
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. Additionally, this option package allows you to change the running program from a remote location.

OPERATING CHANGES AND ADDITIONS:

- 1) 8 Programs are available.
 - 2) Scale Factor programming.
 - 3) Offset and Auto-zero programming.
 - 4) Decimal Point programming addition.
 - 5) Limit programming and inspection.
 - 6) Repeat limit setpoint programming has been eliminated.
 - 7) Limit setpoint Increment/Decrement programming has been eliminated.
 - 8) In order to safeguard against un-expected operations, the remote input or the keyboard input cannot be used to select the running program while the other input is active.
- A) When ANY remote input is active, the keyboard cannot be used to select the running program. All remote inputs must be inactive before the keyboard can change the running program.

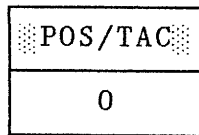
All other functions that are available from the keyboard are still accessible including Program Mode.

- B) The remote inputs are disabled and the program number cannot be changed if the unit is in Program Mode.
- C) Power Up Sequence:
- i) If one remote input is active during power up, the unit will load the program that is selected by the input as the running program.
 - ii) If more than one input is active, or if all of the inputs are inactive during power up, the unit will load the program that was last selected by a Keyboard input is the running program.

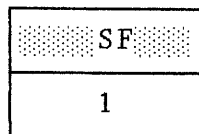
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PROGRAMMING CHANGES AND ADDITIONS:

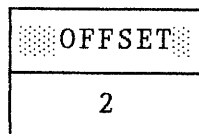
Most of the changes to the units programming are made to allow you to program the larger numbers available with the multi-turn software. The function of the following keys have been changed.



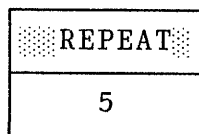
This key is still used to display Position and Tachometer information, but this key now shows the information sequentially. Pressing this key while displaying POS will force the unit to display TACH data, and visa versa.



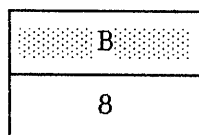
This key is still used to display and program the unit's Scale Factor. This key allows you to program the Full Scale Turns and the Full Scale Count. (See Example below)



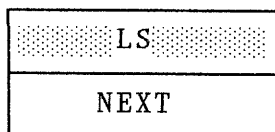
This key is still used to program the offset, but the display has changed. The display now shows only the offset number instead of both the Offset and Position numbers together.



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)



This key is used to program the Preset Number for use with AMCI's standard Quasi-Absolute Multi-turn Limit Switch Controller. Because all available inputs are being used for Remote Program selection, Remote Preset is not available with the MICHELIN Option Software.



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)

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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.

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.

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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.

HARDWARE CONNECTION:

The remote program select function uses the 8 inputs on the Controller. Inputs 1 through 8 are used to select programs 1 through 8. Activating Input 1 selects Program 1, Input 2 selects Program 2, etc.

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

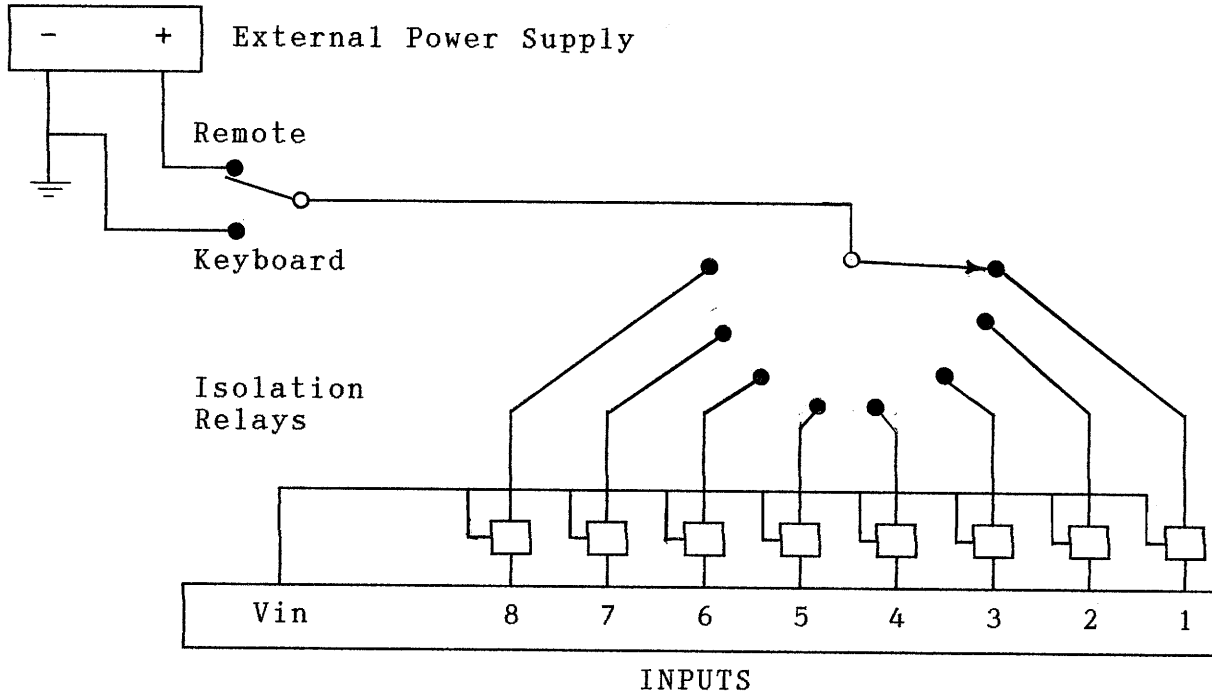
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HARDWARE CONNECTION: (cont'd)

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
INPUT 2	Pin 1	Pin 1	Pin 2 - TB7	Pin 2 - TB8
INPUT 3	Pin 2	Pin 2	Pin 3 - TB7	Pin 3 - TB8
INPUT 4	Pin 4	Pin 4	Pin 4 - TB7	Pin 4 - TB8
INPUT 5	Pin 12	Pin 12	Pin 5 - TB7	Pin 5 - TB8
INPUT 6	Pin 10	Pin 10	Pin 6 - TB7	Pin 6 - TB8
INPUT 7	Pin 8	Pin 8	Pin 7 - TB7	Pin 7 - TB8
INPUT 8	Pin 6	Pin 6	Pin 8 - TB7	Pin 8 - TB8
GND	Pin 16	Pin 16	Pin 9 - TB7	Pin 9 - TB8
+12 Vdc	Pin 14	Pin 14	Pin 10 - TB7	Pin 10 - TB8

SET-UP EXAMPLE:



NOTES:

- 1) Remote/Keyboard Switch. A SPDT Switch is used to determine which input device will be used.
- 2) Isolation Relays. These should be used to isolate the controller from the external supply to guard against ground loops and noise coupling.

MODEL NUMBER AND CHECKSUM:

The following keystrokes will display the Model Number and Checksum of an iPLC1 unit with the MICHELIN Option. 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]	"MICHELIN-1"	Model and Revision Number
[NEXT]	"EPROM C2A1"	Software Checksum.