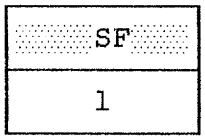
DESCRIPTION OF OPTION:

This option package provides two different functions. The first function allows the unit to act as a single axis, multi-turn absolute encoder. This means that the unit will always read the correct position on power up even if the transducer shaft had been rotated after power was removed from the controller. Programmable number of turns are 1, 2, 3, 4, 5, 6, 9, 10, 12, 15, 18, 20, 30, 36, 45, 60, 90, or 180 turns. Two different transducers can be used with this option. The HTT-20-180 is a 180 turn transducer and is the one most commonly used with this option. It offers the user up to 180 turns of the shaft full scale with a maximum resolution of 1024 counts per turn. The 1800 turn transducer, (HTT-20-1800), is identical to the HTT-20-180 but with a 10:1 gear reduction on the shaft. This offers the user up to 1800 turns full scale with a maximum resolution of 102.4 counts per turn. Print B1016 is the outline drawing for both transducers.

The second function stores the offset generated by the Preset Input (INput 1) in EEPROM memory when power to the unit is disrupted. This offset is separate from the Position Offset that can be entered from the keyboard. Some restrictions apply when using the Preset Offset. See the **HARDWARE CHANGES** Section for more information.

PROGRAMMING CHANGES AND ADDITIONS:



This key is still used to display and program the unit's Scale Factor. The only change is the restriction on the Number of Turns that can be programmed into the unit's memory.

PROGRAMMING EXAMPLE:

SCALE FACTOR:

NOTE: Only those turns that produce a whole number when divided into 180 are allowed. These numbers are 1, 2, 3, 4, 5, 6, 9, 10, 12, 15, 18, 20, 30, 36, 45, 60, 90, or 180.

It is possible that the users Full Scale Number of Turns does not equal one of the numbers that can be programmed into the controller. However, if the number of counts per turn does not exceed 1024, this problem can be easily overcome as the following example illustrates.

(continued)

PROGRAMMING EXAMPLE: (cont'd)

SCALE FACTOR: (cont'd)

The user has a full scale travel of 27 Turns and needs a total of 25,800 Counts.

The first thing that the user checks is the number of Counts per Turn. He divides 25,800 by 27 and sees that the Counts per Turn equals 955.56. He now knows that he can program the controller to work with the system.

The second step is to multiply the number of Counts per Turn (955.56) by the Number of Turns that he can program into the Controller. The Number of Turns that the user programs into the controller must be greater than the number of turns in the full scale travel. The user chooses 30 as the Number of Turns that he will program into the controller. Multiplying 955.56 by 30 gives an answer of 28,666.80 which he rounds off to 28,667. The user now has the two values that he needs to program the Scale Factor of the Controller.

Number of Turns	=	30
Full Scale Counts	=	28,667

Programming the Scale Factor is shown in section 10.5 if the iPCE Manual.

HARDWARE CHANGES:

The transducer position will be preset to it's programmed value when the INPUT 1 (IN1) is active. The input will be considered active when the Controller senses that the input has gone through a low to high logic level transition. The Controller samples the input every 400 uSecs. The Controller then generates the required offset to bring the transducers position to it's Preset value and stores the offset in EEPROM Memory. Note that the Preset offset is not the same as the Position offset that is programmed from the Keyboard.

(continued)

HARDWARE CHANGES: (cont'd)

When the unit is powered up, it first checks the value of the Position Offset programmed from the Keyboard. If the Position Offset is not equal to 0, the offset is added to the transducer shaft position and the total is shown on the display and sent to the outputs. If the Position Offset is equal to 0, the Preset Offset is read from memory, added to the transducer shaft position, and the total is shown on the display and sent to the outputs.

Because of this configuration on power up, the Position Offset, programmed from the keyboard, and the Preset Offset, generated when IN1 goes active, should not be used together. If they are, the unit will read only the Position Offset on power up and the displayed position will be off by the value of the Preset Offset. If the Preset Offset is used at all, it should be the only Offset used and the Position Offset should be programmed to 0 from the Keyboard.