

## DESCRIPTION OF OPTION:

This option allows the iPLC1 to function as a multi-turn limit switch. The unit can be programmed for up to 999 Turns and a maximum Full Scale Counts of 131072. The maximum counts per turn is 1024.

The unit's position data is quasi-absolute. This means that the position data within a single turn is read from the transducer's shaft and the number of the turn that the unit is on is stored in the unit's memory. The configuration of the unit allows it to determine the correct position, (Number of turns and position within the turn), as long as the shaft of the transducer is not turned more than 180° with power absent from the unit.

Because the unit is a multi-turn limit switch, there are several changes from a standard iPLC1. These changes are:

- 1) 8 Programs are available.
- 2) Scale Factor programming.
- 3) Offset and Auto-zero programming.
- 4) Decimal Point programming addition.
- 5) Remote Preset programming addition.
- 6) Limit programming and inspection.
- 7) Repeat limit setpoint programming has been eliminated.
- 8) Limit setpoint Increment/Decrement programming has been eliminated.

## PROGRAMMING CHANGES AND ADDITIONS:

Most of the changes to the units programming are made to allow you to program the larger numbers available with the multi-turn software. The function of the following keys have been changed.

POS/TAC
0

This key is still used to display Position and Tachometer information, but this key now shows the information sequentially. Pressing this key while displaying POS will force the unit to display TACH data, and visa versa.

SF
1

This key is still used to display and program the unit's Scale Factor. This key allows you to program the Full Scale Turns and the Full Scale Count. (See Example below)

OFFSET
2

This key is still used to program the offset, but the display has changed. The display now shows only the offset number instead of both the Offset and Position numbers together.

PROGRAMMING CHANGES AND ADDITIONS: (cont'd)

REPEAT
5

Repeat Setpoint programming is not available with this option. This key is instead used to program a Decimal Point for use with the Position, Offset, and Limit Setpoint displays. (See Example below)

B
8

This key is used to program the Preset Number for the Remote Preset function. The position will be changed to the preset number when the remote input is active. The Preset Number can be any number between zero and the Full Scale Count. (See Example below)

LS
NEXT

This key is still used to program the Limit Setpoints but the display has changed. Because the position value for each setpoint can be up to six digits long, the FROM and TO setpoints are programmed sequentially instead of on the same display. Fine tuning of the limit setpoints with the Increment/Decrement keys is not available with this option. (see Example Below)

PROGRAMMING EXAMPLES:

SCALE FACTOR:

You want to program the unit for 25 turns and a Full Scale Count of 24,405. When the Scale Factor is changed, the Offset, Preset, and Decimal Point numbers are reset to zero.

PRESS	DISPLAY	COMMENTS
*		Must be in Program Mode. See Section 12.1 of the Users Manual.
[FUNCTION]		Function LED "on".
[SF]	"N.TURNS <u>xxx</u> "	Present Number of Turns.
[0,2,5, ENTER]	"N.TURNS 025"	Full Scale Turns = 25
[SF]	"F.SC 25600"	Full Scale Count display. Defaults to the maximum count for the number of turns entered. This number equals 1024 * Number of Turns for numbers less than 131072.
[2,4,4,0,5], [ENTER]	"F.SC 24405"	Full Scale Counts = 24405
[SF]	"SF 976.200"	Calculated number of Counts per Turn.

PROGRAMMING EXAMPLES: (cont'd)

DECIMAL POINT:

You wish to program a Decimal Point so that the display reads with the last three digits after the decimal point. (Example 654,321) The keystrokes are shown below.

PRESS	DISPLAY	COMMENTS
*		Must be in Program Mode. See Section 12.1 of the Users Manual.
[FUNCTION]		Function LED "on".
[REPEAT]	"DEC.POINT <u>x</u> "	Present Decimal Point.
[3], [ENTER]	"DEC.POINT 3"	Decimal Point is now set to be three digits from the right.

REMOTE PRESET:

You want to use the remote preset function to set the controller to display a position of 2500 when the system is set up and ready to run. You can then use a remote switch to preset the unit before running the machine.

PRESS	DISPLAY	COMMENTS
*		Must be in Program Mode. See Section 12.1 of the Users Manual.
[FUNCTION]		Function LED "on".
[B]	"PR, <u>xx</u> ,xxx"	Present Preset Number.
[0,2,5,0,0] [ENTER]	"PR, 02,500"	Programmed Preset Number. The unit will generate the offset needed to go to this number when remote input 1 (IN1) is pulled high.

PROGRAMMING EXAMPLES: (cont'd)

LIMIT SETPOINTS:

You want to program the following Limit Setpoints.

CH1: From 10,000 To 10,010  
CH2: From 20,000 To 20,020 and  
From 20,030 To 20,040

There are no limit setpoints presently programmed into the unit.

PRESS	DISPLAY	COMMENTS
*		Must be in Program Mode. See Section 12.1 of the Users Manual.
[FUNCTION]		Function LED "on".
[LS]	"LS,xx "	Limit channel display
[0,1], [ENTER]	"01F, __,___"	CH1 FROM setpoint display
[1,0,0,0,0], [ENTER]	"01F, 10,000"	Limit FROM 10,000
[NEXT]	"01T, __,___"	CH1 TO setpoint display.
[1,0,0,1,0], [ENTER]	"01T, 10,010"	Limit TO 10,010
[NEXT]	"01F, __,___"	CH1 FROM setpoint display.
[NEXT]	"02F, __,___"	CH2 FROM setpoint display.
[2,0,0,0,0], [ENTER]	"02F, 20,000"	Limit FROM 20,000
[NEXT]	"02T, __,___"	CH2 TO setpoint display.
[2,0,0,2,0], [ENTER]	"02T, 20,020"	Limit TO 20,020
[NEXT]	"02F, __,___"	CH2 FROM setpoint display.
[2,0,0,3,0], [ENTER]	"02F, 20,030"	Limit FROM 20,030
[NEXT]	"02T, __,___"	CH2 TO setpoint display.
[2,0,0,4,0], [ENTER]	"02T, 20,040"	Limit TO 20,040

## PROGRAMMING EXAMPLES: (cont'd)

### LIMIT SETPOINTS: (cont'd)

NOTE: When Programming from existing setpoints, erase the old setpoints or write over them. Both FROM and TO setpoints must be displayed and the [ENTER] key must be pressed for both of them, even if only one setpoint is being changed.

### REMOTE POSITION PRESET:

The transducer position will be preset to it's programmed value when the INPUT 1 is active. The input will be considered active when the unit senses a low to high logic level transition on the input. The unit samples the input every 400 uSec. The unit then generates the required offset to bring the transducers position to it's preset value and stores the Offset in RAM memory. Note that the offset is not the same as the Offset entered from the keyboard and it is not stored on power down.

### LOGIC LEVELS:

An input can have two different logic levels, a Logic "0" or a Logic "1". A logic 0 is an inputs normal "inactive" state. A Logic 1 is an inputs "active" state. Input Logic levels are defined as follows:

Logic "0"            0 to 1 Vdc.  
Logic "1"            3 to 15 Vdc.

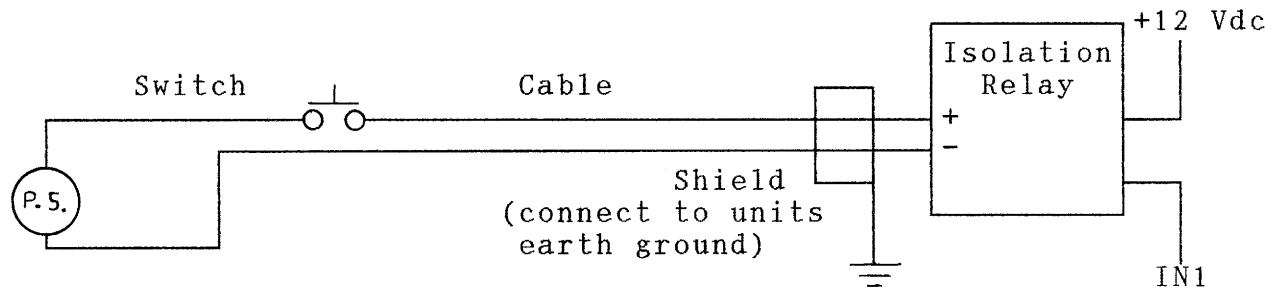
- Note:
- 1) All inputs are referenced to GND
  - 2) With Open Collector Sink and TTL output units, the internal +12Vdc unregulated supply can be used to supply a Logic "1" to the inputs.
  - 3) With Open Collector Sourcing Units, an external power supply must be used.

The following table lists the pinout assignments of the inputs and the internal +12 Volt supply on various AMCI products.

	J1 CONN.	IM1	RB1	MRB
INPUT 1	Pin 3	Pin 3	Pin 1 - TB7	Pin 1 - TB8
GND	Pin 16	Pin 16	Pin 9 - TB7	Pin 9 - TB8
+12 Vdc	Pin 14	Pin 14	Pin 10 - TB7	Pin 10 - TB8

REMOTE POSITION PRESET: (cont'd)

A Normally Open, Momentary Contact Switch should be used to complete the circuit on the input. Note that an isolation relay is used between the remote switch and the unit. This is required to protect the unit from Ground loops or high common mode voltages.



MODEL NUMBER AND CHECKSUM:

The following keystrokes will display the Model Number and Checksum of an iPLC1 unit with the option U. It is important to have this information when calling AMCI with a technical question. Having this information will allow us to determine the version of the software that you own.

PRESS	DISPLAY	COMMENTS
[PROGRAM]	"PROGRAM x"	x = Number of running program.
[NEXT]	"IPLC-1UW-0"	Model and Revision Number
[NEXT]	"EPROM CBF8"	Software Checksum.