

FAQ Note

How to drive a 1292KS when the 1293 can not be used

Problem:

Occasionally an LTC drive does not offer the free space or an available shaft end for convenient use of the model 1293 Flex Shaft Coupling with the model 1292KS. In order to use the model 1250 for LTC tap position monitoring a synchro transmitter must be mechanically coupled to some rotating part of the LTC drive.

Explanation:

The model 1292KS synchro transmitter must rotate consistently with the LTC drive. It does not need to rotate the same number of degrees as the LTC rotates, but it must rotate a consistent number of degrees for each tap change. The 1292KS may rotate a small amount (5 degrees or less) or it may rotate a full turn or more per tap change. This is not as important as the consistency of the rotation. It must stop in a consistent position (give or take a few degrees) on each tap. The 1250 can be programmed to follow the tap position for any amount of rotation for each tap change.

The coupling method between the LTC drive and the 1292KS must not allow more than a few degrees of deviation throughout the entire range of motion. It must consistently transfer the motion of the LTC to the 1292KS synchro transmitter. A coupling that can slip, such as a rubber hose, V-belt, or any other friction based drive system, is not recommended. The coupling must be positive, such as gears, toothed belt & pulleys, chain & sprockets, flexible or solid shaft couplings, etc...

Possible Solutions:

Ultimately, the installation must be engineered for the individual LTC drive. First, an exposed shaft must be identified, that rotates consistently with the LTC position. A method of solidly mounting the 1292KS must be devised. Finally, a method of transferring the rotating motion of the chosen LTC shaft to the 1292KS shaft must be devised.

Gear Drive:

Any type of gear drive is acceptable: spur gears, helical gears, bevel gears, worm gears. As mentioned before, the ratio between the LTC rotation and the 1292KS rotation is not important. Gears can have backlash. Be careful to keep backlash to an absolute minimum. Do not place excessive side force on the shaft of the 1292KS. The small bearing in the 1292KS is not designed for side loading.

Toothed Belt Drive:

If the 1292KS can be mounted parallel to the LTC shaft, a small toothed belt drive can be used. The pulley ratio is not important. A split-pulley can be used to grip a shaft in the middle, when a shaft end is not available. Belt tension must be minimal – enough to prevent any backlash, but not to exert excessive side force on the shaft of the 1292KS.

Application Bulletin

Chain Drive:

Like a toothed belt drive, a chain and sprockets may be used. A chain may offer longer life than a toothed belt. A split-sprocket may be used to grip the middle of a shaft. Chain tension must be kept to a minimum - enough to prevent any backlash, but not to exert excessive side force on the shaft of the 1292KS.

Solid or Flexible Shaft Couplings:

If there is an exposed shaft end and a way to mount the 1292KS so that the shafts can be aligned end-to-end, then a small shaft coupling (solid or flexible type) may be used. The coupling will need to be sized correctly for both shaft diameters.

Dial Face Drive:

If the drive mechanism can not be accessed, or if there is not a shaft available to drive a 1292KS, the Tap Position Indicator dial itself can be used to drive a synchro transmitter. The INCON model 1265 is a retrofit kit, which replaces the glass lens in a typical Qualitrol® type dial face. It contains a 1292 synchro transmitter, driven by an engagement arm, which straddles the indicator needle. The diameter of the glass lens must be measured so the correct sized 1265 can be installed.

Where to buy gears, belts, pulleys, sprockets, etc...

Stock Drive Products/Sterling Instrument is a good source for the hardware items mentioned in this bulletin. Their phone number is: 516-328-3300. Their website is: www.sdp-si.com.

Specifications:

The 1292KS shaft diameter is 0.087 (3/16) inches.

The shaft length is 0.50 (1/2) inches.

The 1292KS shaft center is 1.81 inches above the bottom surface of the mounting bracket.

Some Installation Photos...

