

Aptus Automation

A50110-PR-LG-BPL



User Manual

Notice before start-up

Please confirm the specification of instrument is totally with your requirement before using it, also read this manual in detail.

Danger

Danger! Electric Shock! DON'T touch AC power wiring terminals when instrument has been powered! Keep the power off until all of the wirings are completed!

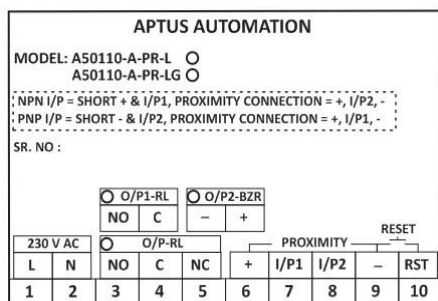
Warning

- 1) Please confirm the AC power wiring to instrument is correct, otherwise it would be caused aggravated damage on instrument.
- 2) Be sure to use the rated power supply, otherwise it would be caused aggravated damage on instrument.
- 3) Please confirm wires are connected with correct terminal (Power, Input and Output).
- 4) Avoid installing instrument in following spaces:
 - I. A place where the ambient temperature may reach beyond the range from 0 to 50°C
 - II. A place where the ambient humidity may reach beyond the range from 20 to 90% RH.
 - III. A place where the instrument likely to come into contact with water, oil, chemicals, steam and vapor.
 - IV. A place where the instrument is subject to interface with static electricity, magnetism and noise.
- 5) For proximity input, use shield compensating lead wire.

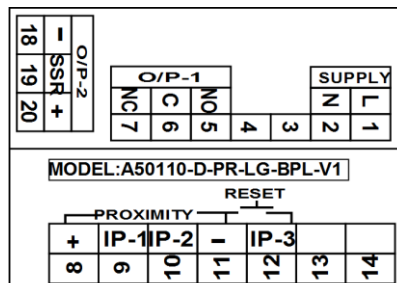
TECHNICAL SPECIFICATIONS

Product Name	: Universal Counter (Batch/Preset/Length).
Model No.	: A50110-X-PR-L-BPL / A50110-X-PR-LG-BPL.
Input 1	: Pulses through Proximity (NPN/PNP)/Limit Switch/Push button.
Input 2	: Reset Push button.
Output	: For A50110-X-PR-L = 5Amp/1CO Relay (Contacts NO-C-NC). For A50110-X-PR-LG = 5Amp/1CO Relay (Contacts NO-C) + Unregulated DC Voltage for SSR or Buzzer.
Display	: A50110-A: - 6 digits 0.56" RED seven segment display+ 4digits 0.39" GREEN seven segment display. A50110-D: - 6 digits 0.39" RED seven segment display+ 4digits 0.39" GREEN seven segment display.
Power Supply	: 230VAC $\pm$ 10%, 50Hz.

A50110-A(96mm x 96mm) and A50110-D(72mm x 72mm) Terminal Wiring



INPUT TYPE	A50110-A-PR-L-BPL	A50110-A-PR-LG-BPL
230 V AC Power supply	Terminal 1 & 2	Terminal 1 & 2
NPN Pulse Input	Short Terminal 6 & 7, Terminal 6(+Ve), 8 (NPN Signal) & 9(-Ve)	Short Terminal 6 & 7, Terminal 6(+Ve), 8 (NPN Signal) & 9 (-Ve)
PNP Pulse Input	Short Terminal 8 & 9, Terminal 6(+Ve), 7 (PNP Signal) & 9(-Ve)	Short Terminal 8 & 9, Terminal 6(+Ve), 7 (PNP Signal) & 9 (-Ve)
Reset Input	Terminal 9 & 10 (Potential Free Contact)	Terminal 9 & 10 (Potential Free Contact)
Output 1(Relay)	Terminal 3(NO), 4(C) & 5(NC)	Terminal 3(NO) & 4(C)
Output 2(SSR/Buzzer)		Terminal 5(-Ve) & 6(+Ve)



INPUT TYPE	A50110-D-PR-L-BPL	A50110-D-PR-LG-BPL
230 V AC Power supply	Terminal 1 & 2	Terminal 1 & 2
NPN Pulse Input	Short Terminal 8 & 9, Terminal 8 (+Ve), 10 (NPN Signal) & 11 (-Ve)	Short Terminal 8 & 9, Terminal 8 (+Ve), 10 (NPN Signal) & 11 (-Ve)
PNP Pulse Input	Short Terminal 10 & 11, Terminal 8 (+Ve), 9 (PNP Signal) & 11 (-Ve)	Short Terminal 10 & 11, Terminal 8 (+Ve), 9 (PNP Signal) & 11 (-Ve)
Reset Input	Terminal 11 & 12 (Potential Free Contact)	Terminal 11 & 12 (Potential Free Contact)
Output 1 (Relay)	Terminal 5(NO), 6(C) & 7(NC)	Terminal 5(NO), 6(C) & 7(NC)
Output 2 (SSR)		Terminal 18(+ve), 20(-ve)

CONFIGURATION MENU

To enter in configuration menu, press SET+UP Key till 1 second. Configure all parameter as per your requirement.

KEY	LOWER DISPLAY	UPPER DISPLAY	FUNCTION	RANGE
SET+UP	PASS	0000	Password: set password value 808, then press ENTER key, and go to next parameter.	0~9999
ENTER	C.tYP	LEngh	Counter type: To select the type of counter. You can select counter as a Length counter, Batch counter or, Preset counter.	Length/ bAtCh/ PrESet
SET	C.dIr	UP	Counting direction: Select counting direction. It may be Up counting or Down counting.	UP/dovn
SET	Con.1	On dELAY	Control -1 operation mode: select Output1 operation mode. On delay - Counter value >= set1 = Output1 ON Counter value < set1 = Output1 OFF OFF delay- Counter value >= set1 = Output1 OFF Counter value < set1 = Output1 ON OFF - Output1 is disable, and will remain OFF.	On dELAY/ OFF dELAY/ dISAbI
SET	Con.2	dEvItN	Control -2 operation mode: select Output2 operation mode. Deviation mode - Counter value >= (set1 - set2) = Output2 ON BATCH mode - Counter value >= set2 = Output2 ON TOTAL - Output2 will disable, and will remain OFF. OFF - Output2 is disable, and will remain OFF.	dEvItN/ IndIvL/ dISAbI
SET	rSt	AUtO	Reset: select reset by manual, auto or TPR mode. <u>Manual</u> - To reset counter and output relay, press enter key till 5 sec. <u>Auto</u> - Counter Value and Output1 will reset according to set an Auto reset time. <u>TPR</u> - After set count relay change its status according ON/OFF delay. At end of count cycle, count automatically reset, and counting continues uninterrupted during pulse time, but Relay will change its status after Reset time.	AUtO/ Manual/ tPr
SET	O.rUn	YES	Over run : Yes - counter will continues increase after reached at set1. No - counter will stop to increase after reached at set1.	YES/NO
SET	m.r.t.1	01	Manual reset time-1: Set a manual reset time to reset Running Batch Count Or Running Counter Value.	01~99 sec
SET	m.r.t.2	05	Manual reset time-2: This is a manual reset time to reset only Total Completed Batches and Total count.	01~99 sec
SET	dsp.2	RPM	Lower display setting: Set the parameter for lower display to be displayed; RPM - lower display will show the RPM. SET - lower display will show the Set 1 Value. [This parameter is available only if C.tYPE is set to PRESET COUNTER mode]	RPM/SET
SET	DP.FA	999999	DP for Scale Factor: Resolution for scale factor.	999.999~ 999999
SET	rSLn	9999.99	Resolution : Set the resolution (decimal point)for counter value, as Well as for set value.	999.999~ 999999
SET	PPr	0001	PPR : Set the PPR value as per requirement.	0~9999
SET	SPEd	FAST	Speed mode : Set the Speed mode as per requirement. Ultra-Low: used for RPM range < 500. Low: used for RPM range < 1500. Medium: used for RPM range < 5000. FAST: used for RPM range > 5000.	ULLOW/ Low/ MEdiUm/ FASt
SET	mEm	YES	Memory : Set the memory mode as per requirement. YES: the running value will be saved in memory. NO: the running value will not be saved in memory. [This parameter is available only if C.tYPE is set to PRESET COUNTER mode]	YES/nO

PARAMETER SETTING MENU

- Press SET Key till 1 sec to go in this menu.
- Use UP and SHIFT key to change value, set current parameter and press SET key, to save and goes to next parameter.
- After last parameter first parameter will be repeated. To exit press Enter Key.
- There are mainly 3 types in this counter, Length counter, Batch counter, and Preset counter. So parameter list will appear according selected counter.

FOR LENGTH COUNTER:

KEY	LOWER DISPLAY	UPPER DISPLAY	FUNCTION	RANGE
SET	SEt 1	000100	Set 1: Set value of parameter set 1.	00000.1~ 999999
SET	SEt 2	000010	Set 2 count: Set value of parameter set 2. Value of set2 must be less than set1.	00000.1~ 999999
SET	tm-1	05.00	Auto reset time: Set a value of auto reset time.	00.01~99.99 sec
SET	dIA	0318.40	Diameter: set the value of diameter.	0000.01~9999.99(mm)

FOR BATCH COUNTER:

KEY	LOWER DISPLAY	UPPER DISPLAY	FUNCTION	RANGE
SET	SEt 1	000100	Batch count: Set value of parameter b.cnt.	000001~999999
SET	SEt 2	000010	Set 2 count: Set value of parameter set 2. Value of set2 must be less than set1.	000001~999999
SET	tm-1	05.00	Auto reset time: Set a value of auto reset time.	00.01~99.99 sec

FOR PRESET COUNTER:

KEY	LOWER DISPLAY	UPPER DISPLAY	FUNCTION	RANGE
SET	SEt 1	000100	Set 1: Set value of parameter set 1.	00000.1~999999
SET	SEt 2	000010	Set 2 count: Set value of parameter set 2. Value of set2 must be less than set1	00000.1~999999
SET	tlmE	05.00	Auto reset time: Set a value of auto reset time.	00.01~99.99 sec
SET	FCtr	001.000	Factor: Set a factor value. This factor value will be multiply with input pulse and finally counter value will be according this multiplied value.	000.001~999.999

Display Indication:

Total Count ----- = on Upper display
 Running Count ----- = on Lower display
 Total Completed Batches ----- = on Upper display by pressing SHIFT Key
 Total Count ----- = on Upper display by pressing UP Key
 RPM/SET Indication ----- = on Lower display (Only if PRESET mode selected and **disP.2** is set to **rpm**)

Keys & Terminal Function:

- External Reset (Back RST) ----- = to reset Running Batch Count of Lower display
- Front Reset Key till manual reset time-1(m.r.t.1) ----- = to reset Running Batch Count of Lower display
- Front Reset Key till manual reset time-2(m.r.t.2) ----- = to reset Total Count & Total Completed Batches

Working:

This is the Universal counter. Working is described below.

[1] Batch Counter – Principle of operation > > >

- Running Counter Value will be increase with the input pulse.

[2] Length Counter – Principle of operation > > >

Total Length = $[3.14 \times \text{dia (mm)} \times \text{No. of Revolutions}] / (1000 \times \text{PPR})$

Total Meter/Min = $[3.14 \times \text{dia (mm)} \times \text{RPM}] / (1000 \times \text{PPR})$

- So the *Running Length* will be increased according to the set *Diameter* and *No. of Revolution*.

[3] Preset Counter – Principle of operation > > >

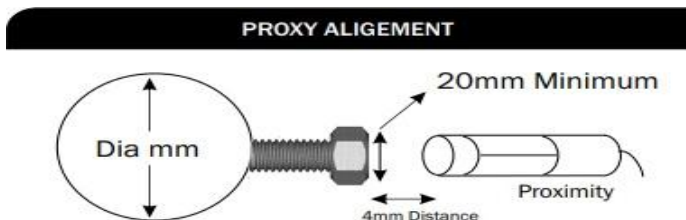
- Running Counter Value will be increase with the input pulse.
- **PPR** is divided with input pulse count, so final Running Counter Value will increase according to the *PPR*.
- **Factor** is multiply with input pulse count, so final Running Counter Value will increase according to the *factor*.

[Output1]:-

- On delay:** [Running Counter Value $\geq$ set1] → Output1 ON
 [Running Counter Value $<$ set1] → Output1 OFF
- OFF delay:** [Running Counter Value $\geq$ set1] → Output1 OFF
 [Running Counter Value $<$ set1] → Output1 ON
- OFF:** Output1 will be OFF

[Output2]:-

- Deviation mode:**
 - ✓ In this mode, when the (Running Counter Value) reaches to (set1 – set2), the Output2 will be ON.
 - ✓ Now when the (Running Counter Value) reaches to set1, the Output1 will change status & the Output2 will be OFF.
- Batch mode:**
 - ✓ In this mode, when the (Total Completed Batches) reaches to set2, the Output2 will be ON.
- Total mode:**
 - ✓ In this mode, when the (Total Count) reaches to set2, the Output2 will be ON.
- OFF mode:**
 - ✓ In this mode, the Output2 will be OFF.

**NOTE**

- 1). Please consult support engineers for sensing area size for proxy to sense.
- 2). Please ensure proper sensing area size before installing proxy sensor in your equipment.
- 3). Sensing area must be equal or more than the proxy head size.