

We appreciate your purchase of MULTI SETTING GEAR. This user manual is explained how to use and notifications for safety use. Please read this user manual with PGS-HR user manual to prior to use so that may obtain maximum success and enjoyment. Please keep this manual after finished to read.

Caution Safety Use

- Only Sanwa PGS servos are compatible with Multi Setting Gear.
- Please do not use with other manufacture due to differences in implement.
- Please observe correct polarity. Connecting with reverse polarity will damage Multi Setting Gear.
- Do NOT expose MULTI SETTING GEAR to water or excessive moisture.
- MULTI SETTING GEAR firmware is default for PGS-LH/XB/XR/LH II/XB II/XR II.
- When using PGS-HR, please download firmware for PGS-HR from SANWA website and switch firmware for PGS-HR. Firmware can be switch by boot menu. Firmware version for PGS-HR: V11.01R01**
- Please refer how to change firmware on our website. <http://www.sanwa-denshi.com>

MULTI SETTING GEAR System Features

- MULTI SETTING GEAR can set PGS-HR servo include firmware update.
- MULTI SETTING GEAR can use with micro SD card (optional) and save setting values in the micro SDHC card.
- MULTI SETTING GEAR is compatible with Micro SD and Micro SDHC card.
- MULTI SETTING GEAR can not delete files in Micro SD card. Please use on the computer when delete the files.
- MULTI SETTING GEAR is available to use for PGS Servos to switch firmwares.

SPECIFICATIONS

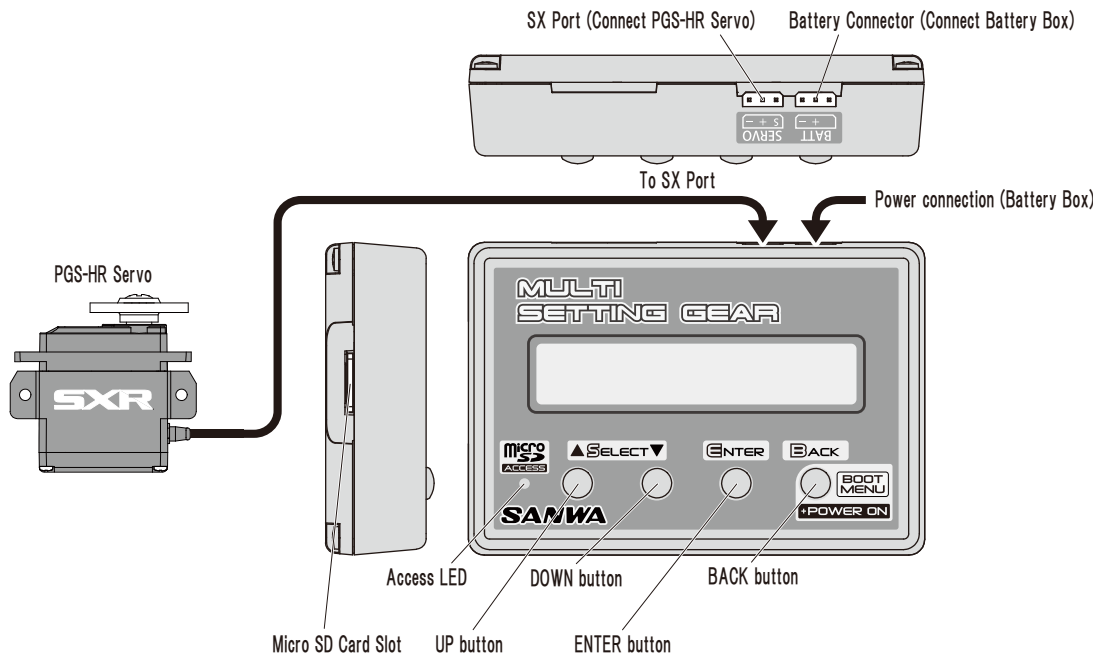
- Operating Voltage Range 3.6V ~ 7.4V
- Size 86.2 x 59.0 x 19.2mm (not include projection)
- Weight 75 g

OPTIONS

- Battery Box 1 pcs
- User Manual (This manual) 1 pcs

Features Familiarization

- Connect PGS-HR to SX port on the MULTI SETTING GEAR
- About the power
 - Please use included battery box.
- MULTI SETTING GEAR cannot run properly when the battery do not have sufficient power. When display show "LOW BATTERY," please change the battery.
- Due to setting, part of menus will be disable. Please pay attention when setting function.

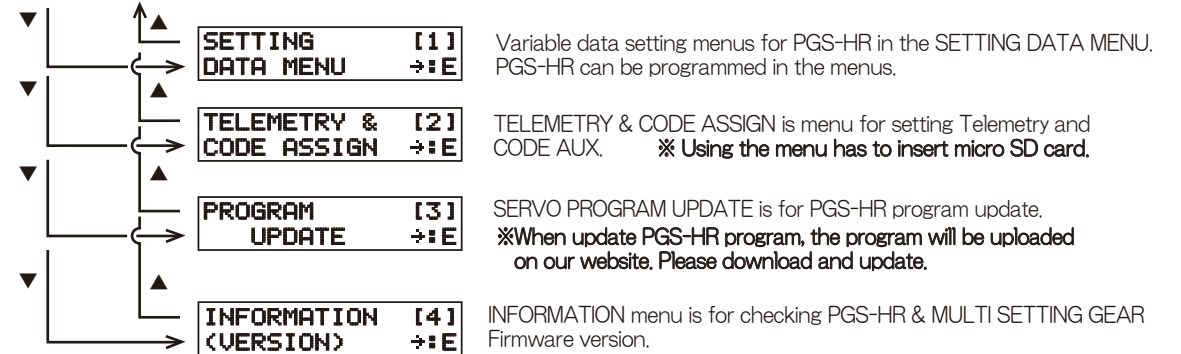


MULTI SETTING GEAR About Program Menus

Firmware version : V11.01R1**

- There are 4 program menus about MULTI SETTING GEAR.
 - SERVO SETTING DATA : Setting menu for PGS-HR.
 - TELEMETRY & CODE ASSIGN : Setting menu for Telemetry and CODE AUX setting.
 - PROGRAM UPDATE : Program update menu for PGS-HR.
 - INFORMATION (VERSION) : Checking information as firmware version for PGS-HR.

SETTING GEAR FOR PGS-HR

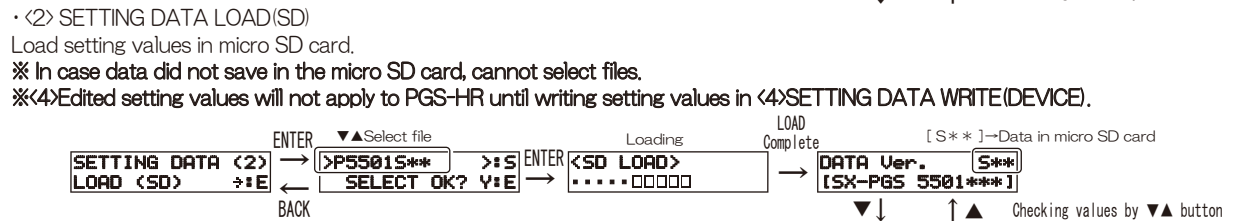
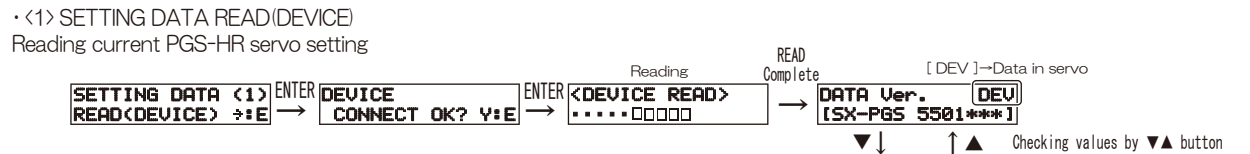
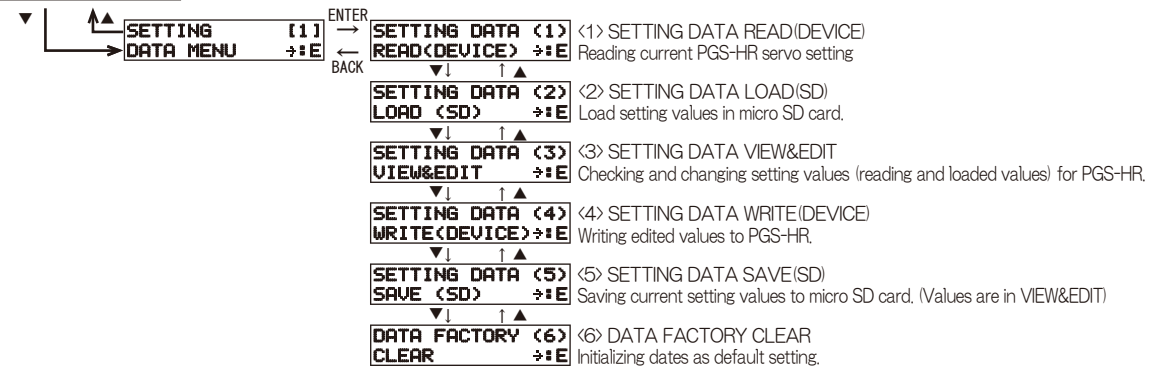


MULTI SETTING GEAR About Setting Data Menu

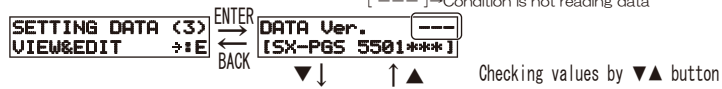
Firmware version : V11.01R1**

- SERVO SETTING DATA MENU
 - SERVO SETTING DATA MENU is for setting up PGS-HR.
 - When setting PGS-HR, please download firmware for PGS-HR from our website and switch firmware for PGS-HR. Firmware can be switch by boot menu. Please refer how to change firmware on our website. <http://www.sanwa-denshi.com>
 - About setting, MULTI SETTING GEAR read current servo setting, edit setting values, and write edited setting values to servo. After writing the edited setting values, the servo complete to set.

SETTING GEAR FOR PGS-HR



· <3> SETTING DATA VIEW&EDIT
 Checking and changing setting values (reading and loaded values)
 [---] → Condition is not reading data



· <4> SETTING DATA WRITE (DEVICE)
 Writing edited values to PGS-HR

※ Edited setting values will not apply to PGS-HR until writing setting values in <4> SETTING DATA WRITE (DEVICE).



· <5> SETTING DATA SAVE (SD)

Saving current setting values to micro SD card
 Saving files are selected from [P5501S00 ~ P5501S49].

In case selected file already has data, will overwrite the data after confirmation.

※ Do NOT change any files names on your computer due to MULTI SETTING GEAR could not open the files.



· <6> DATA FACTORY CLEAR (DEVICE)

Initializing data as default setting



MULTI SETTING GEAR Setting Menu Adjustment

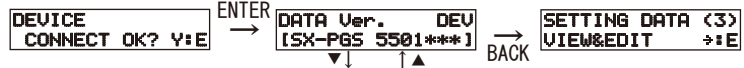
Firmware Version : V11.01R1**

● About setting menu adjustment

After connected PGS-HR, MULTI SETTING GEAR read current servo setting, edit setting values, and write edited setting values to servo. After writing the edited setting values, the servo complete to set. About select setting values, after press Enter, please select values by up button[▲]/ down button[▼].

Caution After edited setting values, please write edited setting values to PGS-HR. (Refer to P.3 <4 >)

PGS-HR Connection confirmation



• SSL-CH [SSL Channel] (Channel Setting)	SSL-CH [1] DEV []	ENTER →	SSL-CH > 1 DEV []	Setting Range [1 ~ 4]ch, 11 ~ 20/AUX1CODE1 ~ AUX1CODE10
• TYPE (Type Setting)	M01 TYPE [USER] DEV []	ENTER →	M01 TYPE > USER DEV []	Setting Range [USER, type1, type2, type3]
• STRETCH [Stretcher] (TYPEUSER Stretcher Setting)	D01 STRETCH [****] DEV []	ENTER →	D01 STRETCH > **** DEV []	Setting Range [0 ~ 100]
• BOOST (TYPEUSER Boost Setting)	D02 BOOST [****] DEV []	ENTER →	D02 BOOST > **** DEV []	Setting Range [0 ~ 100]
• D-BAND [Dead Band] (TYPEUSER Dead Band setting)	D03 D-BAND [****] DEV []	ENTER →	D03 D-BAND > **** DEV []	Setting Range [0 ~ 100]
• MV-MID (TYPEUSER Torque adjustment in middle range)	D04 MV-MID [****] DEV []	ENTER →	D04 MV-MID > **** DEV []	Setting Range [0 ~ 100]
• MV-END (TYPEUSER Torque adjustment in end range)	D05 MV-END [****] DEV []	ENTER →	D05 MV-END > **** DEV []	Setting Range [0 ~ 100]
• BRAKE (TYPEUSER Brake volume adjustment setting)	D06 BRAKE [****] DEV []	ENTER →	D06 BRAKE > **** DEV []	Setting Range [0 ~ 100]
• MV-HLD (TYPEUSER Time adjustment for MV-MID & END)	D07 MV-HLD [****] DEV []	ENTER →	D07 MV-HLD > **** DEV []	Setting Range [0 ~ 9]
• MV-FRQ [MV Drive Frequency] (TYPEUSER Drive frequency adjustment setting)	D08 MV-FRQ [****] DEV []	ENTER →	D08 MV-FRQ > **** DEV []	Setting Range [0 ~ 100]
• MAX-PW [MAX Power] (TYPEUSER MAX power adjustment)	D09 MAX-PW [****] DEV []	ENTER →	D09 MAX-PW > **** DEV []	Setting Range [0 ~ 100]

※ For more details of setting, please refer on our website. <http://www.sarwa-danish.com>

MULTI SETTING GEAR Telemetry & Code assign menu

Firmware version : V11.01R1**

CODE10 function only capable with compatible transmitters. (M17/M12S-RS/M12S/EXZES ZZ/MT-44)

● TELEMETRY&CODE ASSIGN MENU

Set telemetry and code assign setting.

※ In case connected PGS-HR with SSL port, the setting will be available.

※ To switch telemetry data on the screen is capable. It is also able to switch, turn on, turn off contents of AUX CODE function.

• MUST insert micro SD card to use the menu. It need to create file for telemetry and code assign at first time.



Note) This indication is no capable files in micro SD card.

<<<<NO CARD>>>
Please Insert !!
"Alert message" will be shown without micro SD card

• TELEMETRY Menu

※ Telemetry data can be set 5 contents.

Changing [R] (※Return) values can be changed telemetry display setting on the transmitter. (It is limited due to unit)

(T00) TLM1 . . . Menu for Telemetry 1 setting

(T01) TLM2 . . . Menu for Telemetry 2 setting

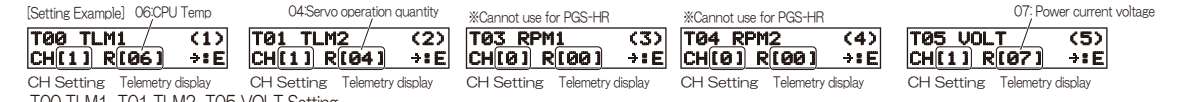
(T03) RPM1 . . . Menu for RPM 1 setting

(T04) RPM2 . . . Menu for RPM 2 setting

(T05) VOLT . . . Menu for battery voltage setting

※ It can change [CH] setting. Please change [CH] setting depends on PGS-HR steering CH in case steering CH setting is without [1] on the transmitters (M17/M12S-RS/M12S/EXZES ZZ/MT-44). Normally, please use [CH] setting is [1].

※ In case set [CH] and Telemetry are [0], function is turned OFF.



Telemetry display[R]	Value	Telemetry display[R]	Value
OFF	00	Servo operation quantity	04
Servo current values	01	Motor output	05
Operation quantity	02	CPU Temperature	06
Inout operation + effect quantity	03	Power current voltage	07

※ T00 TLM1, T01 TLM2 Telemetry display [R] Setting value 07 ~ 99 is currently function OFF.
 ※ T05 VOLT Telemetry display [R] Setting is function OFF without 07.
 ※ Please set AUX TYPE is CODE10 for both AUX1 and AUX2.

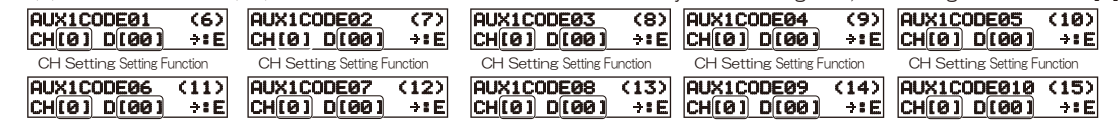
• CODE AUX Menu

It can change to assign contents of function for both CODE AUX1 and CODE AUX2 from CODE10 compatible transmitter as M17/M12S-RS/M12S/EXZES ZZ/MT-44.

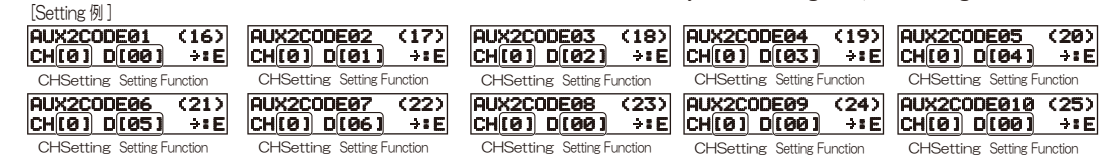
※ After switch the contents of function, please write data to PGS-HR. Refer to (26) TELE&CODE WRITE (DEVICE)

The setting data will not apply to PGS-HR until writing

• (6) AUX1CODE01 ~ (15) AUX1CODE10 ※ After created telemetry & code assign file, the setting values will be [0].



• (16) AUX2CODE01 ~ (25) AUX2CODE10 ※ After created telemetry & code assign file, the setting values will be [0].



※ PGS-HR servo do not need to set AUX2CODE01 (16)

< About CH Setting >

Normally, CH Setting is [0] when using. The below setting will be available to set 2 servos at the same time.

[Setting Example] PGS-HR Default



① Write the above setting in 2 servos ※ Refer to below (26) TELE&CODE WRITE (DEVICE).

② AUX2CODE01 set 7 on the transmitter.

Servo 1 Stretcher can be set by AUX2CODE2 and Servo 2 Stretcher can be set by AUX2CODE3.

CH Setting	Value
CH1 [ST]	1
CH2 [TH]	2
CH3	3
CH4	4
All CH	0

CODE AUX Setting Function[D]	Value
Stretcher	01
Boost	02
D-Band	03
MV-MID	04
MV-END	05

CODE AUX Setting Function[D]	Value
Brake	06
MV-HLD	07
MV-FRQ	08
MAX-PW	09
OFF	00

• (26) TELE&CODE WRITE (DEVICE)

Writing telemetry and AUX CODE data to PGS-HR.

※ Data did not save to PGS-HR until writing the setting on (26) TELE&CODE WRITE (DEVICE).



MULTI SETTING GEAR Set-up Function

●SSL-CH : SSL Channel Setting
 Several PGS servos can work together on SSL to connect to receiver SSL port with 2 pin code.
 If SSL-CH setting value is set to 11 ~ 20, servos can be operated setting value on AUX1.CODE1 ~ CODE10
 Setting range : 0 ~ 4, 11 ~ 20

※PGS-HR default channel setting is [1] and will be work as steering servo.
 In case of using for Throttle, please set [2] on SSL CH setting.

●TYPE : Type Setting
 Select servo types of preset.
 USER can set all another setting values. Type 1, Type 2, and Type 3 cannot set another setting values.
 MULTI SETTING GEAR will display TYPE: USER and preset setting values will not display.
 Please refer preset setting values in PGS-HR manual.
 Setting range : USER, type1, type2, type3

●STRECT : Stretcher Setting (TYPE:USER)
 Set torque holding power. The setting value will be standard for another setting values.
 Increasing the values, holding power is greater. When value sets near [100], it will be caused to hunting near the neutral but it is depends on other setting. (Vibration will be happened)
 In case of changing values, please set each 10 unit and check feeling.
 Setting Range : 0 ~ 100

●BOOST : Boost Setting (TYPE:USER)
 Set initial torque volume when servo starts operation. Increasing setting value, the initial torque volume is increased.
 When value sets too high, it would be caused to hunting.
 In case of changing values, please set each 10 unit and check feeling.
 Setting Range : 0 ~ 100

●D-BAND : Dead Band Setting (TYPE:USER)
 Set dead band range until servo starts operating. Decreasing setting value, the dead band range would be shorter.
 If setting value is set to too low, it would be caused to hunting. In case of changing values, please set each 1 unit and check feeling.
 Setting Range : 0 ~ 100

●MV-MID : MV-MID Setting [Initial-middle Torque volume setting] (TYPE:USER)
 In case of steering, the function adjusts initial to middle range torque force. Increasing setting value, the function will be more effective.
 Note) If the value sets high, it would be caused to hunting. Please start setting from low value and set each 10 units and check feeling.
 Setting Range : 0 ~ 100

●MV-END : MV-END Setting [Middle-End Torque volume setting] (TYPE:USER)
 In case of steering, the function adjusts middle to end range torque force. Increasing setting value, the function will be more effective.
 Note) If the value sets high, it would be caused to hunting. Please start setting from low value, set each 10 units, and check feeling.
 Setting Range : 0 ~ 100

●BRAKE : Brake Setting (TYPE:USER)
 Set servo brake when stop the operation. Increasing setting value, the brake become more effective and easier to stop at object point.
 If the value sets too high, braking speed become slower. In case of changing values, please set each 5 units and check feeling.
 Setting Range : 0 ~ 100

●MV-HLD : MV-HLD Setting [Torque adjust duration setting] (TYPE:USER)
 Set times of switching torque adjust duration from MV-MID to MV-END. If the value sets high, the duration is longer.
 Note) If the value sets high, it would be caused to hunting. Please start setting from low value, set each 10 units, and checking feeling.
 Setting Range : 0 ~ 9

※Only capable to set by MULTI SETTING GAER

●MV-FRQ : MV-FRQ Setting [Drive Frequency Setting] (TYPE:USER)
 Set output signal frequency for motor control. If the value sets high, control response for external force becomes fast.
 Basically, do not need to change from default. In case of changing value, please set each 10 units and check feeling.
 Setting Range : 0 ~ 100

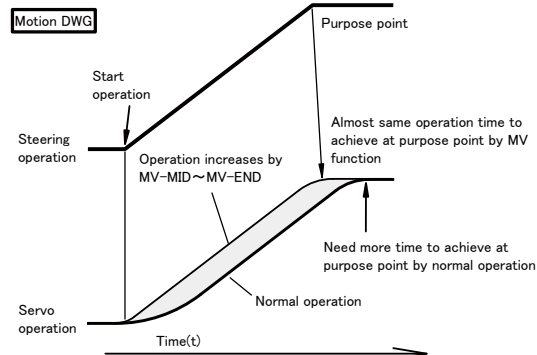
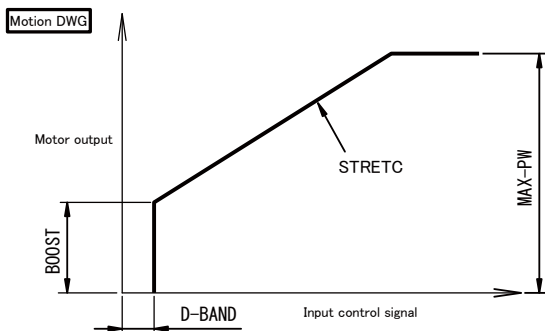
※Only capable to set by MULTI SETTING GAER

●MAX-PW : MAX-PW Setting [Maximum Power] (TYPE:USER)
 Set maximum power of torque and speed. If the value sets high, torque and speed are increased.
 If the value sets low, torque and speed are decreased.
 Note) Please set each 5 units and check feeling.
 Setting Range : 0 ~ 100

※In case of using 7.4V battery, please use below 80%.
 ※Only capable to set by MULTI SETTING GAER

SSL-CH SETTING

CH Setting	Value	CH Setting	Value
CH1[ST]	1	AUX1CODE01	11
CH2[TH]	2	AUX1CODE02	12
CH3	3	AUX1CODE03	13
CH4	4	AUX1CODE04	14
		AUX1CODE05	15
		AUX1CODE06	16
		AUX1CODE07	17
		AUX1CODE08	18
		AUX1CODE09	19
		AUX1CODE10	20



MULTI SETTING GEAR Menu for transition flow chart

Firmware Version : V11.01R1**

Message navigation
 E : ENTER Button
 S : SELECT Button(UP▲/DOWN▼)
 B : BACK Button

