

# ADP15 ATL

Supplement to be read in conjunction with the ADP15



User Manual

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### *Supplement to ADP15 Analogue Totaliser ATL - Description*

The Analogue Totaliser Integrator is used to totalise with respect to time, the value of the analogue input. Typical applications would include

1. Flow input to give a total volume/mass from an instantaneous flow input
2. Electrical input of Amps or Kilowatts giving Ampere Hours or Kilowatt Hours

The Instantaneous and Totalised display can be set for any engineering units via the keypad eg Litres/min and Litres.

Running times for the totalised count can be from 0.5 hours to in excess of 20,000 hours before reaching full scale. These times being dependent on the scale settings and value of Analogue Input. The Totalised count will increment or decrement depending on the sign of the instantaneous analogue input. An example of this would be import and export of power.

The totalise count is saved on power failure and can be reset from the keypad, the reset contact or by the communications.

The default display can be selected to indicate either the instantaneous input or the totalised count. The analogue output relays and printer will take values from this chosen default display value.

### *Variants to Chapter 3 of the ADP15 User Manual*

#### Setting Up

##### Set 1 Scaling the Instantaneous Input

The first stage is to set the scaling of the instantaneous analogue input so that the display indicates, in engineering units, the required range and resolution for the measured input. Chapter 4 Section 1 of the ADP15 Manual will explain how to calculate values for IPL and IPH and also how to connect the linear input to the ADP15/ATL.

##### Step 2 Scaling the Totalised Count

Once the instantaneous display is correct the totalised display can be scaled. There are two scaling factors 'TF' and 'SF'. 'TF' is a time factor setting how long the totalised count can run before overranging, see Table 2. 'SF' provides fine scaling for the totalised count.

From Table 2 determine how long the totalised count needs to run. The times indicated are only approximate as the time taken for the totalised count to overrange is dependant on the value of the instantaneous input applied.

Next set the fine scale from 'SF'. This has an effective range between .2000 and 1.9999 unity being 1.0000.

The value algebraically added to the totalised count after running for one hour with a fixed instantaneous is determined as :-

$$(PI \times SF)/TF$$

Where

- PI is the Instantaneous Input with sign
- SF is the Fine Scale Factor
- TF is the Time Factor

Once the totalised count has been scaled it is then to be decided if the default display is to be either that of the instantaneous input or the totalised count. This is set by 'dd'. The analogue output, relays and printer will take their value from this selected default display.

The decimal point can now be set in DP r for the default display giving engineering units for this display.

### *Table 2*

Divider                      Time taken in hours for display to reach instantaneous value with SF = 1.0000 and input equal to half FSD ie 10000 digits



TF

1	1
10	10
100	100
1000	1000
10000	10000

Accuracy                      Timer accuracy due solely to the crystal 0.005%

Resolution                      1 analogue input digit for SF greater than 3600

Polarity                          Counts will increase or decrease according to the polarity of the input

Totaliser Reset                By external contact, keypad or communications, as for count reset in ADP15 manual  &   
By volt free contact closure on the rear reset terminals.

## Amendments to Chapter 3

**Table 3**

Display PI	Function	Value	Notes
Pt	View instantaneous input	±19999	
SP1	View totalised input	± 19999	As ADP15 Manual
SP2	Set point 1	± 19999	As ADP15 Manual
PASS	Set point 2	± 19999	As ADP15 Manual
HYS	Password	1111	As ADP15 Manual
OL	Hysteresis	0 -19999	As ADP15 Manual
OA	Output latch	0-3	As ADP15 Manual
dd	Output action	0-3	~
IPL	Display Default	0-3	As ADP15 Manual
IPH	Input low	±19999	As ADP15 Manual
tF	Input high	±19999	As ADP15 Manual
SF	Time factor	1-19999	
OPL	Scale factor	.2000-1.9999	As ADP15 Manual
OPH	Output low	±19999	As ADP15 Manual
IP	Output high	±19999	As ADP15 Manual
dP-r	Input range select	0-255	As ADP15 Manual
Cp	Decimal code position	0-61	As ADP15 Manual
SDSt		0-129	As ADP15 Manual
or	Serial device station no	0-254	
Lab			As ADP15 Manual
Ln	Label	0-254	As ADP15 Manual
Rs	Log number	±19999	As ADP15 Manual
	Sets display resolution	0-255	

~ Sets default display 0 = Instantaneous 1 = Totalised

## Amendment to Chapter 5

Relays to take their value from the selected default display

dd = 0 = Instantaneous Display

dd = 1 = Totalised Display

NO PID AVAILABLE OR RELAY TIMERS

## Amendment to Chapter 6

Analogue output takes its value from the selected default display

## Amendments to Chapter 7

The protocol for MANTRABUS Fast and ASCII remains as described in the ADP15 manual.

The command structure however does change for both protocols.

## *Amendments for MANTRABUS Fast*

Dec	Hex	Description
1	1	Full Data Dump
2	2	Display Only
3	3	P1 Instantaneous Input
4	4	PT Totalised Input
5	5	SP1
6	6	SP2
7	7	HYS
8	8	OL
9	9	OA
10	A	DD
11	B	IPL
12	C	IPH
13	D	TF
14	E	SF
15	F	OPL
16	10	OPH
17	11	IP
18	12	DP r
19	13	CP
20	14	SDSt/LAB
21	15	LN
22	16	RS
23	17	E2ROM Enable/Disable
24	18	Relay Reset
25	19	Count Reset

## *Response to Command 1*

### Byte

1	SDSt
2,3	Display
4,5	P1
6,7	PT
8,9	SP1
10,11	SP2
12,13	HYS
14,15	OL
16,17	OA
18,19	DD
20,21	IPL
22,23	IPH
24,25	TF
26,27	SF
28,29	OPL
30,31	OPH
32,33	IP
34,35	DP r
36,37	CP
38,39	SDSt/LAB
40,41	LN
42,43	RS
44	E2ROM Enable/Disable
45	Relay Status
46	Checksum

## Amendments to ASCII

ATL Comms (ASCII) CP = 129

Label	Function	
Dis	Display only	
PI	P1	Read Only
PT	PT	Read Only
SP1	SP1	
SP2	SP2	
HYS	HYS	
OL	OL	
OA	OA	
DD	DD	
IPL	IPL	
IPH	IPH	
TF	TF	
SCF	SF	
OPL	OPL	
OPH	OPH	
IPS	IP	
DP	DP r	
CP	CP	Read Only
SDSt	SDSt/LAB	Read Only
LOG	LN	Read Only
RS	RS	
DROM	E2ROM Disable	
ERRD	E2ROM Enable & Read from E2ROM	
Label	Function	
ERRW	E2ROM Enable & Write to E2ROM Read	
RLYS	Relay Status	Read Only
RES	Relay Reset	
TARE	Count Reset	

## Amendments to Printer

The printer value is that of the default display

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