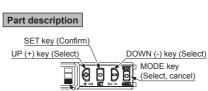
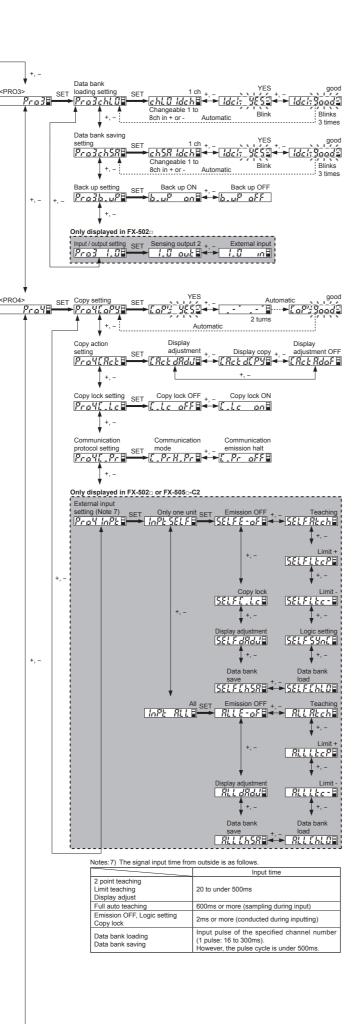
Panasonic PRO MODE OPERATION MANUAL

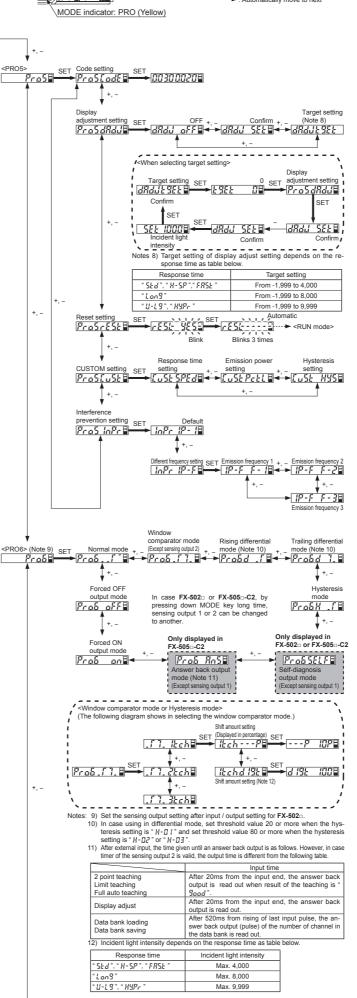
Digital Fiber Sensor Amplifier FX-500 Series MJE-FX500PROC No.0058-98V

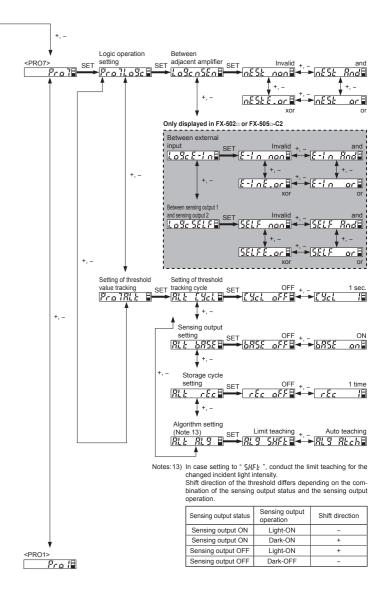
Response time SET setting (Note 1) T 250µs or less +, - 2ms or less +, - 4ms or less → <u>572d 52d 8</u> → <u>572d 2 or 98</u> → <u>572d 2 - 1 38</u> SET Prol <u>(\$PE3FR5E</u>∎<mark>+`-</mark>\$<u>PE3H-\$P</u>₽<mark>+`-</mark>\$<u>PE3H9P-</u>₽ 60µs or less 25µs or less 24ms or less Notes: 1) Display 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" "ms" "sec." "1/10ms" Approx. 0.5 sec., Approx. 1 to 32 sec. Approx. 0.05ms, Approx. 0.1 to 999.9ms Hysteresis +. -Notes: 3) When setting to " H - [] [", it becomes low sensibility. Displayed in Incident light 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 ", " HYPr Max 9 999 Saturation correction SET SET SET Correcting Automati Automatic In case saturation correction is NG, \ it is not displayed. Emission nower 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 Prolitros +. -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 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 +, - Hold 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.









	Item	Default	Description
	Response	setting 5PEd 5Ed	Set response time.
PRO1 mode	time setting Timer setting	dELY non	
	Hysteresis setting	HYSH-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	5KF£ P	Set shift amount of threshold value in limit teaching.
	Emission power setting	Pctl H-P	Set emission power. "Ruta": 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	trn9 n5	Change unit time of timer. Be able to prevent from wrong operation of teaching.
	Teaching lock setting	t-Lc off	be able to prevent non-word operation of reaching. " $_{\alpha}FF$ ": Teaching mode is valid " $_{\alpha}n$ ": Teaching mode is invalid Incident light intensity can be displayed in percent-
	Digital display item setting	d ISPd ISE	age or the peak / bottom value can be displayed in percent the digital display (red).
qe	Digital display turning on setting	turn off	Sets the viewing orientation of the digital display.
PRO2 mode	ECO setting	Eca 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>αFF</i> ": Peak / bottom value in the digital display refreshing condition can be displayed. <i>αn</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)
node	Data bank saving setting	chSR ldch	Save a setting to specified data bank. (1 to 8 channel)
PRO3 mode	Back up setting	b.u ^p on	Select to save or not to save the threshold value by
	Input / output setting	1.0 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 amplifiers connected from the main amplifier. FX-502 cannot send or receive threshold value when conducting copy.
PRO4 mode	Copy action setting	[Rct 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. "Rdof": Display adjust of main and sub amplifier can be set to OFF. Do not press down the SET key many times when display is "Rdof". When "Rdof" is not displayed in confirmation, also do not press down set key many times.
	Copy lock setting	E.Lc off	does not receive the set contents. However, even if copy lock ON " is set, the copy action setting is communicated. When conducting the copy setting or setting of data
	Communica- tion protocol setting	[.Pr.H.Pr	bank loading / saving from the main amplifier via optical communications, the optical communications through a sub amplifier which is set to communication emission halt " $L_{-}P_{r} = _{\alpha}FF$ " and the following sub amplifiers can be halted.
	$ \begin{array}{c} \text{External input} \\ \text{setting} \\ \left(\begin{array}{c} \text{Only} \\ \text{FX-502} \square, \\ \text{FX-505} \square\text{-C2} \end{array} \right) \end{array} $	InPt SELF	
	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	dRdJ oFF	Set incident light intensity to target value. If conducting display adjustment setting when incident light intensity does not have enough margin, " <i>IUEr</i> " is blinked " <i>αFF</i> ": Display adjustment OFF " <i>5EE</i> ": Slide to (smaller side) incident light inten- sity from the set of target setting. " <i>EGEL</i> ": Set incident light intensity to value you want (negative side). In case setting to 0-adjust- ment, set to 0.
	Reset setting CUSTOM setting	 CuSESPEd	If setting to " 45 5," returns to default settings (factory settings). Select an item in CUSTOM mode to display.

	Item	Default setting	Description Number of adherence mounting of sensor head depends on response time of interference prevention function. " IP- I": Set when using the interference prevention function by optical communication. Maximum adherence mounting of sensor head is 12 units " IP-F": Set when using interference prevention function by changing emitting frequency. The maximum adherence mounting by set-							
PRO5 mode	Interference prevention setting	InPr IP- I								
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 ? * (Wormal 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. * H . f * (Hysteresis mode) * Changes hysteresis to ignore small change of incident light intensity. * This can be selected in 1 / 2 / 3-point teaching. * 5£L f * (Self diagnosis output mode) (Only displayed in FX-502□, FX-505□-C2 but ex-) cept sensing output 1. * Conduct self diagnosis output * Rn5 * (Answer back output mode) (Only displayed in FX-502□ but except sensing outout1) * Conduct Answer back output toward external input. * an *: Forced ON output mode * Sets forcibly the output to ON. * aFF *: Forced OFF output mode</pre>							
PRO6 mode	Logical operation setting	LoßenSEn	Select for logical operation and set logical operation methods (and, or, xor). "n5En": Logical operation is sensing output 1 of this device and conduct logical operation between the sensing output 1 and sensing output 1 of this device. The calculation result of upper amplifiers and this product is output form the sensing output 1 of this product. "E - In": Logical operation is sensing 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 device. (Only displayed in FX-502□, FX-505□-C2) "5ELF": Logical operation is outer input and conduct logical operation between the output and sensing output 1 of this device. (Only displayed in FX-502□, FX-505□-C2) "5ELF": Logical operation is outer input and conduct logical operation between the output and sensing output 1 of this device. (Only displayed in FX-502□, FX-505□-C2) Logical Sensing output 1 of this device. (Only displayed in FX-502□, FX-505□-C2) Logical Sensing output 1 of this device. (Only displayed in FX-502□, FX-505□-C2) Logical Sensing output 1 of this device. (Only displayed in FX-502□, FX-505□-C2) Logical Sensing output 1 of this device. (ON ON OFF OFF OFF ON ON OFF ON OFF OFF OFF ON ON ON OFF OFF OFF 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 SHFE	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	8	Timer period	8	CUSTOM setting
0	Light-ON	ü	No timer	Ο	0.5ms	ü	Response time setting
1	Dark-ON	1	OFD	1	1ms	1	Emission power setting
2	_	2	OND	г	3ms	г	Hysteresis setting
3	-	3	ONOF	3	5ms	3	—
Ч	-	Ч	OSD	Ч	10ms	Ч	_
5	-	5	ONOS	5	30ms	5	-
5	-	8	_	8	50ms	5	_
7	-	7	-	7	100ms	7	—
8	-	8	-	8	300ms	8	_
3	-	9	—	9	500ms	9	-
R	-	8	—	8	1 sec.	8	_
Ь	-	Ь	-	Ь	2 sec.	Ь	—
Ľ	_	Ľ	_	Ľ	3 sec.	Ľ	_
d	_	ď	—	ď	4 sec.	d	-
Ε	_	Ε		Ε	5 sec.	ξ	_

(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		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
0	Copy lock OFF	H-02	Ω	Incident light intensity	Back up ON	Ω	H-SP	0	Normal mode
ł	Copy lock ON	H-02	1	Incident light intensity	Back up OFF	1	FAST	1	WC mode
г	Copy lock OFF	H-03	г	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)

FX-502 / Code setting table

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

	Green digital display (right side is the list digit)									
	Forth digit		Code	Third		Second digit		First digit		
Code	Sensing output	sing output operation mode		Timer o	peration	Code	Timer period	Code	CUSTOM setting	
Ľ	Sensing output 1	Sensing output 2	Ŭ	Sensing output 1	Sensing output 2	Ŭ	niner period		COSTON Setting	
0	Light-ON	Light-ON	0	No timer	No timer	0	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	-	-	5	No timer	OFD	8	50ms	5	_	
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	-	_	— b 2 sec.		Ь	_	
Ľ	_	-	Ľ	_	_	Ľ	3 sec.	Ľ	_	
d	_	_	d	_	_	d	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)

	6 1 3 (6)										
e	Forth digit		e	Third digit			Second digit	e	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	ũ	Incident light intensity	Back up ON	Ü	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.

FX-505 -C2 / Code setting table

Green digital display (right side is the first digit)

	Green algital alsplay (light side is the list algit)								
	Forth digit			Third digit			Second digit	~	First digit
Code	Sensing output operation mode		Code	Timer o	peration	Code	Timer period	Code	CUSTOM setting
Ľ	Sensing output 1	Sensing output 2		Sensing output 1	Sensing output 2	Ŭ	niner period	0	COSTON Setting
0	Light-ON	Light-ON	Π	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	10ms		_
5	-	—	5	ONOS	No timer	5	5 30ms		_
5	_			No timer	OFD	5	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)

	· Red digital display (light side is the list 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	
8	-	-	8	_	-	8	-	5	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)