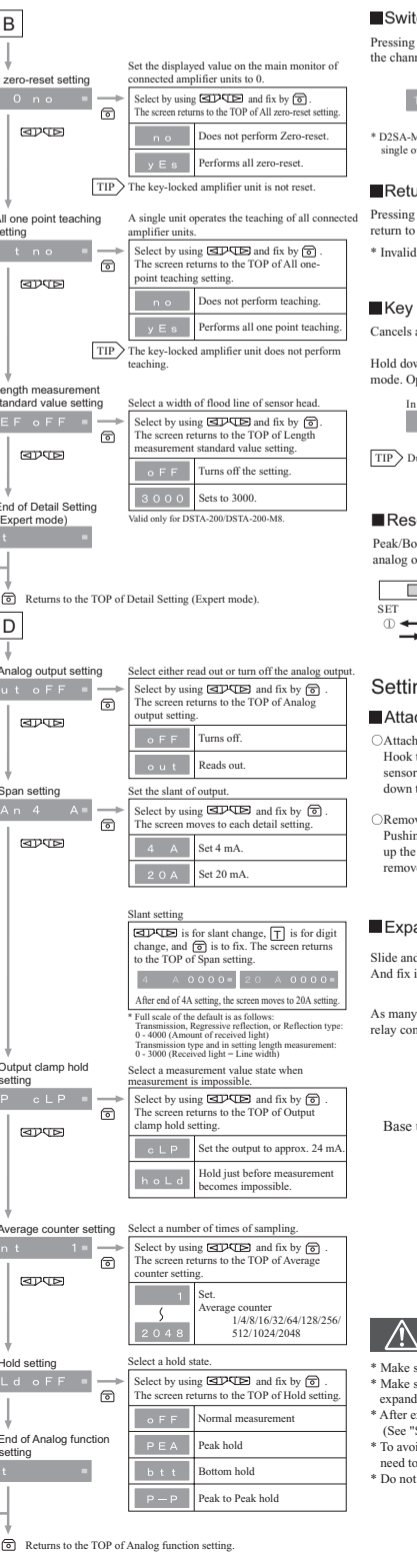
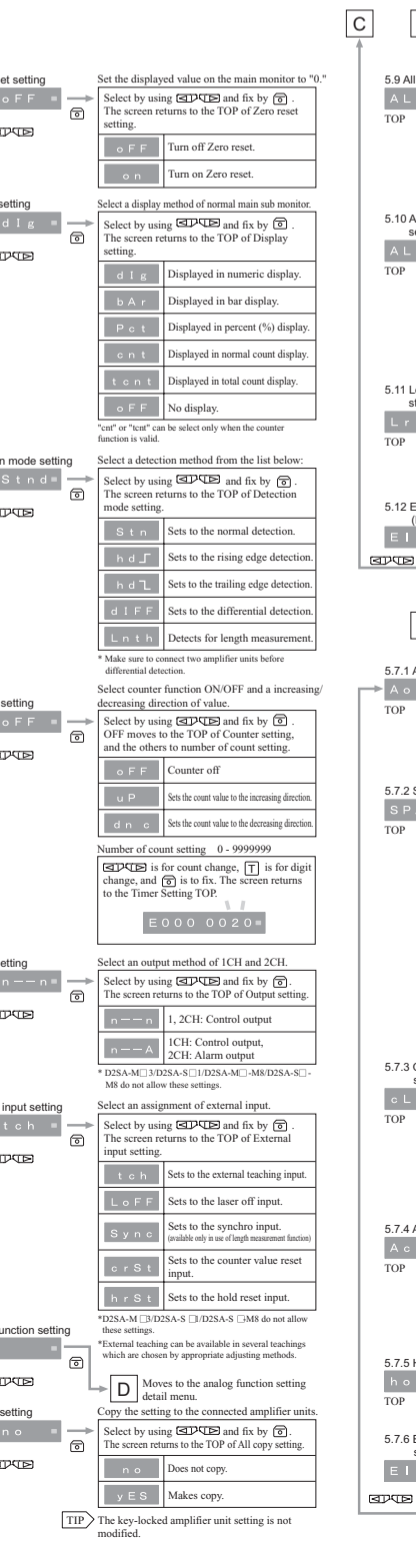
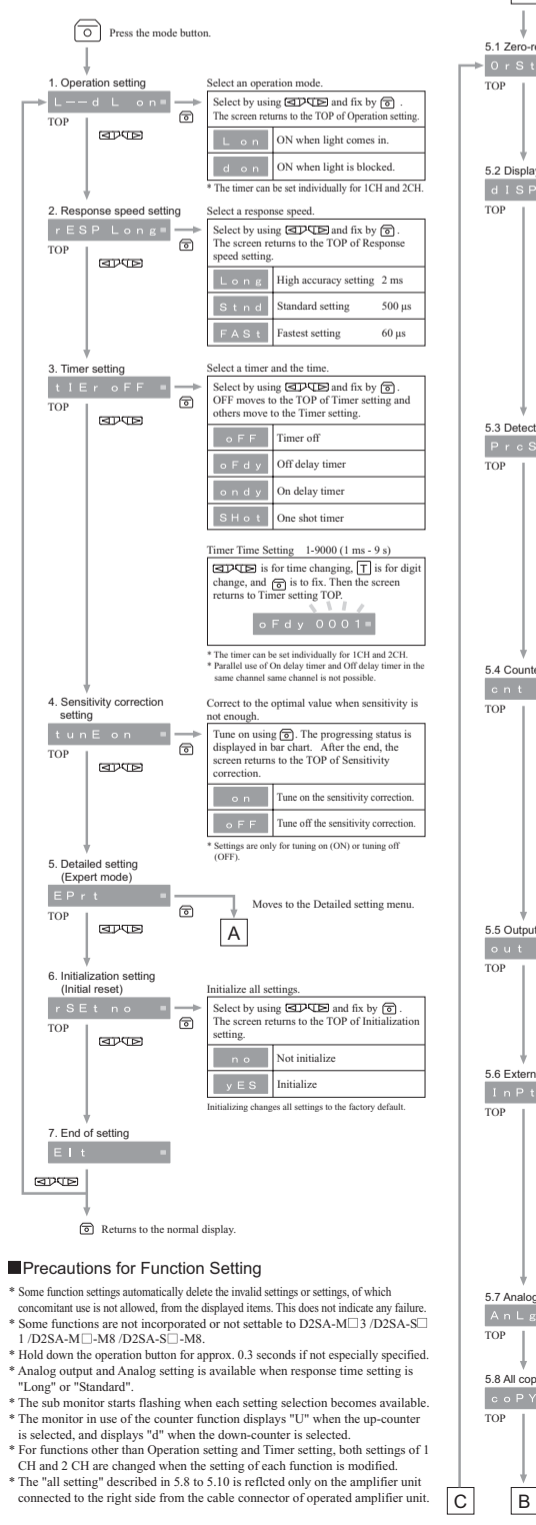


Error Display in Teaching

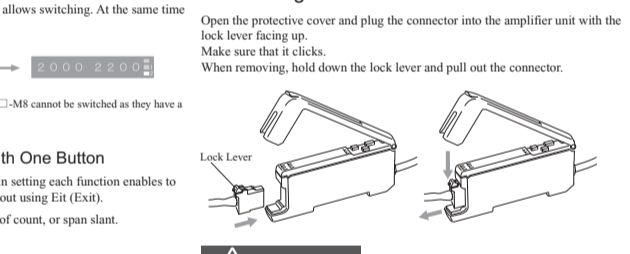
An error message is displayed in the event of error during adjustment. Refer to the table below for readjustment.

Error Code	Description
Err 1	Indicates shortage of light intensity or no difference of light intensity.
Err 2	Indicates a sampling error in teaching of a moving object.
Err 3	Indicates a calculation error.
not cPlt	Indicates that the teaching is interrupted.

Function Setting



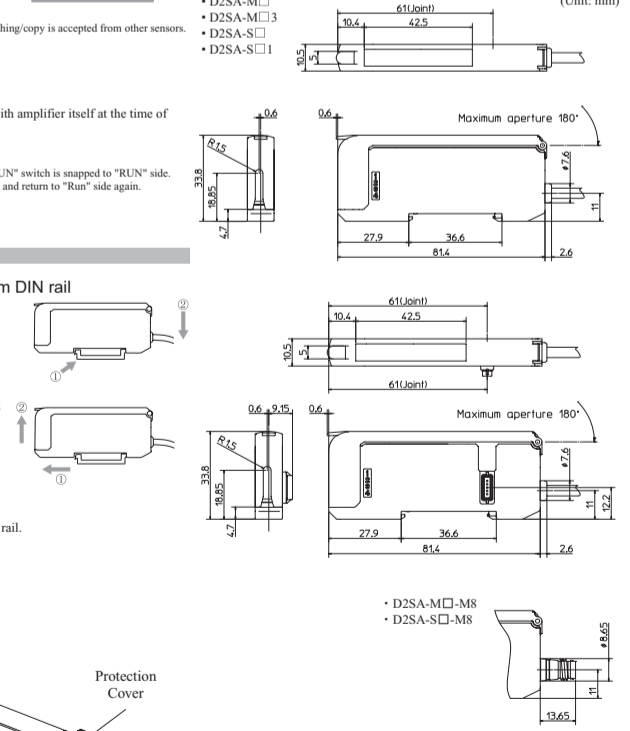
Connecting Sensor Head



CAUTION

Do not attach any sensor head other than the specified one (DS Series). When removing the connector, do not pull on the cable. Failure to do so will break the cable or damage the product.

Dimensional drawing



Specification

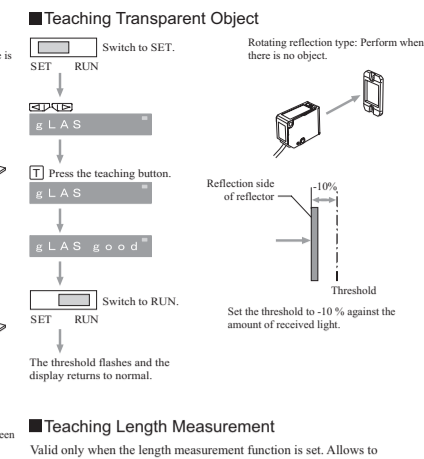
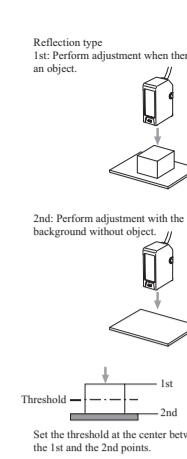
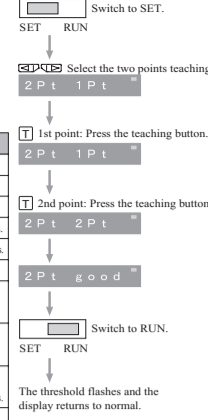
Model	Advanced Model (2CH)	Standard Model (1CH)
Cable type	D2SA-M(N/P)S	D2SA-M(N/P)3S
M8 connector type	-	D2SA-M(N/P)S-M8
Adaptable sensor head	DS Series	
Power source, voltage	12 - 24 V DC ± 10% including a ripple	
Consumption current	45 mA or less / 24 V	
Response time	60µs/500µs/2ms (Fast/Standard/Long)	
Control output	NPN / PNP Open collector Load current: 100 mA or less Residual voltage: 1.8 V or less	
Indicator light	Laser emission indicator light: Green, Output Indicator light: Orange (1,2CH) Teaching indicator light: Red Channel indicator light: Green (1,2CH)	
Digital display	7 segment 8 digit display	
Timer function	OFF, On delay, Off delay, One-shot	
Timer time	1 ms - 9 s	
Output method	Light on / Dark on Switching type in the function	
Analog output	Current output 4 - 20 mA	-
Setting input/output	External input setting (teaching, synchronizing input, floodlight off, counter reset) Output setting (2CH output + Alarm output) * Settable only with DSA-M□S-M8	External input setting (teaching, synchronizing input, floodlight off, counter reset)
Operating temperature/humidity	-25 to +55°C / 35 to 85% RH (No freezing)	
Store temperature/humidity	-40 to +70°C / 35 to 85% RH (No condensation)	
Shock resistance	10 to 55 Hz Double amplitude 1.5 mm 2 hours for each direction of X, Y, and Z	
Protective category	IP50	
Material	PC: Case and cover	
Weight (including the oxide)	Cable type: 65 g	M8 connector type: 30 g

Each Part

No.	Name	Function
①	Laser emission indicator light	Turns on while the amplifier is powered.
②	1CH output indicator light	Turns on when the output of 1 CH is ON.
③	2CH output indicator light	Turns on when the output of 2 CH is ON.
④	Main monitor (Red)	Displays light intensity, function, and the number of counts.
⑤	Sub monitor (Green)	Displays the threshold, function selection, and the number of counts.
⑥	Teaching mode indicator light	Turns on in the Teaching mode.
⑦	Valid channel indicator light (1 CH)	Keeps turning ON when the monitor display value, adjustment, and the function setting are valid to 1 CH.
⑧	Valid channel indicator light (2 CH)	Keeps turning ON when the monitor display value, adjustment, and the function setting are valid to 2 CH.
⑨	UP button	RUN mode: Displays or changes the threshold. Function mode: Selects the function or changes the numerical values.
⑩	DOWN button	RUN mode: Switches the function or the Function mode. (0.5 ± 0.2) Function mode: Fix the selection.
⑪	Mode button	RUN mode: Switches the channel. Function mode: Returns to RUN mode or performs scaling. Set mode: Run the teaching.
⑫	Teaching button	RUN mode: Switches the channel. Function mode: Returns to RUN mode or performs scaling. Set mode: Run the teaching.
⑬	SET/RUN selection switch	Switches between Teaching mode and RUN mode.

* The button function varies in each mode: RUN mode, Function mode, and SET mode.
 * D2SA-M□3S/D2SA-M□S-M8 are 1 output (1 CH) type, ④ and ⑤ do not turn on. The channel switching of ⑫ also becomes invalid.

Two Points Teaching



Safety Precautions

Carefully read and understand the safety precautions before operation. The important information is provided to protect your health and property. Do not apply any other installing or operating procedure other than that described in this manual.

Meaning of Safety Symbols

WARNING Indicates a possible hazard that may result in death, serious injury, or serious property damage if the product is used without observing the stated instructions.

CAUTION Indicates a possible hazard that may result in personal injury or property damage if the product is used without observing the stated instructions.

Mandatory Requirements

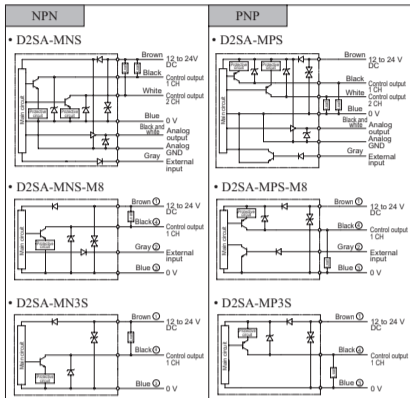
- This product is not an explosion-proof construction. Do not use the product under flammable, explosive gas or liquid environment.
- Do not use the product in water.
- Do not disassemble, repair, or convert the product. Failure to do this may cause failure, fire, or electric shock.
- Operate within the rated range.

This product cannot be used as a safety device to protect human body.

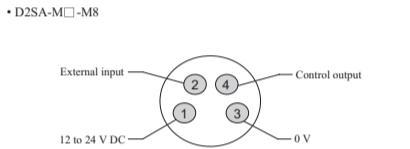
Operational Precautions

- Use the specified sensor head to connect this product. Any use other than specified will cause accident or product damage.
- It is dangerous to wire or attach/remove the connector with the power on. Make sure to turn off the power before operation.
- Make sure to use the product with the protective cover attached and closed.
- Installing in the following places may result in malfunction:
 - A dusty or steamy place
 - A place generating corrosive gas
 - A place directly receiving scattering water or oil.
 - A place suffered from heavy vibration or impact.
- The product is not designed for outdoor use.
- Do not use the sensor in transient state after power on (approx. 100 ms).
- Do not wire with the high voltage cable or the power line. Failure to do this will cause malfunction by induction or damage.
- The sensor performance or digital display values may depend on the individual units or the condition of detected product.

Input/Output Schematic



Pin layout

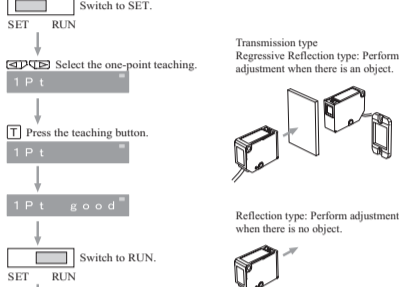


Adjustment

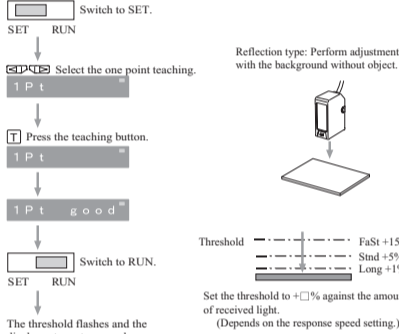
The available teaching depends on "5.3 Detection Mode setting." Refer to below:

Standard detection	All teachings are valid.
Edge detection	No teaching is valid.
Differential detection	Only one point teaching is valid.

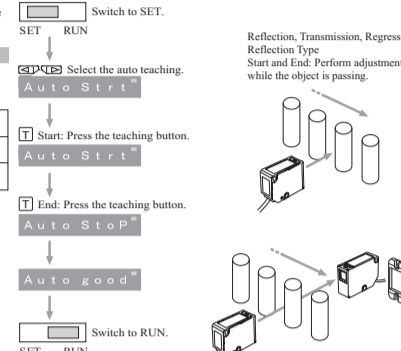
Setting Maximum Sensitivity



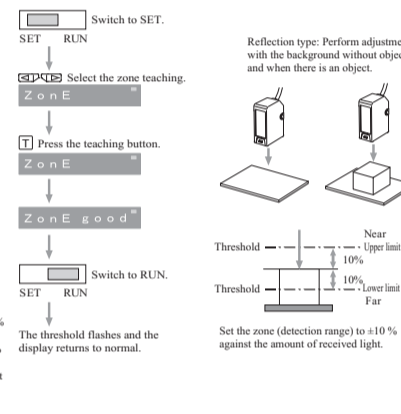
One Point Teaching



Auto Teaching

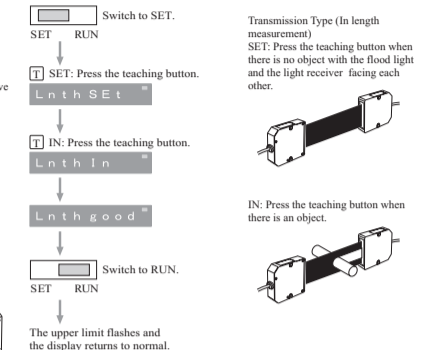


Zone Teaching



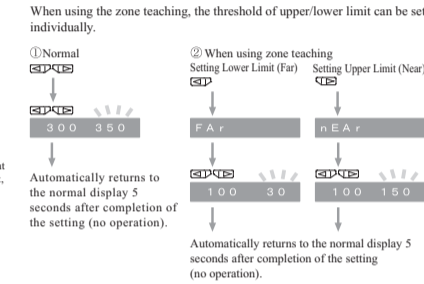
Teaching Length Measurement

Valid only when the length measurement function is set. Allows to determine the size or the length of object.
 * Not displayed on the teaching mode menu unless the application of length measurement is selected in the detection mode setting.
 * Teaching length measurement or length measurement mode does not measure the actual length of object accurately.



Manual Adjustment

Pressing the UP/DOWN button in the RUN mode flashes the threshold. It indicates that adjustment is possible. Adjust to any value using the UP/DOWN button.

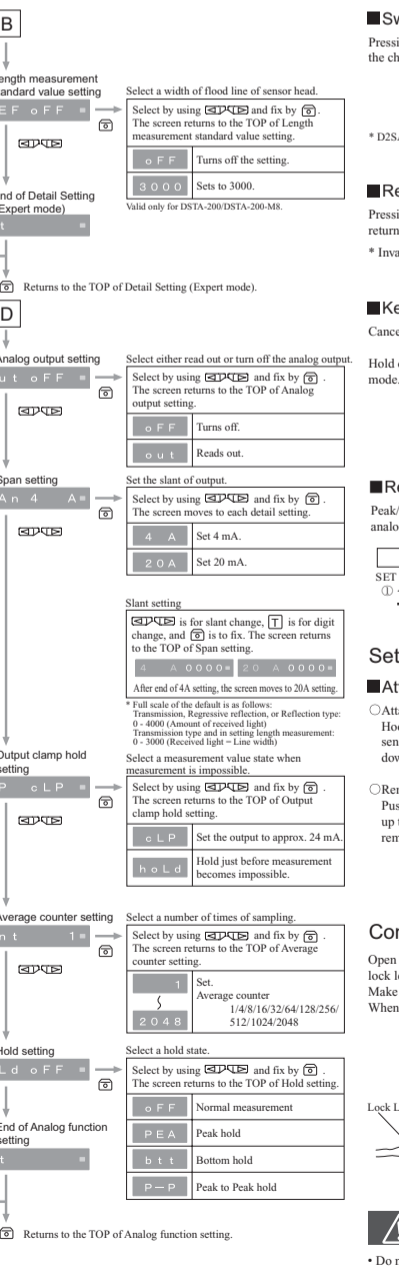
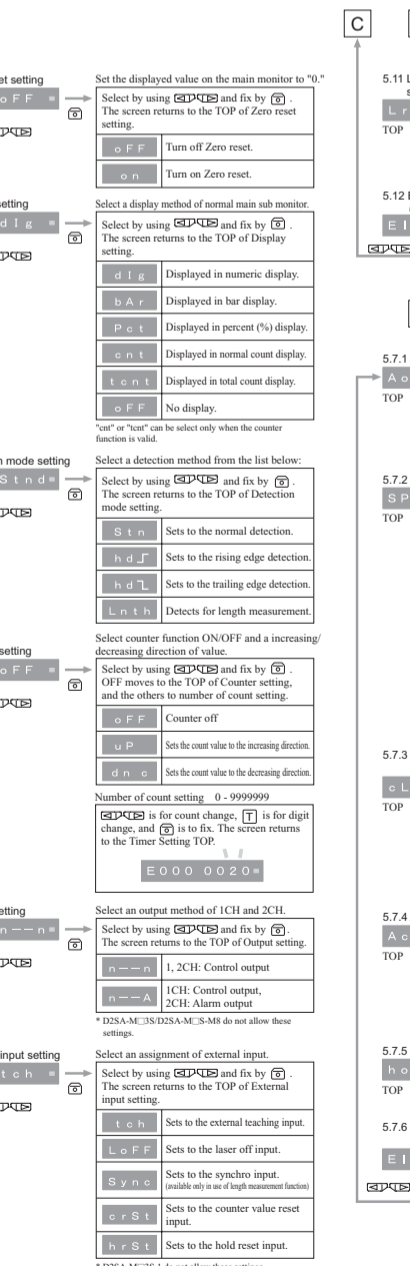
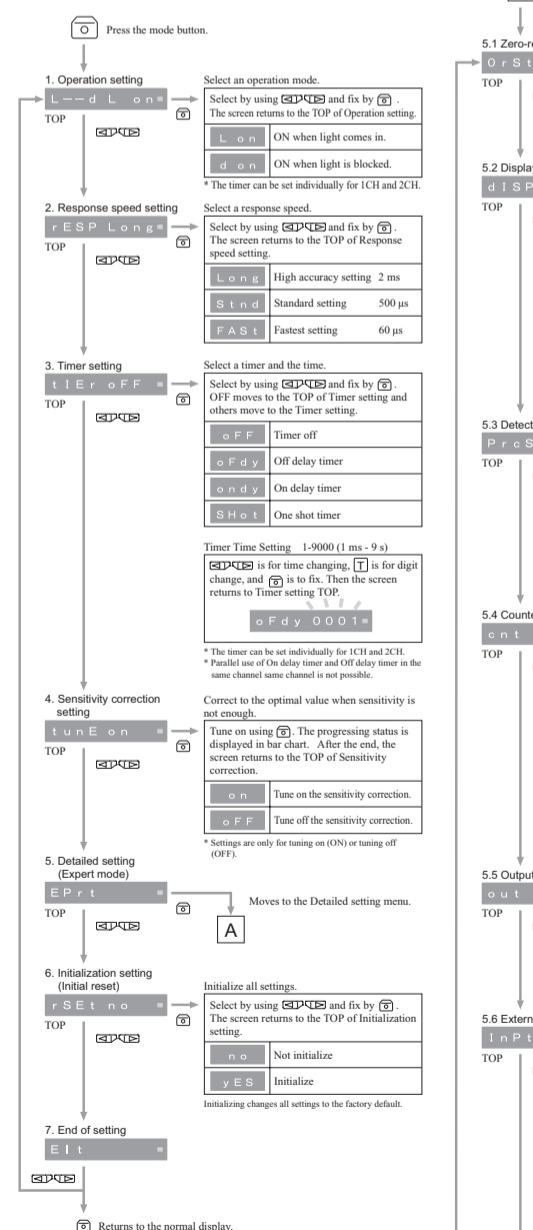


Error Display in Teaching

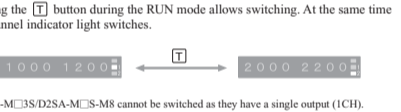
An error message is displayed in the event of error during adjustment. Refer to the table below for readjustment.

Err 1	Indicates shortage of light intensity or no difference of light intensity.
Err 2	Indicates a sampling error in teaching of a moving object.
Err 3	Indicates a calculation error.
not oPlt	Indicates that the teaching is interrupted.

Function Setting



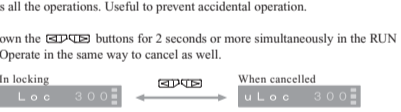
Switching Channel



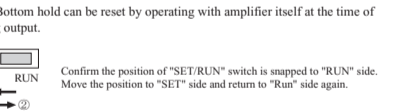
Returning to Normal Display with One Button

Pressing the [T] button for 2 seconds or more in setting each function enables to return to the normal display (RUN mode) without using Exit (Exit).
 * Invalid while setting the timer time, number of count, or span slant.

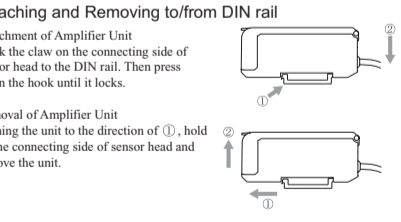
Key Lock



Reset "Peak/ Bottom hold"

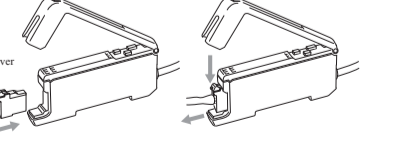


Setting Amplifier Unit



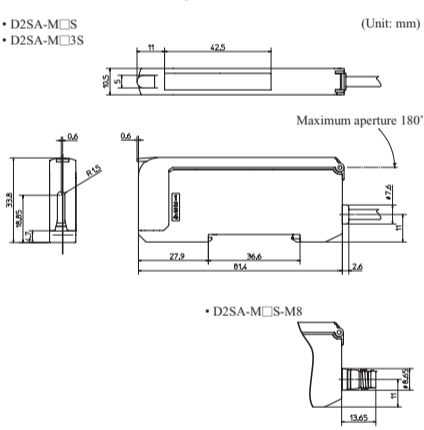
Connecting Sensor Head

Open the protective cover and plug the connector into the amplifier unit with the lock lever facing up. Make sure that it clicks. When removing, hold down the lock lever and pull out the connector.

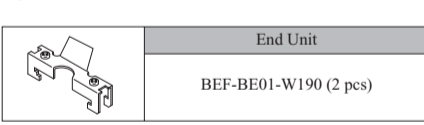


CAUTION
 • Do not attach any sensor head other than the specified one (DS Series).
 • When removing the connector, do not pull on the cable.
 Failure to do so will break the cable or damage the product.

Dimensional drawing



Options



Precautions for Function Setting

- Some function settings automatically delete the invalid settings or settings, of which concomitant use is not allowed, from the displayed items. This does not indicate any failure.
- Some functions are not incorporated or not settable to D2SA-M□3S/D2SA-M□S-M8.
- Hold down the operation button for approx. 0.3 seconds if not especially specified.
- Analog output and Analog setting is available when response time setting is "Long" or "Standard".
- The sub monitor starts flashing when each setting selection becomes available.
- The monitor in use of the counter function displays "U" when the up-counter is selected, and displays "d" when the down-counter is selected.
- For functions other than Operation setting and Timer setting, both settings of 1 CH and 2 CH are changed when the setting of each function is modified.

- The product specification may change without notice for improvement.
- For any inquiry, please contact the manufacture/vendor below.

OPTEX FA CO., LTD.

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 607-8085 Japan
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 FAX: +81-(0)75-594-8124

デジタルアンプ分離型光電センサ

DSシリーズ

レーザタイプセンサヘッド

DSR -800	DSTC-200-M8
DSR -5000	DSTA-200-M8
DSD -100	
DSTC-200	
DSTA-200	

取扱い説明書

- お買い上げいただきありがとうございます。ご希望どりの製品であることをご確認して下さい。
- 取扱い説明書は、ご使用前によくお読みいただき大切に保管して下さい。

安全にご使用いただくために

取扱い説明書に記載されている注意事項をよくお読みになり、内容を理解されるまではお使いにならないでください。
取扱い説明書には、お客様の健康や財産を守るための注意事項が記載されていますので記載の無い据付け・操作方法ではご使用にならないで下さい。

●記号表記について

警告 この表示を無視して誤った取り扱いをすると、人が死亡または重症を負う可能性が想定される内容を示します。また、重大な物的損害を受ける恐れがあります。

注意 この表示を無視して誤った取り扱いをすると、人が負傷する可能性が想定される内容、および物的損害の発生が想定される内容を示します。

安全上必ずお守りください

- 警告**
- この商品は防爆構造ではありませんので、引火性または爆発性ガス、液体の環境下では使用しないで下さい。
 - この商品の光源は可視光半導体レーザを使用しています。
 - この商品は分解したときに自動的にレーザ放射を停止する機能を備えておりませんので、分解・改造をしないで下さい。
 - 人体への障害・火災・感電の原因になります。
 - レーザビームを直接覗き込んだり、周囲の人の視線高さに設置・故意に人体にむけて照射するなどはしないで下さい。
 - この商品の接続には専用アンプユニットを使用して下さい、他のものを接続しますと事故・商品破損の原因となります。
 - 電源が入ったままの配線作業・コネクタの脱着は危険です、必ず電源を切ってから行ってください。

この商品は人体保護を目的とした安全機器としてはご使用いただけません。

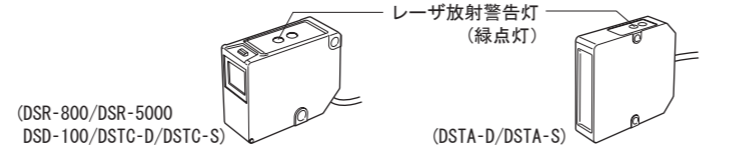
使用上の注意

- 注意**
- 次のような場所への設置は誤動作の原因となる事がありますのでご注意ください。
 1. ホコリ・蒸気等の多い場所。
 2. 腐食性ガスの発生する場所。
 3. 水・油等が直接飛散する場所。
 4. 振動・衝撃等の激しい場所。
 - 屋外・強い外乱光（レーザ光・太陽光・白熱ランプ）が直接受光面にあたる場所での使用は避けて下さい。
 - 電源投入時（約100ms）の過度状態でのご使用は避けて下さい。
 - 商品個々のばらつきや、対象物の状態によって検出特性に違いが生じることがあります。
 - 投受光面にゴミ・ほこり等の汚れがありますと正しく検出できない場合があります、また直接衝撃を与えないで下さい。

レーザ使用に関する注意事項

■レーザ放射警告灯

レーザ放射がされていることをレーザ放射警告灯で確認していただけます、電源を入れたあと点灯し、放射されている間常時点灯します。また、専用アンプユニット側でも確認できます。

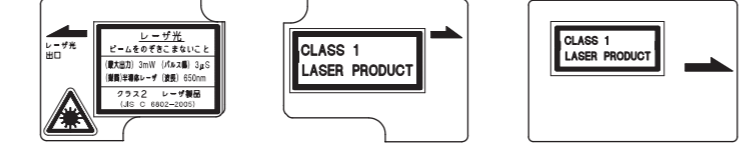


■レーザラベルについて

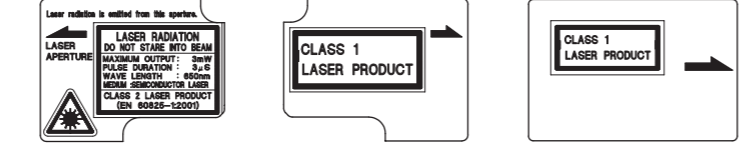
この商品は可視光レーザビームを放射しており、JIS C6802 / IEC / FDAレーザ安全規格のクラス2 (II) に相当します、センサヘッド側面にはCLASS 2 / Class II を示す警告、説明ラベル (英文) をそれぞれ貼付済みです。

*DSTC-200/-M8・/DSTA-200/-M8の投光器DSTC-D/DSTA-D及びDSTC-S/DSTA-SはFDA規格(米国へ輸出される場合)ではクラスIIですがJIS/IEC規格ではクラスIが適用されますので同梱されているラベルを張り替えて使用してください。

●日本国内

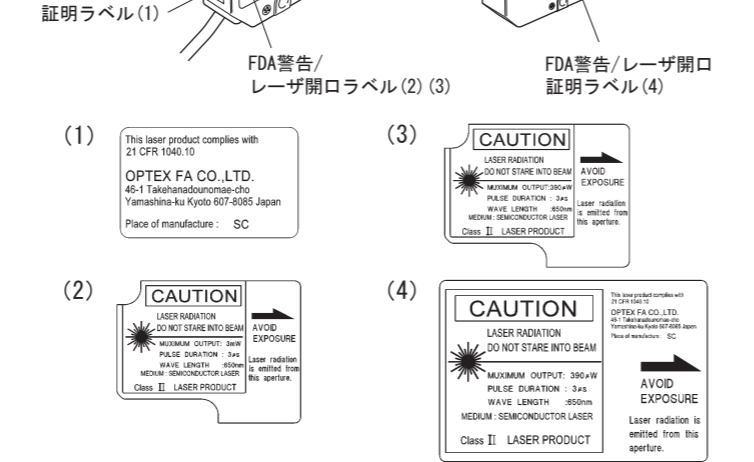
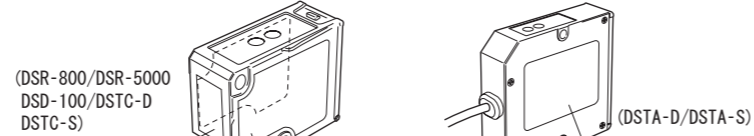


●諸外国 (米国を除く)



●米国

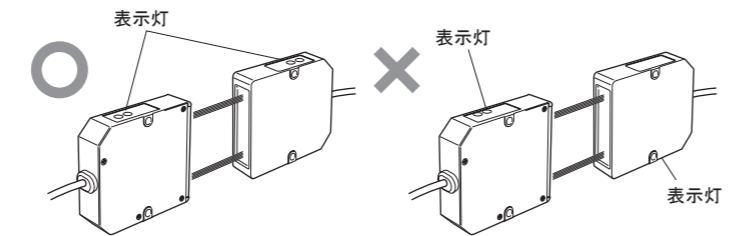
機器搭載して米国へ輸出する場合、米国のレーザ規制FDA (Food and Drug Administration) を受けます。この商品はCDRH (Center for Devices and Radiological Health) に届出済みです。詳細は別途お問い合わせください。



■DSTA-200/DSTA-200-M8使用時の注意

DSTA-200・-M8を測長用途で使用される場合は次のことに注意して下さい。

- 投光器は灰色ケーブル、受光器は黒色ケーブルに対応しています。
- センサの取付けは、投光ビーム中心が受光部中心に来るように設置してください。(アンプユニットの表示値が最大になるように設置してください。)
- 投・受光器の設置は同一方向になるようにしてください。各ラベルや表示灯を基準にしてください。



仕様

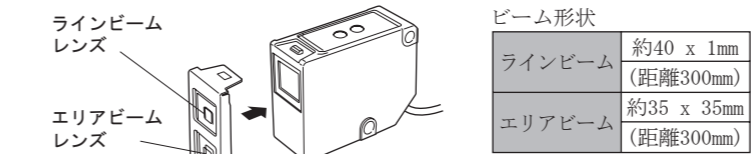
型式	同軸回帰反射型		同軸反射型	透過型	透過/測長型
	DSR-	800	5000	DSD-100	DSTC-200
ケーブル				投光器: DSTC-D 受光器: DSTC-200	投光器: DSTA-D 受光器: DSTA-200
M8中継型	-	-	-	DSTC-200-M8	DSTA-200-M8
投光器M8	-	-	-	DSTC-S	DSTA-S
受光器M8	-	-	-	DSTC-R	DSTA-R
適合アンプユニット	DSA-M□□ / DSA-M□□-M8 / DSA-S□□				
光源	可視光半導体レーザ 650nm				
出力	最大出力 3mW		最大出力 390μW		
IEC/JIS CLASS	CLASS 2			CLASS 1	
FDA CLASS	Class II				
検出距離	Long	8m	0.5~50m	1m	2m
*1	Standard	5m	0.3~35m	0.7m	2m
	Fast	2m	0.1~20m	0.25m	測長モード; 0.5m (Long, Standardのみ)
ビームサイズ	*2	約φ2mm (距離2m)	約φ1mm (距離1m)	約φ2mm (距離2m)	約30x2.5mm (距離2m)
繰り返し精度	*3	0.2mm	0.2mm	0.2mm	0.3mm
表示灯	レーザ放射表示灯: 緑色 出力表示灯: 橙色				
使用周囲温度・湿度	-10~+55℃/35~85%RH (氷結・結露しないこと)				
保管周囲温度・湿度	-25~+70℃/35~85%RH (氷結・結露しないこと)				
使用周囲照度	3,000 lx (白熱ランプ)		10,000 lx (太陽光)		
耐振動	10~55Hz 複振幅1.5mm X, Y, Z各方向2時間				
保護構造	IP67				
材質	PC (ケース, カバー)		PMMA / ガラス (前面窓)		
質量 (コード含む) *4	45g		90g		115g

- *1 DSD-100 : 200x200mm 白紙 (90%)にて
DSR-800 : MP-45リフレクタ (付属) にて
DSR-5000 : P250Fリフレクタ (付属) にて
- *2 中心強度の1/e² (13.5%) で定義しています。規定のスポットサイズ以外にも漏れ光があり対象物の周囲に反射率の高いものがある場合その影響を受ける場合があります。
- *3 検出軸に直角方向(2mまで)
- *4 DSTC-200・DSTA-200は投・受光器込みの質量です。
* M8中継型は投光器・受光器のみの交換が可能です。

付属品・その他

■レンズアタッチメント (型式 BL-W130L-1:オプション)

DSR-800・DSR-5000 にアタッチメントを取り付けて、ラインビーム・エリアビームの2種で検出が可能です、ご使用になるビーム形状レンズと光軸をあわせて取り付けてください。



- *製品個々のばらつきによりビーム形状に違いが生じることがあります。
- *DSD-100には適しません、またDSTA-200・M8/DSTA-Sに取付けることはできません。

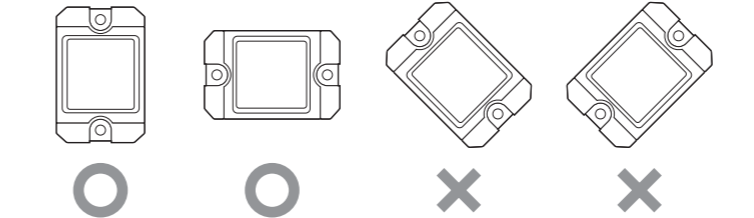
■MP-45リフレクタ (DSR-800・DSR-5000に付属)

●使用上の注意

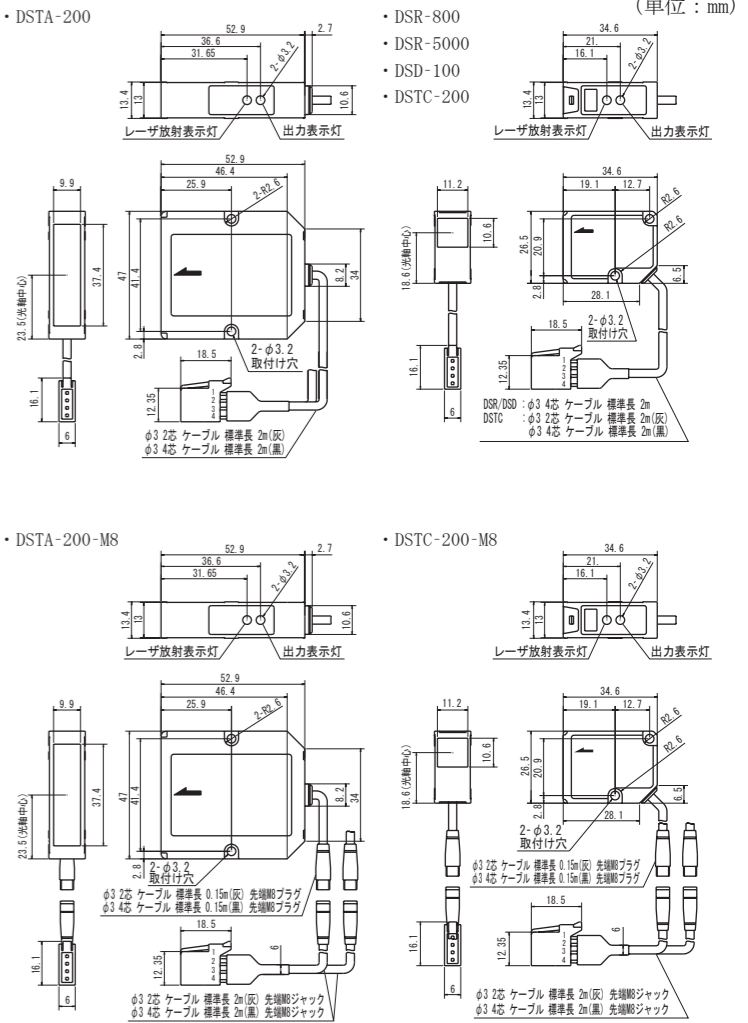
1. 清掃される場合はエアで吹き飛ばすかわらわらい布で軽くふき取ってください。シンナー、ベンジン、灯油類は使用しないでください。
2. 反射面を強く押ししたり、直接衝撃を与えたりしますと、プリズムが破損し性能の低下が起こる恐れがあります。
3. 屋外や油・水が飛散する環境下での使用は避けてください。

●取り付け方法

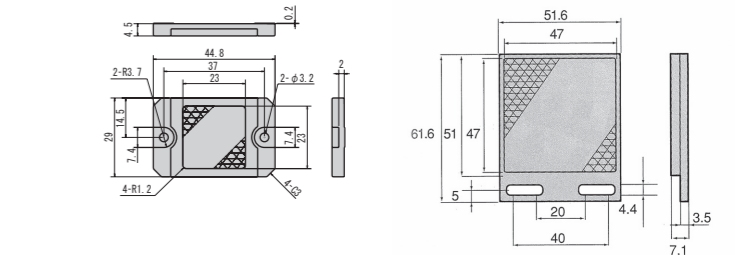
取り付けは下図を参考に正しい方向で使用してください、誤った取り付けを行うと誤動作の原因となります。



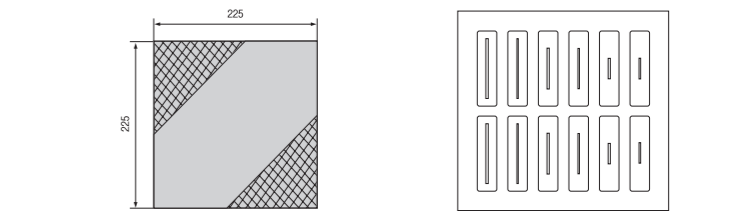
外形寸法図



●MP-45



●MP-225(フリーカット)



- 製品の仕様は改良のため予告なく変更する事があります。
- 製品に関するお問い合わせ、御意見等は製造・発売元の下記まで御連絡下さい。

オプテックス・エフエー株式会社

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東京営業所 〒160-0023 東京都新宿区西新宿5-14-1 新宿グリーンタワービル27F
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オプテックス・エフエーホームページ <http://www.optex-fa.jp>