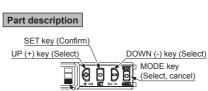
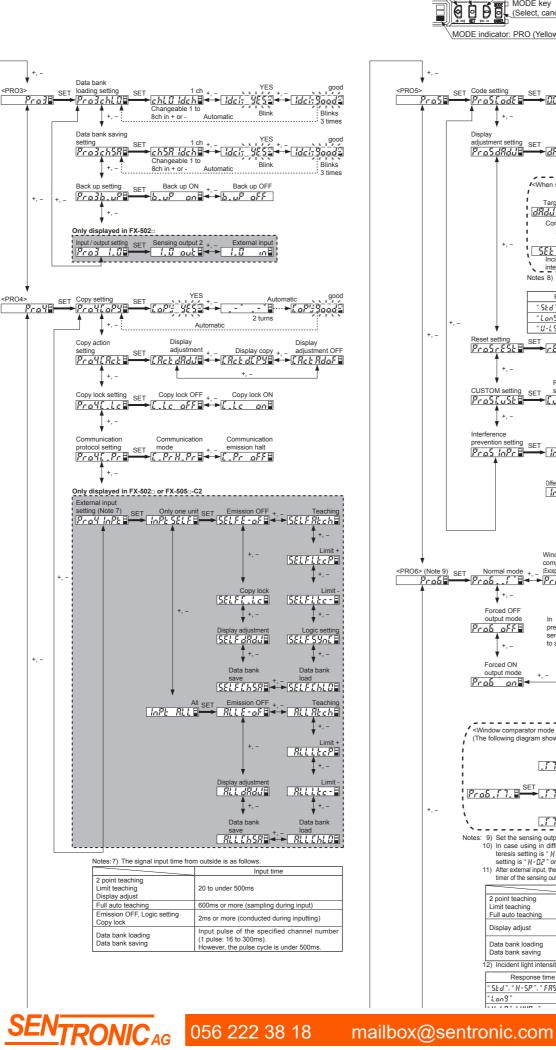
Panasonic PRO MODE OPERATION MANUAL

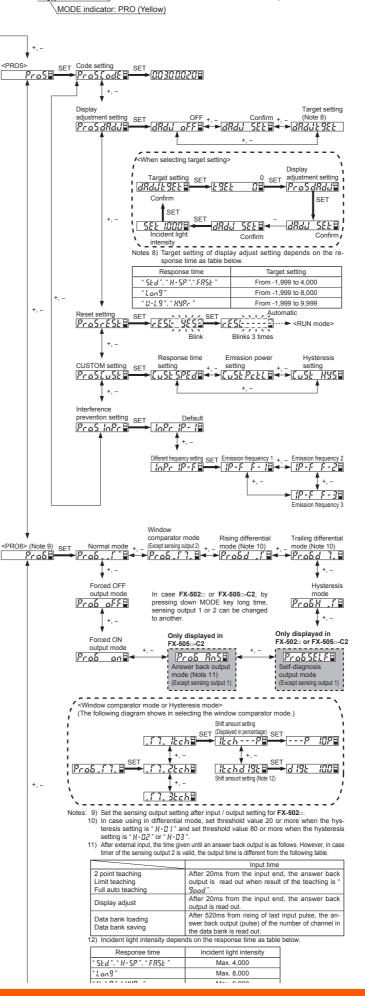
Digital Fiber Sensor Amplifier FX-500 Series MJE-FX500PROC No.0058-98V

Response time T 250µs or less +, - 2ms or less +, - 4ms or less → <u>575 d 54 d</u> → <u>575 d 1 on 59</u> → <u>575 d 1 - 1 59</u> SET setting (Note 1) SET Prol <u>(\$PE3FR5E</u>∎<mark>+`-</mark>\$<u>PE3H-\$P</u>₽<mark>+`-</mark>\$<u>PE3H9P-</u>₽ 60µs or less 25µs or less 24ms or less Notes: 1) Display of incident light intensity depends on the response time. Response time Incident light intensity " SEd", " H-SP", " FRSE" Max. 4,000 Max. 8,000 "Long" " U-L 9 ", " XYPr Max. 9,999 OFF-delay ON-delay No timer . Timer setting SET No timer +, - timer +, - timer PraidELY and + dELY and + dELY and +, dELYanoSB +, - dELY oSdB +, - dELYanoFB ON-delay / One-shot timer One-shot timer ON / OFF-delay timer (Except sensing output 2) (Except sensing output 2) Notes:2) When using time, be sure to set the time range. Since the setting time depends on timer range as table below, set the setting time after selecting the timer range. Timer range Timer period Approx. 0.5ms, Approx. 1 to 9,999ms "ms" "sec." Approx. 0.5 sec., Approx. 1 to 32 sec. "1/10ms" Approx. 0.05ms, Approx. 0.1 to 999.9ms Hysteresis setting SET Standard +, - Large +, - Small (Note 3) Pro I HYSE → HYSE → HYSE - II = HYSE +. -Notes: 3) When setting to " H - [] [", it becomes low sensibility. Displayed in Incident light percentage _ _ intensity (Note 4) Shift amount setting SET percentage +, - intensity (Note 4) Notes: 4) Incident light intensity setting depends on the response times Response time Incident light intensity " SEd ", " H-SP ", " FRSE " Max. 4,000 Max. 8,000 "Long " U-L 9 ", " НУРг Max 9 999 Saturation correction SET SET SET Correcting Automati Automatic <RUN mode> ---- Pccl Roll B In case saturation correction is NG, \ it is not displayed. Emission nowe Ething Note5 SET High emission power +, _ Middle emission power +, _ Low emission power Pro IPctL → PctL H-P= → PctL n-P= → PctL L-P= Notes: 5) In case the response time setting is set to "H-5P" when the hysteresis setting is "H-H", the emitting power becomes low sensibility ("L-P") whichever selecting "H-P", "h-P" or Timer range SET ms +, - sec. +, - 1/10ms Prolbrog +. -Teaching lock SET setting SET Lock OFF +, - Lock O. Lock OFF Prod +. -Setting items in Incident light Displayed in Peak / SET intensity +, - percentage +, - bottom value digital display setting Pro2d ISPE T+.-+ -Setting of digital display turning SET Turning OFF +, _ Turning ON SET Eco OFF +, - Eco ON +, - Full Eco oFF⊟ ← Eco on ■ ← EcoFULLE ECO setting t +, -T+.-Time period hold (Note 6) SET Hold OFF +, - now on Hold OFF Pro2Hold Notes:6) In order to clear the value, set the time period holding function to OFF once. Turning the power OFF can also clear the value.

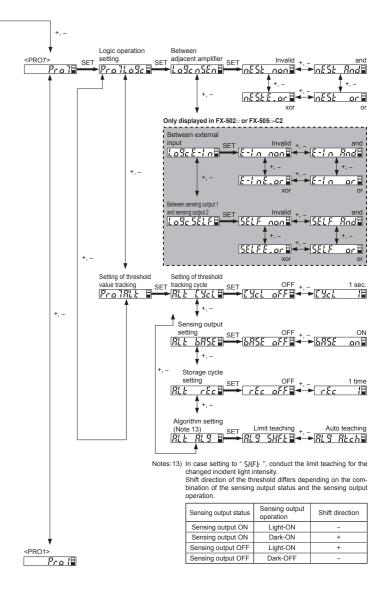
If you are using the <PRO3> data bank saving setting: After exiting all PRO mode settings, always execute the <PRO3> data bank saving setting to save the data. If you turn off the power without saving, the data will not be saved.







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	Item	Default	Description						
	Response	setting 5PEd 5Ed	Set response time.						
	time setting Timer setting	dELY non	Set operation and period of the timer.						
PRO1 mode	Hysteresis setting	H45H-02	Hysteresis can be set when the normal mode or the window comparator mode is selected. When setting to " H - Π I", it becomes low sensibility.						
	Shift amount setting	SHFEP	Set shift amount of threshold value in limit teaching.						
	Emission power setting	Pctl X-P	 Set emission power. " #uŁa": Saturated incident light intensity can be automatically adjusted " H-P": High emission power (25 to 100%) " n - P": Middle emission power (25 to 100%) " L - P": Low emission power (25 to 100%) 						
	Timer range setting	<u>trn9 </u>	Change unit time of timer. Be able to prevent from wrong operation of teaching.						
	Teaching lock setting	t-Lc off	" aFF": Teaching mode is valid " an ": Teaching mode is invalid Incident light intensity can be displayed in percent-						
	Digital display item setting Digital display	d ISPd ISE	age or the peak / bottom value can be displayed on the digital display (red).						
ode	turning on setting	turn off	Sets the viewing orientation of the digital display.						
PRO2 mode	ECO setting	Eco off	Power consumption can be lowered. " aFF": ECO OFF " an": If any key operation is not carried out for 20 sec. in RUN mode, the digital display turns OFF. " FULL": If key operation is not done in 20 sec. or setting the key lock function in Run mode, all indicators turns OFF.						
	Period hold setting	Hald aFF	 <i>aFF</i> ": Peak / bottom value in the digital display refreshing condition can be displayed. <i>an</i> ": Peak / bottom value in the hold condition can be displayed. 						
	Data bank loading setting	chLū ldch	Load a setting from specified data bank. (1 to 8 channel)						
apor	Data bank	ch58 ldch	Save a setting to specified data bank. (1 to 8 channel)						
PRO3 mode	saving setting Back up setting	b.u ^p on	Select to save or not to save the threshold value by						
Ц Ц	Input / output setting	I.O out	teaching in EEPROM. Select either sensing output 2 or external output.						
	(FX-502□ only)		Using optical communications, be able to copy set-						
	Copy setting	_	ting contents in main amplifier to all of the sub ampli- fiers connected from the main amplifier. FX-502□ cannot send or receive threshold value when conducting copy.						
PRO4 mode	Copy action setting	ERct dRdJ	Copy of items in display adjustment setting and incident light intensity are conducted or canceled by using optical communication. In case incident light intensity does not have enough margin, automatically set optimum value. " dRdd.": Display adjustment of main amplifier and sub amplifiers can be conducted. Set to the target value of display adjust- ment in each amplifier. " dCPY": Incident light intensity of main amplifier can be copied to sub amplifier. However, when the difference between main ampli- fier and sub amplifier is big, it will not be copied. " RdaF": Display adjust of main and sub amplifier can be set to OFF. Do not press down the SET key many times when display is " RdaF". When "RdaF" is not displayed in confirmation, also do not press down set key many times.						
	Copy lock setting	[.Lc oFF	does not receive the set contents. However, even if copy lock ON " is set, the copy action setting is communicated.						
	Communica- tion protocol setting	[_PrH_Pr	When conducting the copy setting or setting of data bank loading / saving from the main amplifier via optical communications, the optical communications through a sub amplifier which is set to communication emission halt " $\int_{-} P_{r} = _{\Omega} FF$ " and the following sub amplifiers can be halted.						
	External input setting (Only FX-502□, FX-505□-C2)	InPt SELF	Set external input.						
	Code setting	00300020	Consistent setting can be done by inputting 8-digit code instead of independent setting. In addition, present setting can be confirmed.						
PRO5 mode	Display adjust- ment setting	dRdul oFF	" L IL Constant Section 2015 Se						
	Reset setting CUSTOM setting	<u> </u>	If setting to " 4ξ 5, " returns to default settings (factory settings). Select an item in CUSTOM mode to display.						

	Item	Default setting	Description							
PRO5 mode	Interference prevention setting	InPr IP- I	Number of adherence mounting of sensor head de- pends on response time of interference prevention function. " <i>IP- I</i> ": Set when using the interference preven- tion function by optical communication. Maximum adherence mounting of sensor head is 12 units " <i>IP-F</i> ": Set when using interference prevention function by changing emitting frequency. The maximum adherence mounting by set-							
PRO6 mode	Sensing output mode	Pro61	<pre>ting 3 types of emission frequency is 3 units. Set sensing output 1 mode and sensing output 2 mode. *f * (Normal mode) Sets a threshold value for ON / OFF operation. *',f 7. *' (Window comparator mode (Except sensing output 2 of FX-502□, FX-505□-C2) Sets two threshold values and judges they are within the required range or not. This can be se- lected in 1 / 2 / 3-point teaching. *' d _ f " (Rising differential mode) Only drastic rises in incident light intensity are detected. *' d _ 1. * (Trailing differential mode) Only drastic drops in incident light intensity are detected. *' d _ f " (Hysteresis mode) Only drastic drops in incident light intensity are detected. *' H _ f " (Hysteresis mode) Only displayed in FX-502□, FX-505□-C2 but ex- cept sening output 1. • Conduct self diagnosis output mode) (Only displayed in FX-502□, FX-505□-C2 but ex- cept sening output 1. • Conduct self diagnosis output mode) (Only displayed in FX-502□, but except sensing output 1. • Conduct Answer back output mode) (Only displayed in FX-502□, but except sensing output 1. • Conduct Answer back output mode) (Only displayed in FX-502□, but except sensing output 1. • Conduct Answer back output mode) (Only displayed in FX-502□, but except sensing output 1. • Conduct Answer back output mode • Sets forcibly the output to ON. * aFF *: Forced OFF output mode • Sets forcibly the output to OFF.</pre>							
PRO6 mode	Logical operation setting	Lagensen	Select for logical operation and set logical operation methods (and, or, xor). " n5£n": Logical operation is sensing output 1 of this device and conduct logical operation between the sensing output 1 and sens- ing output 1 of this device. The calculation result of upper amplifiers and this product is output from the sens- ing output 1 of this product. " E - In": Logical operation is sensing output 1 of an upper adjacent amplifier and conduct logical operation between the sensing output and sensing output 1 of this de- vice. (Only displayed in FX-502□, FX-505□-C2) " 5£L F ": Logical operation is outer input and con- duct logical operation between the output and sensing output 1 of this device. (Only displayed in FX-502□, FX-505□-C2) " 5£L F ": Logical operation is outer input and con- duct logical operation petween the output and sensing output 1 of this device. (Only displayed in FX-502□, FX-505□-C2) Logical operation is outer input and con- duct logical operation between the output and sensing output 1 of this device. (Only displayed in FX-502□, FX-505□-C2) Logical operation Solical operations operation 1 of this device ON ON ON ON ON OFF OFF OFF ON ON OFF OFF ON ON OFF OFF ON ON OFF OFF OFF OFF OFF OFF							
	Setting of threshold value tracking	[Ycl off	This mode can change the threshold value depending on the cycle (1 to 9,999 sec.) that is set with the varia- tions of the incident light intensity. The tracking shift amount is the one which is set at the shift setting.							
	Sensing output setting	685E oFF	Selects whether tracking threshold when the output is OFF or when the output is ON.							
	Storage cycle setting	rEc off	Selects a threshold storage cycle in EEPROM from 1 to 250 times.							
	Algorithm setting	RL9 SKFE	When setting to limit teaching, threshold value is followed up on the bases of shift amount. Further- more, when setting to auto teaching, threshold value be followed up on the bases of each cycle.							

FX-501 / Code setting table • Green digital display (right side is the first digit)

Code	Forth digit	Code	Third digit	Code	Second digit	Code	First digit	
8	Sensing output operation mode	8	Timer operation		Timer period	8	CUSTOM setting	
0	Light-ON	ü	No timer	0	0.5ms	ü	Response time setting	
1	Dark-ON	1	OFD	1	1ms	1	Emission power setting	
2	_	2	OND	2	3ms	г	Hysteresis setting	
3	_	3	ONOF	3	5ms	3	—	
Ч	—	Ч	OSD	Ч	10ms	Ч	—	
5	_	5	ONOS	5	30ms	5	_	
5	—	6	—	8	50ms	8	-	
7	—	7	—	7	100ms	7	-	
8	—	8	-	8	300ms	8	-	
9	—	9	-	9	500ms	9	-	
8	—	8	—	8	1 sec.	8	-	
Ь	_	Ь	_	Ь	2 sec.	Ь	_	
Ľ	_	Ľ	_	Ľ	3 sec.	Ľ	_	
d	_	ď	_	ď	4 sec.	d	_	
ξ	_	Ε	_	Ε	5 sec.	ε	_	
c	_	c	_	C	J SEC.	c	_	

(OFD: OFF-delay timer, OND: ON-delay timer, ONOF: ON / OFF-delay timer, OSD: One-shot timer ONOS: ON-delay / One-shot timer

• Red digital display (right side is the first digit)

e	Forth digit		е	Third digit			Second digit	е	First digit
Code	Copy lock setting	Hysteresis setting	Code	Setting items in digi- tal display setting	Back up setting	Code	Response time setting	Code	Sensing output setting
0	Copy lock OFF	H-02	0	Incident light intensity	Back up ON	Ο	H-SP	0	Normal mode
1	Copy lock ON	H-02	1	Incident light intensity	Back up OFF	1	FAST	1	WC mode
2	Copy lock OFF	H-03	г	Displayed in percentage	Back up ON	2	STD	2	Rising differ- ential mode
3	Copy lock ON	H-03	3	Displayed in percentage	Back up OFF	3	LONG	3	Trailing differ- ential mode
ч	Copy lock OFF	H-01	Ч	Peak / bottom value	Back up ON	Ч	U-LG	Ч	HYS mode
5	Copy lock ON	H-01	5	Peak / bottom value	Back up OFF	5	HYPR	5	-

(WC mode: Window comparator mode, HYS mode: Hysteresis mode)

FX-502 / Code setting table

Green digital display (right side is the first digit)

	Green algital alsolidy (light side is the list algit)									
	Forth digit		~	Third digit			Second digit	Code	First digit	
Code	Sensing output	operation mode	Code	Timer o	peration	Code	B Timer period		CUSTOM setting	
Ľ	Sensing output 1	Sensing output 2	0	Sensing output 1	Sensing output 2	0	ninei penou		COSTOW Setting	
0	Light-ON	Light-ON	0	No timer	No timer	Ω	0.5ms	0	Response time setting	
1	Light-ON	Dark-ON	1	OFD	No timer	1	1ms	1	Emission power setting	
2	Dark-ON	Light-ON	г	OND	No timer	г	3ms	г	Hysteresis setting	
3	Dark-ON	Dark-ON	3	ONOF	No timer	3	5ms	3	_	
Ч	_	-	Ч	OSD	No timer	Ч	10ms	Ч	_	
5	_	-	5	ONOS	No timer	5	30ms	5	_	
5	-	-	- 🔓 No timer OFD 🔓		50ms	8	-			
7	-	-	7	No timer	OND	7	100ms	7	_	
8	—	-	8	No timer	OSD	8	300ms	8	-	
9	-	-	9	-	-	9	500ms	9	-	
8	—	-	8	—	_	8	1 sec.	8	-	
Ь	_	-	Ь	-	_	Ь	6 2 sec.		-	
Ľ	_	-	Ľ	_	_	Ľ	3 sec.	Ľ	_	
d	_	_	d	_	_	ď	4 sec.	d		
Ε	_	_	Ε	_	_	Ε	5 sec.	Ε	_	

(OFD: OFF-delay timer, OND: ON-delay timer, ONOF: ON / OFF-delay timer, OSD: One-shot timer) ONOS: ON-delay / One-shot timer

• Red digital display (right side is the first digit)

	0		•						
e	Forth digit		e	Third digit			Second digit	е	First digit
Code	Copy lock setting	Hysteresis setting	Code	Setting items in digi- tal display setting	Back up setting	Code	Response time setting	Code	Sensing output setting (Note)
0	Copy lock OFF	H-02	a	Incident light intensity	Back up ON	0	H-SP	0	Normal mode
1	Copy lock ON	H-02	1	Incident light intensity	Back up OFF	1	FAST	1	WC mode
2	Copy lock OFF	H-03	2	Displayed in percentage	Back up ON	г	STD	г	Rising differ- ential mode
3	Copy lock ON	H-03	3	Displayed in percentage	Back up OFF	3	LONG	3	Trailing differ- ential mode
Ч	Copy lock OFF	H-01	ч	Peak / bottom value	Back up ON	Ч	U-LG	Ч	HYS mode
5	Copy lock ON	H-01	5	Peak / bottom value	Back up OFF	5	HYPR	5	_

(WC mode: Window comparator mode, HYS mode: Hysteresis mode)

Note: It is a setting only for sensing output 1. Sensing output 2 cannot be set.

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FX-505 -C2 / Code setting table

Green digital display (right side is the first digit)

	Green algital display (light side is the list algit)								
	Forth digit			Third digit			Second digit	~	First digit
Code	Sensing output operation mode		Timer operation				Timer period	Code	CUSTOM setting
Ľ	Sensing output 1	Sensing output 2		Sensing output 1	Sensing output 2	Code	niner period	0	COSTON Setting
0	Light-ON	Light-ON	11	No timer	No timer	Π	0.5ms	0	Response time setting
1	Light-ON	Dark-ON	1	OFD	No timer	-1	1ms	1	Emission power setting
2	Dark-ON	Light-ON	2	OND	No timer	2	3ms	г	Hysteresis setting
3	Dark-ON	Dark-ON	3	ONOF	No timer	3	5ms	3	—
Ч	_	_	Ч	OSD	No timer	Ч	4 10ms		_
5	-	—	5	ONOS	No timer	5	5 30ms		_
5	—			No timer	OFD	6	50ms	8	_
7	—	—	7	No timer	OND	7	100ms	7	—
8	_	—	8	No timer	OSD	8	300ms	8	—
9	—	_	9	_	_	9	500ms	9	_
8	_	_	Я	_	_	8	1 sec.	8	—
Ь	_	_	Ь	—	—	Ь	2 sec.	Ь	—
Ľ	_	_	Ľ	_	_	Ľ	3 sec.	Ľ	_
d	_	_	d		_	ď	4 sec.	d	_
Ε	_	_	Ε	_	_	Ε	5 sec.	Ε	_

(OFD: OFF-delay timer, OND: ON-delay timer, ONOF: ON / OFF-delay timer, OSD: One-shot timer)

• Red digital display (right side is the first digit)

	Forth digit			Third digit			Second digit		First digit		
Code	Copy lock	Hysteresis	Code	Setting items in digital dis- Back up setting		Code	Response	Code	Sensing output setting		
	setting	setting		play setting			time setting		Sensing output 1	Sensing output 2	
0	Copy lock OFF	H-02	۵	Incident light intensity	Back up ON	0	H-SP	Π	Normal mode	Normal mode	
1	Copy lock ON	H-02	1	Incident light intensity	Back up OFF	1	FAST	1	Normal mode	Rising differ- ential mode	
2	Copy lock OFF	H-03	2	Displayed in percentage	Back up ON	г	STD	г	Normal mode	Trailing differ- ential mode	
3	Copy lock ON	H-03	3	Displayed in percentage	Back up OFF	3	LONG	3	Normal mode	HYS mode	
Ч	Copy lock OFF	H-01	ч	Peak / bot- tom value	Back up ON	Ч	U-LG	Ч	Normal mode	Self-diagnosis output mode	
5	Copy lock ON	H-01	5	Peak / bot- tom value	Back up OFF	5	HYPR	5	Normal mode	Answer back mode	
б	-	-	8	-	-	δ	-	δ	WC mode	Normal mode	
7	-	_	7	-	_	7	_	7	WC mode	HYS mode	
8	_	_	8	-	_	8	_	8	Rising differ- ential mode	Trailing differ- ential mode	
9	_	_	9	-	_	9	_	9	HYS mode	Normal mode	

(WC mode: Window comparator mode, HYS mode: Hysteresis mode)