

STAND ALONE TANK MONITORING SYSTEM

OPERATIONAL SPECIFICATION

MODEL NO: DI20-201-TMS

The DAN system is designed to monitor tank levels and other attributes as a stand alone system. Up to 5 tanks may be monitored provided that each tank has the same profile and maximum tank level. A separate DAN system should be used for each different set of tank profiles and/or maximum volumes. The maximum tank volume that may be monitored by this system is 65,000L.

When first turned on, the display will exhibit the unit serial number and software version followed by 'No Tank in use'. information required to operate the system must be input by responding to questions requested on the screen. The minimum set up required is SECTION 1, followed by SECTION 2.

SECTION 1: INITIAL SET UP

Step #	DISPLAY	EXPLANATION	ACTION
1	Press Start	To program the DI20 for probe usage data or to change probe usage data	Press 'Start'
2	Enter Password —	Your 4 digit entry code is required by the system to allow entry of data	Enter your 4 digit code using the number pad. Press 'Enter'
3	Press Enter To Select Log Type	This step allows the selection of the log type to be entered	Press 'Enter'
4	Calib Tank/Data Alm/Set	This Section covers entry of logs related to system calibration. For entry of 'Tank/Data' refer to Section 2.	Use the Right arrow to move the cursor under 'Calibration'. Press 'Enter'
5	Probe Usge _%	This step allows the entry of amount of probe range being used at tank full. Up to four digits + decimal may be used, max is 100.0%. NOTE: should a %age already be entered into the unit, use the 'Clear' button to remove and insert the new number	Enter the percentage of the probe range being used. Press 'Enter'
6	Exit key to end Data key to add	If more entries are to be made 'Data' will move back to Step 4. Otherwise the process is completed.	Press 'Data' to enter more items Press 'Exit' to end

SECTION 2: STEPS FOR ENTERING TANK PROFILE DATA

This step may be commenced from 'Start' or from entering 'Data' as in Section 1 above where step 4 (below) is displayed.

Only points where tank volume between %age levels are not linear need to be entered. For example if the tank being monitored is linear with volume v's level over its entire height, only 0% and 100% need be entered.

Maximum tank volume that can be entered is 65,000 Litres

Step #	DISPLAY	EXPLANATION	ACTION
1	V 0 L 36.7% Ullage 0 L	To program the DI20 for tank profile data or to change tank profile data	Press 'Start'
2	Enter Password —	Your 4 digit entry code is required by the system to allow entry to the programming section.	Enter your 4 digit code using the number pad. Press 'Enter'
3	Press Enter To Select Log Type	This step allows the selection of the log type to be entered	Press 'Enter'
4	Calib Tank/Data Alm/Set	This Section covers entry of logs related to system set up. For entry of 'Calibration' data refer to Section 1, for 'Alarm Set Point' data refer to Section 3	Use the Right arrow to move the cursor under 'Tank/Data'. Press 'Enter'
5	Tank Profile (1) %: Ltr:	The steps to follow allow input of the tank profile to be monitored. The first entry of level at 0% is normally '0' Litres. Enter to percentage and the corresponding litres for this entry. Use the Right Arrow to move the cursor and enter data.	Press 'Enter'
5	Tank Profile (1) %: Ltr:	The next %age v's Ltr relation to be entered. Enter the %age and corresponding litres. Continue until all tank levels have been input. When all points (Maximum 100) are entered. Exit the program. <u>NOTE: As a minimum %age v's Litre relationship to be entered for 0% and 100% of level</u>	Press 'Enter' to add another profile point Press 'Exit' to quit
9	V 11,000L 36.7% Ullage 19000 L	The display will now show the volume in the tank in Litres, the %age level and the ullage	

SECTION 3: STEPS FOR ENTERING TANK LEVEL ALARM DATA

NOTE: Alarm 1 for all analogue inputs has been pre-set as a low alarm to operate relay 4 and is intended to be used if required as a low level pump cut off. Only the level to be recognised and the dead band need to be set for this alarm unless an additional relay is required to operate.

WHAT IS A DEAD BAND?: When an alarm is recognised, the 'dead band' is the change required to reset the alarm. (e.g. if a low alarm is 1000L, with a dead band of 500L, when activated at 1000L the alarm would not reset until the level rose to 1500L).

More than one alarm may be set to activate a relay (relays 1 to 3).

12 on/off (digital) pre set inputs are available and may have a normally open contact attached. Each will close relay No 3 when a contact closure is recognized.

Step #	DISPLAY	EXPLANATION	ACTION
1	T1 11,000 L 36.7% Ullage 19,000 L	To program the DI20 for tank level alarm data or to change alarm data	Press 'Start'
2	Enter Password —	Your 4 digit entry code is required by the system to allow entry to the programming section.	Enter your 4 digit code using the number pad. Press 'Enter'
3	Press Enter To Select Log Type	This step allows the selection of the log type to be entered	Press 'Enter'
4	Calib Tank/Data Alm/Set	This Section covers entry of logs related to alarm set points (Alm/Set).	Use right arrow to move cursor under 'Alm/Set' Press 'Enter'
5	Alarm Set Points Tank#: 1 2 3 4 5	Up to five tanks may be connected and 2 alarms may be set for each	Use right arrow to move cursor under tank to have alarms set Press 'Enter'
6	T1 Alm 1 _ L Lo R: D:_L	Alarm 1 for each tank must be a low alarm (see notes above) Use right arrow to move cursor to entries. Enter litres for this alarm point (up to 5 digits), enter additional relay number (1 to 3) or leave blank enter litres for dead band.	Enter alarm 'Litres' Enter 'Relay' (if required) Enter 'Dead Band' Press 'Enter' to continue Press 'Exit' to exit
7	T1 Alm 2 _ L Lo R: D:_L	This step permits a second alarm to be recognised for this tank. Enter litres for this alarm (up to 5 digits), select Lo or Hi alarm (use up/down keys), enter relay number or leave blank input litres for dead band.	Enter alarm 'Litres' Select 'Lo' or 'Hi' alarm Enter 'Relay' (if required) Enter 'Dead Band' Press 'Enter' to continue Press 'Exit' to exit Press
9	T2 Alm 1 _ L Lo R: D:_L	Continue setting tank alarms as from step 5 above. Continue until all required alarms are set.	Press 'Enter' to continue To exit Press 'Exit'

SECTION 4: VIEWING AVAILABLE DATA

Data available to be viewed includes volume in tank, percentage of volume to tank capacity, and Ullage. The first line of the screen remains fixed and further data on line 2 may be viewed.

If more than 1 tank is being monitored, details of each tank will rotate.

When an alarm is noted, details of the alarm will replace the 'Ullage' line. In the event of multiple alarms being noted, the alarm line will rotate through the alarms.

EXAMPLE:

Step #	DISPLAY	EXPLANATION
1	T1 11,000L 36.7% Ullage 19,000 L	Normal data display
2	T1 25,000 L 81.1% ALM TNK1-2 HIGH	This display shows Tank 1 at 25,000L and displaying an alarm being alarm '2' which is 'high'

SECTION 5: STEPS FOR MUTING ALARM

NOTE: When an alarm condition is recognized the alarm or alarms will appear in the display. In the event of multiple simultaneous alarms the display will rotate showing each alarm in turn. Should any alarm be set to provide an audible or visual notification, muting the alarm may be achieved by simply:

1. Press the 'Clear' Key
2. Enter the tank number
3. Enter the alarm number

When the alarm condition is cleared, the alarm will be automatically re-armed for the next time an alarm condition is recognized.

EXAMPLE:

Step #	DISPLAY	EXPLANATION	ACTION
1	T1 25,000 L 81.1% ALM TNK1-2 HIGH	This is an alarm on tank 1, and is the second alarm point set.	Press 'Clear' Press '1' (for tank 1) Press '2' (for alarm 2)
2	T1 25,000 L 81.1% ALM TNK1-2 HIGH	The alarm condition remains, the relay is deactivated	