

# SYNCHRO

We have been producing Synchro more than 70 years, since the institution's formation. The application is vessel, watergate and steel industry. It is widely used in the harsh environment of shock, dust, high-humidity and high-temperature. When Tamagawa was founded in 1938, the main application was oil meter of aircraft. After the World War II, we commercialized Japanese Defense Agency's standard (at that time), 60 Hz and 400 Hz types. We made them our main products. We both have highly-reliable and high-accuracy Synchro. The latter is used for angle detecting sensor of Nobeyama Radio Observatory in 1981. The actual achievement of angle accuracy is 2.78 second. Synchro has 3-phases output. However, 2 phases structure of resolver is used for angle detecting sensor, like Synchro. The application is Hybrid Car and so on. (See Vol. 4)



This Synchro transmitter was produced 13 years ago at our end and has been used until recently. If we have a complete overhaul, we can use this without any problems.

The principles of Synchro are similar to those of an electrical transformer. A shaft of the receiver rotates in unison with the rotation of a shaft of the transmitter. Using the above characteristics, Synchro is used for transmitting mechanical angle variation of transmitter over a long distance. (See fig. 1) Synchro is classified into 2 types. Torque Synchro as above and Control Synchro. Control Synchro detects the angle with receiving mechanical angle variation in the form of output voltage.

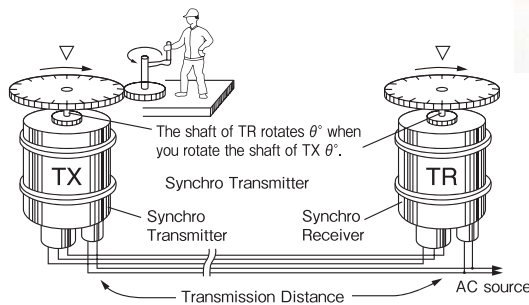
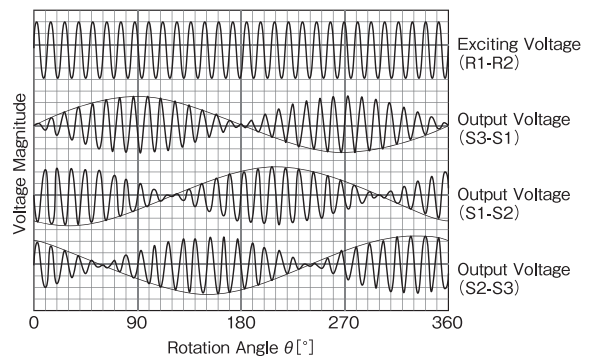


Fig.2 Output Voltage of Control Synchro (incase of CX&BCX)



High-precision multi-polar, multi-speed synchro

Fig.1 Connection Method for Torque Synchro(TX & TR)

## Function of Synchro and wiring diagram

