Web Based DM32
DM32-001

ON SITE
Operating Instructions

Software release
Version 01.b

Note that the DM32 Stand-Alone Version does not communicate with the DAN Webserver and is fully configured from its own keypad and 2 line alphanumeric display.

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Features of the DM32

The Stand-Alone DM32 Version 1 has the following hardware features:

a. 32 digital inputs that can each be used for counting the pulses from a contact closure such as a reed switch in a water meter, gas meter or electricity meter.
b. The inputs share a common return line and each has its own excitation voltage of 5V.
c. The inputs have inbuilt hysteresis and a filter to eliminate contact bounce and provide a clean input to the microprocessor.
d. All inputs are optically isolated from the microprocessor
e. Two 12Vdc, 1.2AH Sealed Lead Acid batteries that will run the unit for a period of approximately 24 hours
f. An LCD display with 2 lines of 16 alphanumeric characters and bright yellow-green backlighting.
g. Adjustment of the Display viewing angle and character contrast by means of a potentiometer on the main printed circuit board. This is factory set and should never need adjustment.
h. A Waterproof keypad with 4 pushbuttons labeled ‘Up’, ‘Down’, ‘Right Arrow’ and ‘Enter’
i. A 12Vdc @1.5A charger to provide power to the charging circuit which maintains the 12V batteries.
j. The inputs are multiplexed so that a pulse rate of at least 10Hz can be reliably counted. The polling allows the unit to detect a pulse as short as 5 milliseconds
k. The unit reports both data collected and changes to the on-board data base back to the DAN web site

The Web Based Version of the DM32 has the following on-board software features in Release Version 01.b

a. Programmable Scaling Factor for each input
b. 4 Alpha numeric characters to denote each apartment or location.
c. A Preset Total facility for each total to synchronise that total with an external meter.
d. An Association Table to link each Apartment to a particular digital input.
e. A Timer to record the number of operating hours since the DM32 was first turned on.
f. Serial number and Software version number record.
g. A security feature that tracks changes in the pre-set total against run hours.

Reading Inputs (Run Mode)

The display will show the Apartment number and the Meter total for that Apartment. The UP and DOWN buttons will allow the operator to scroll through the Apartment numbers and read each meter total.

Note that the Totals are saved to non-volatile memory once per hour. If the unit is turned off at any time between saves, the totals will revert to the previously saved totals when the unit is turned on again.

How to Configure a DM32 Containing Version 01.b Software.

The following paragraphs describe how to set up a unit which contains Version 01.b software.

Entering Program Mode
Press the Up and Down buttons together for 3 seconds. A counter appears on the screen as 3.0 which counts down to 0.0 in 3 seconds. Press the Enter button before the counter reaches 0. This will allow the operator to enter Program Mode Navigation Screen..

The display shows:

Select Table **SCL APT PRE ASC**

The cursor will flash on the 'S' of SCL table first. Use the right arrow to move the cursor and use the E button to select the desired table.

SCL: The first parameter to set up is the Pulse scaling factor for each input.

Press the E button when the cursor is flashing on the SCL table. The following screen will be displayed where the number displayed is the last pre-scale number saved in memory.

:

Scale Table (1) **1.0000**

How to Adjust the Scaling Factor

The cursor will be flashing on the left digit. Use the Up and Down and Right Arrow buttons to adjust the scaling factor as desired. The decimal point will move to the right as the digits to the left are increased beyond the maximum that can be displayed with the existing decimal point position

Press the E button to complete the setting of Input 1 scaling factor.

Scale Table (1) **0.5000**

The next input (2) is displayed and the same sequence should be followed with it and the remaining 30 inputs in turn.

Important Note on Programming the Scaling Factor for the first time.

The first time and only the first time the scaling factors are programmed the software does not recall the current default value of 1.0000 litres per pulse but will display the same value on input 'N' as was programmed for input 'N-1'. To save this same factor on input 'N', press the E

button, or change the input factor if a different scaling factor is required. This feature was included so that the same scaling factors could be easily set to the same value on multiple inputs when the unit is first commissioned.
The next and all subsequent times the Scaling Routine is entered, the DM32 will display the previously saved values for each input's scaling factor.

When all inputs have been scaled, press the Up and Down arrows together and the display will revert to the Program Mode Navigation Screen.

Note: if you leave the Scaling Factor Programming Routine by pressing the Up and Down Arrow buttons before programming all 32 scaling factors by pressing the E button after adjusting the scaling factor where necessary, the inputs with a scaling factor not yet programmed will revert to a value of 1.0000

APT: The next step is to set up the Apartment Numbers Table:

This facility permits units to be recognized by the apartment number as used throughout the building.

Move the cursor to flash on the APT lettering on the second line of the display.

Select Table **SCL APT PRE ASC**

Press the E button. The following screen will be displayed:

APT Table (1) **A001**

.

Use the UP Down and Right arrows to set up each character on the apartment number.

APT Table (1) **101A**

When finished with each apartment number press the E button to advance to the next apartment number and when all 32 are completed press the Up and Down buttons.
The display will revert to the Program Mode Navigation Screen

Select Table **SCL APT PRE ASC**

PRE: Preset the Total for each apartment (If Required)

The total for each apartment can be preset in program mode so that each corresponds to an existing mechanical counter associated with that meter.

In the Program Mode Navigation Screen use the right arrow to move the flashing cursor to the 'P' of PRE

Select Table **SCL APT PRE ASC**

Press the E button.

The following screen will be displayed. Note that the value displayed will be the last preset count of the unit when previously programmed.

Preset Table (1) **5456935L**

Set and save each preset total in turn using the Up, Down and Right buttons. Press the E button to advance to the next input. Repeat for each input in turn. After all 32 inputs are preset correctly, press the UP and DOWN keys together to return to the Program Mode Navigation Screen.

Note the following formula:

Displayed Total for input N = Preset Total for Input N + Accumulated Total for Input N

If the Preset Total is changed on any input, the Accumulated Total for that Input is reset to 0. This ensures that the Displayed Total commences at the Preset Total. If the Preset Total is not changed on an Input, the Accumulated Total is not Reset even if the E button is pressed in Program Mode.

ASC: Associate Apartment numbers with digital inputs.

This procedure should be performed once the Apartment number table has been set up. Call up the Program Mode Navigation Screen. Move the cursor to the 'A' of ASC to call up the Association Function and press E to enter this function.

The Apartment numbers are displayed with the word 'IN' and a flashing cursor on the input number currently associated with that Apartment. The Up and Down arrows can be used to set up the input numbers from 1 to 32. For example:

ASSOC Table (1) **A001 IN 01**

Once a number has been set the pressing the E button will save the association and the next Apartment number will be displayed.

Repeat the process and check each time that the same Input number has not been selected twice.

After all the Associations have been set up press the Up and Down buttons together and the Program Mode Navigation Screen is displayed with the cursor flashing on the 'A' of ASC.

Select Table **SCL APT PRE ASC**

Exiting from Program Mode.

Press the Up and Down buttons together. The following screen is displayed.

Program ends in 3 seconds

Provided the Up and Down arrows are kept pressed, the time shown will decrease to 2, 1 and then 0 seconds. After that the unit will revert to 'Run' mode

The Security of the Preset Totals.

Each Apartment has a counter recording the number of times its Preset Total has been changed. The number of operating hours that had elapsed since the unit was first powered up is also recorded at the time the latest change to the Preset Total is made. These two important numbers can be displayed by pressing the right arrow when the DM32 is in Run mode.

The normal display of the Apartment totals will be displayed thus

APT (1) – A001 **123456 L**

Pressing the Right Arrow will change the display thus

APT (1) – A001 **1T 31H**

The '1 31' above means that the Preset Total for Apartment A001 has been changed once and this was done 31 hours after the unit was first powered up.

APT (1) – A001 **3T 12131H**

As an additional example, the '3 12131' above means that the Preset Total for Apartment A001 has been changed three times and the lasr change was made 12131 hours after the unit was first powered up.

Serial number and Run Hours Record

The serial number of the DM32, the software version loaded and the number of hours of that the DM32 has operated since it was first turned on are recorded and can be displayed by pressing the E button in Run Mode. By noting the Number of Operating Hours each time the Totals are read, this record can be used to check that the DM32 has been fully functional since the last set of readings were noted. Press the E button again to display totals.

09081045 ver01.b **12459 Hrs**