PGS-CLE

PROGRAMMABLE SSL SERVO

Operating Manual

SXR Compatible Programmable Servo

We appreciate your purchase of the new SANWA PGS-CLE SERVO.
This Operating Manual for explain product features and safety and proper uses.
Please read and follow this operating manual, carefully.
Please keep the operating manual after you finished set up.

⚠ Caution Safety Use

■ Due to differences in the implement of 2.4 GHz technology among different manufactures, only SANWA brand 2.4 GHz radio control system are compatible.
■ Please observe correct polarity. Connecting with reverse polarity will damage the servo.
■ Do not expose the servo to water or excessive moisture.
■ There is danger of runaway operation if connectors shake loose during use. Make sure that the receiver, servo(s), and switch connectors are securely fitted.

⚠ Caution About Battery Fail Safe

■ RX-472, RX-47T, and RX-482 battery fail safe option is not compatible with SSL. Please, use for receiver CH1 and CH2 using battery fail safe option. (In case of using RX-493/RX-491, it can be used battery fail safe function by SSL.)

Using battery fail safe option on SSL, turn ON telemetry option, and set appropriate value of ALERT VOLT at telemetry alarm system goes off when declined voltages.
(Recommend value of ALERT VOLT is higher voltage than normal battery fail safe value.)

PGS-CLE Servo Features

■ **Compatible with SXR response mode (fastest response mode in the world)**
■ Using MULTI SETTING GEAR or M17 (not include) is capable to be functional enhancement (MV-HOLD, Drive Frequency, MAX Power, and each Telemetry setting).
■ Internal program setting can be set by MULTI SETTING GEAR or M17 (not include).
■ Compatible with SSL response mode ※not compatible with SV-PLUS series
■ Programmable servo parameters setting (SSL channel, stretcher, boost, dead band, MV-MID, MV-END, Brake) is capable to set by CODE 10 System.
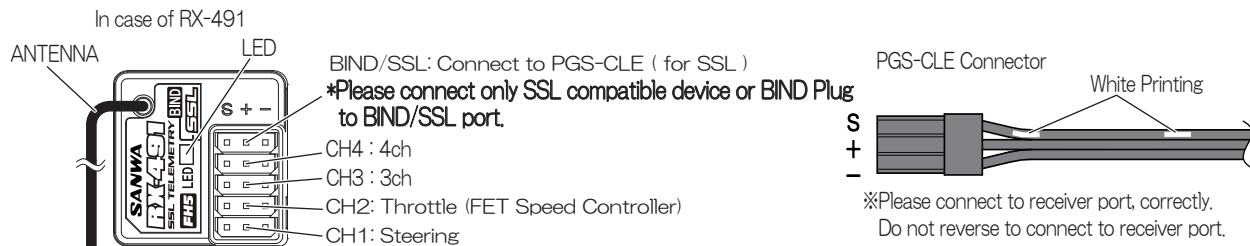
SXR Setting

■ After Transmitter (M17) RF mode set "FH5U" and response mode set "SXR", please bind with receiver (RX-491) and start to use.
※SXR response mode is installed from M17 firmware Ver.1.01.06 later.
M12S/M12S-RS/ EXZES ZZ/ MT-44 is not compatible with SXR response mode.
Please refer how to update the transmitter firmware from SANWA HP (http://www.sanwa-denshi.co.jp)

SSL Connect with Receiver

● Bind transmitter (M17/M12S/M12S-RS/EXZES ZZ/MT-44) with receiver (RX-493/RX-491/ RX-472/ RX-47T/ RX-482). Connect PGS-CLE servo connector to SSL port (BIND) at receiver (RX-493/RX-491/ RX-472/ RX-47T/ RX-482).

> Notice) Connect to SSL port with Short Y harness (Optional) using two more SSL compatible products at SSL port.
>   Please refer p.4 : Receiver connection (Recommendation).

In case of RX-491

ANTENNA LED

BIND/SSL: Connect to PGS-CLE (for SSL)
*Please connect only SSL compatible device or BIND Plug to BIND/SSL port.

CH4 : 4ch
CH3 : 3ch
CH2: Throttle (FET Speed Controller)
CH1: Steering

PGS-CLE Connector
White Printing
S
+
−

※Please connect to receiver port, correctly.
Do not reverse to connect to receiver port.

*Each response mode speed is NOR＜SHR＜SSL＜SSR＜SUR＜SXR
*Please, connect with CH1/ CH2 and select response mode on transmitter if you run with NOR/ SHR/ SSR/SUR/SXR.
*Connect battery to other empty port when connect PGSⅡ servo to SSL.
Using AUX CODE and CODE5 compatible devices as SUPER VORTEX ZERO, SUPER VORTEX TYPE-D, and SUPER VORTEX SPORT are not capable to combine with AUX2 CODE10. Connect one of those with CH1 or CH2.
In case of using SSL function with RX-493/RX-491, please bind with RF mode FH5. RF mode FH-5U is not compatible with SSL.
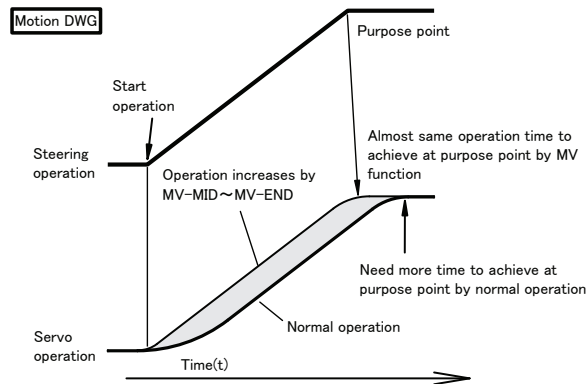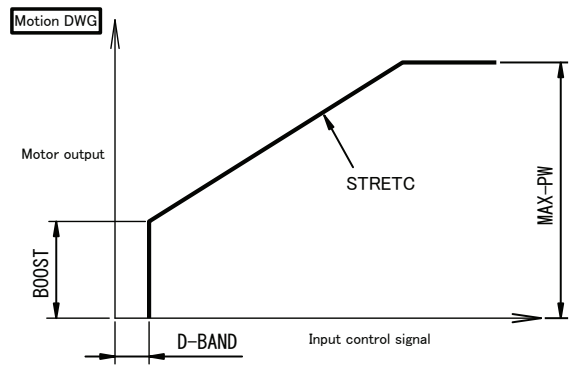

PGS-CLE Servo Setting Contents (Each Parameter)

● **MULTI SETTING GEAR (Optional)** can be set values in each content.

Function	Feature and Setting Explanation	USER (Default)	BASE	QUICK	DRIFT	AUX2 CODE10 Assign ※1
●SSL-CH SSL Channel Setting	Setting channel for the SSL CH, it can be used some PGS-CLE by Y harness. SSL-CH set 11 - 20 can be operated by AUX1CODE1 - AUX1 CODE10 setting values. ●Setting Range : 1～4, 11～20 ＊PGS-CLE servo default SSL-CH setting is [1]. Default PGS-CLE will work Steering in SSL port. In case of using for throttle, please set SLL-CH is [2]. SSL - CH Setting CH Setting / Value: CH1[ST]=1, CH2[TH]=2, CH3=3, CH4=4 AUX1CODE01=11, AUX1CODE02=12, AUX1CODE03=13, AUX1CODE04=14, AUX1CODE05=15 AUX1CODE06=16, AUX1CODE07=17, AUX1CODE08=18, AUX1CODE09=19, AUX1CODE10=20	1	1	1	1	CODE1 ※2
●TYPE Type Setting	Select servo type of preset. USER can set each setting values. BASE,QUICK,DRIFT cannot set each setting values. MULTI SETTING GEAR display setting values in TYPE: USER. Preset setting values are not show the display. Please refer right table for checking. ●Setting Range : USER, BASE, QUICK, DRIFT	――	――	――	――	――――
●STRETC Stretcher Setting	Set torque holding power. The setting value will be standard for another setting values. Increasing the value, 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	54	←	70	70	CODE2
●BOOST Boost Setting	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	54	←	70	60	CODE3
●D-BAND Dead Band Setting	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	0	←	0	10	CODE4
●MV-MID MV-MID Setting (Initial-middle Torque Volume Setting) ※3	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	47	←	55	55	CODE5
●MV-END MV-END Setting (Middle-End Torque Volume Setting) ※3	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	28	←	30	40	CODE6
●BRAKE Brake Setting	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	18	←	26	80	CODE7
●MV-HLD MV-HLD Setting (Torque adjust duration setting)※3	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 ●Recommandation : SSR/0～2, SUR/0～4, SXR/0～6	2	←	2	2	――――
●MV-FRQ MV-FRQ Setting (Drive Frequency Setting)	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	100	←	80	100	――――
●MAX-PW MAX-PW Setting (Maximum Power)	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%.	100	←	100	100	――――

Please, refer to our Website for more details above contents and setting values recommendation by each different style.
http://www.sanwa-denshi.com

*1. PGS servo values can be set by transmitter AUX2 CODE10 function to connect with receiver SSL channel port.
 Please set transmitter AUX2 is CODE10 in AUX TYPE. Then please set each values in AUX menu.
Note) Set AUX TYPE is AUX2 CODE10 on each transmitter. CODE and CODE5 function cannot set any values on PGS-CLE servo.
*2. SSL channel parameters setting which support after CODE2 can adjust to PGS servo connect with SSL port. SSL-CH1 is [1]. SSL-CH2 is [2]. SSL-CH3 is [3].
 In case of applying all SSL-CH, SSL-CH set [7]. ●Setting range: 1～3, 7 Note) if you choose other range number, servo will be work on default setting
Note) Cannot set at SSL-CH4 due to interfere to AUX2 CODE10 function.
*3 The range is deferent depending on each response modes.
*4 Each function setting can be set by MULTI SETTING GEAR (optional). Before using MULTI SETTING GEAR, please switch firmware for PGS-CLE. Firmware for PGS-CLE can download from our website.
*5 M17 MULTI SETTING GEAR FUNCTION (firmware ver. 1.01.09 later) can be set the servo.

Motion DWG

Motor output

STRETC

MAX-PW

BOOST

D-BAND   Input control signal

Motion DWG

Start operation

Steering operation

Operation increases by MV-MID~MV-END

Purpose point

Almost same operation time to achieve at purpose point by MV function

Need more time to achieve at purpose point by normal operation

Normal operation

Servo operation

Time(t)

SSL-CODE10: SSL-CH Setting

●Every programmable servo needs to set SSL-CH due to all 4 CH send date from SSL port.
  CODE 10 function sets to SSL-CH setting. Please, follow the step on the below.
Note) Default setting is for SSL-CH1 (steering).

1、Bind transmitter (M17/M12S/EXZES ZZ/MT-44) and receiver (RX-493/RX-491/RX-472/RX-47T/RX-482).
2、Connect PGS-CLE to receiver (RX-493/RX-491/RX-472/RX-47T/RX-482) at SSL port.
  In this time, AUX TYPE set CODE10 fro both AUX1 and AUX2.
3、Keeping turn on receiver and set below each SSL-CH values at CODE10.
  SSL-CH1:[-81], SSL-CH2:[-82], SSL-CH3:[-83]
●The servo is also capable to operate each servo by value settings of CODE10 function. Please, set below
  values for CODE 10 functions.

  SSL-AUX1-CODE1: [-71], SSL-AUX1-CODE2: [-72], SSL-AUX1-CODE3: [-73], SSL-AUX1-CODE4: [-74], SSL-AUX1-CODE5: [-75],
  SSL-AUX1-CODE6: [-76], SSL-AUX1-CODE7: [-77], SSL-AUX1-CODE8: [-78], SSL-AUX1-CODE9: [-79], SSL-AUX1-CODE10: [-80]
4、Hold down ENTER after set each value in AUX2 CODE1. The values will be [0].

SSL-CH values on programmable servo is changed by the above steps.
Note) Use PGS SETTING GEAR (Optional) in case of setting at SSL-CH4.
Note) Do not set AUX2 is CODE, CODE5, and CODE10 in case of setting at SSL-CH4. It will be caused to be trouble.
Note) Do not set AUX1 is CODE5, and CODE10 in case of setting at SSL-CH3. It will be caused to be trouble.

SSL-CODE10: Save setting values into PGS-CLE

●Using parameters set by CODE10 to use CH1, CH2, CH3, and CH4, Every programmable servo must save parameters
  into PGS-CLE servo. Please, follow the below steps to save parameter into PGS-CLE.。

1、Bind transmitter (M17/M12S/ EXZES ZZ/ MT-44) and receiver (RX-493/RX-491/RX-472/RX-47T/RX-482).
2、Connect programmable servo to SSL port at receiver (RX-493/RX-491/RX-472/RX-47T/RX-482) which save for
  values setting.
  In this time, set parameters for programmable servo parameters in AUX2 CODE10.
3、Keeping turn on receiver and set below values at CODE1. Save values on each SSL-CH.
  SSL-CH1: [-91], SSL-CH2: [-92], SSL-CH3: [-93], Save value on all programmable servo connect to SSL: [-99]
4、Please, hold down enter button after set each value in AUX 2 CODE1. The values will be [0].

Programmable servo setting values (STRETC, BOOST, D-BAND, MV-MID, MV-END, BRAKE) are changed by the above
steps.
About MV-HLD, MV-FRQ, and MAX-PW setting will be available to set by transmitter using MULTI SETTING GEAR
TELEMETRY & CODE ASSIGN Function.

Note) Using MULTI SETTING GEAR (optional) can be save all setting values.
      In case of saving setting values into PGS-CLE, please use one of those ways.

TIPS

The default setting or TYPE:BASE are basic setting. The setting is standard for most drivers. Basically, please use the servo
is default or TYPE:BASE.
In case of trying to change servo feeling, please check contents in the below.
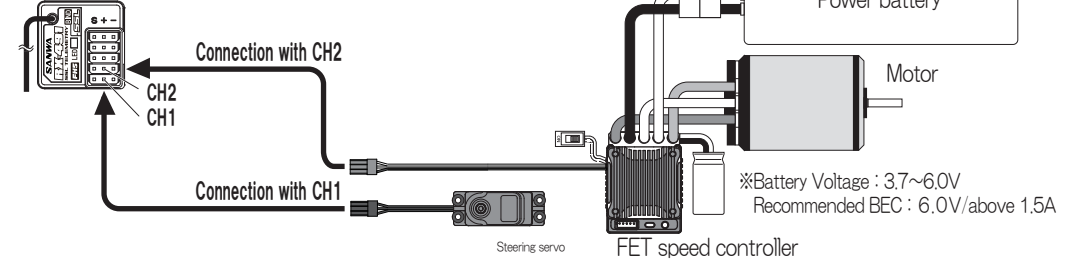
●Steering is very quick. (Trying to set as more smooth) Please change to decrease Transmitter D/R (Dual Rate) values
  (as decreasing -5% or -10% each) to find your favorite servo feeling.

●Steering is slow (Trying to be more quick)
  Please change TYPE to QUICK by MULTI SETTING GEAR (optional).

●To use the servo for DRIFT (Trying servo not to be hunting to use with GYRO)
  Please change TYPE to DRIFT by MULTI SETTING GEAR (optional).

●Please, refer to our Website for more details above contents and setting values recommendation by each different style.
  http://www.sanwa-denshi.co.jp
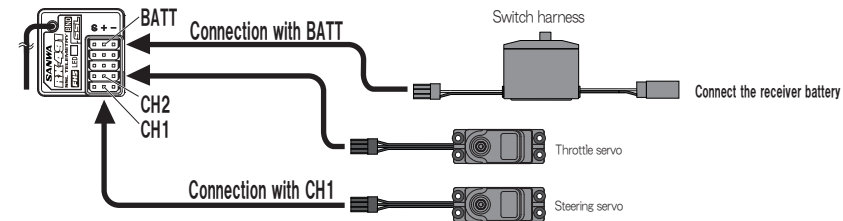
3

Receiver Connection （Recommend）

・Connect the receiver and servo by referring to the following figure.

Case of changing response mode for each CH

●Connection example in case of using in electric car

Power battery

Connection with CH2

Motor

CH2
CH1

Connection with CH1

※Battery Voltage : 3.7～6.0V
Recommended BEC : 6.0V/above 1.5A

Steering servo   FET speed controller

●Connection example in case of using in nitro car

BATT   Connection with BATT

Switch harness

Connect the receiver battery

CH2
CH1

Throttle servo

Connection with CH1

Steering servo

Case of connecting to SSL port

●Case of connecting PGS-CLE and SV-D2/SUPER VORTEX Gen2/PRO/SUPER VORTEX Stock to SSL port

SSL port

Short Y harness

PGS-CLE : SSL - CH1 setting

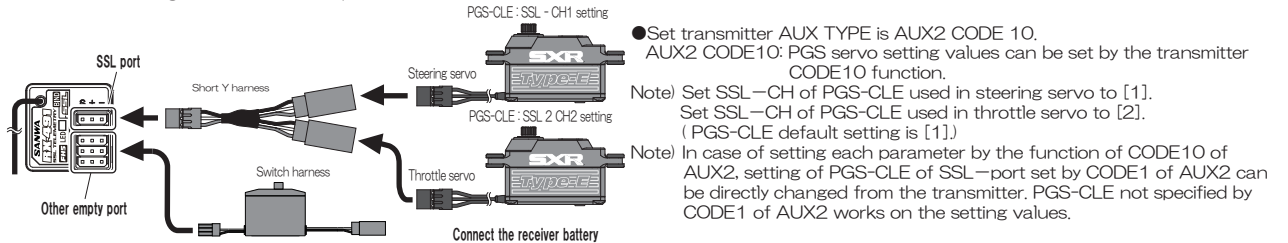Steering servo

SV-D2/SUPER VORTEX Gen2/PRO /SUPER VORTEX Stock
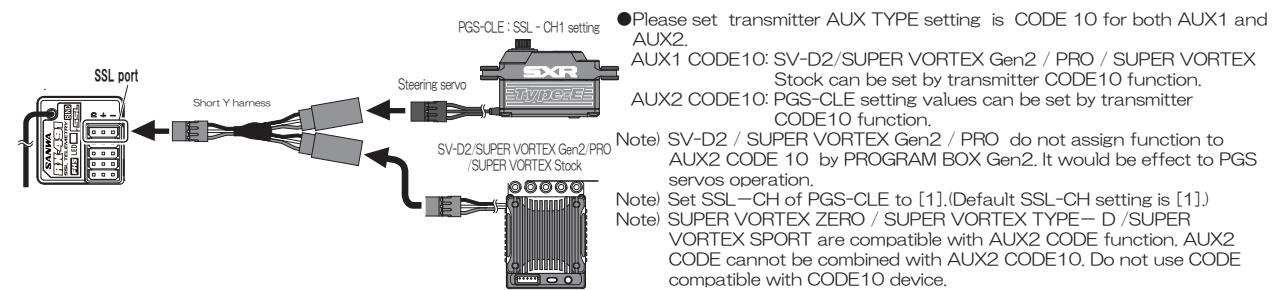
●Please set transmitter AUX TYPE setting is CODE 10 for both AUX1 and AUX2.
AUX1 CODE10: SV-D2/SUPER VORTEX Gen2 / PRO / SUPER VORTEX Stock can be set by transmitter CODE10 function.
AUX2 CODE10: PGS-CLE setting values can be set by transmitter CODE10 function.
Note) SV-D2 / SUPER VORTEX Gen2 / PRO do not assign function to AUX2 CODE 10 by PROGRAM BOX Gen2. It would be effect to PGS servos operation.
Note) Set SSL—CH of PGS-CLE to [1].(Default SSL-CH setting is [1].)
Note) SUPER VORTEX ZERO / SUPER VORTEX TYPE- D /SUPER VORTEX SPORT are compatible with AUX2 CODE function. AUX2 CODE cannot be combined with AUX2 CODE10. Do not use CODE compatible with CODE10 device.

●Case of connecting PGS-CLE to 2 SSL ports

SSL port

Short Y harness

PGS-CLE : SSL - CH1 setting

Steering servo

PGS-CLE : SSL 2 CH2 setting

Switch harness

Throttle servo

Other empty port

Connect the receiver battery

●Set transmitter AUX TYPE is AUX2 CODE 10.
AUX2 CODE10: PGS servo setting values can be set by the transmitter CODE10 function.
Note) Set SSL—CH of PGS-CLE used in steering servo to [1].
  Set SSL—CH of PGS-CLE used in throttle servo to [2].
  (PGS-CLE default setting is [1].)
Note) In case of setting each parameter by the function of CODE10 of AUX2, setting of PGS-CLE of SSL—port set by CODE1 of AUX2 can be directly changed from the transmitter. PGS-CLE not specified by CODE1 of AUX2 works on the setting values.

Please, refer on our Website about any other examples. http://www.sanwa-denshi.com

Service and Support

The Sanwa PGS-CLE is warranted against manufacturer defects in materials and workmanship, at the original date of purchase.
This warranty does not cover components worn by use or improper voltage, tampering, modification, misuse, abuse, improper wring,
reverse polarity, moisture damage or using outside its intended scope of use.

For additional warranty and service information, please contact the Sanwa Distributor in your region. For a list of distributors in your
region, please visit www.sanwa-denshi.com/rc/distributors.html.

CE

Features and Specifications are Subject to Change Without Notice. All contents 2020 Sanwa Electronics Instrument CO., LTD. All Rights Reserved. Revision 1 06.03.2020

4