

# Data Acquisition Networks

DM01-201 Additional Information



DM01-201



# DM01 Hardware Features

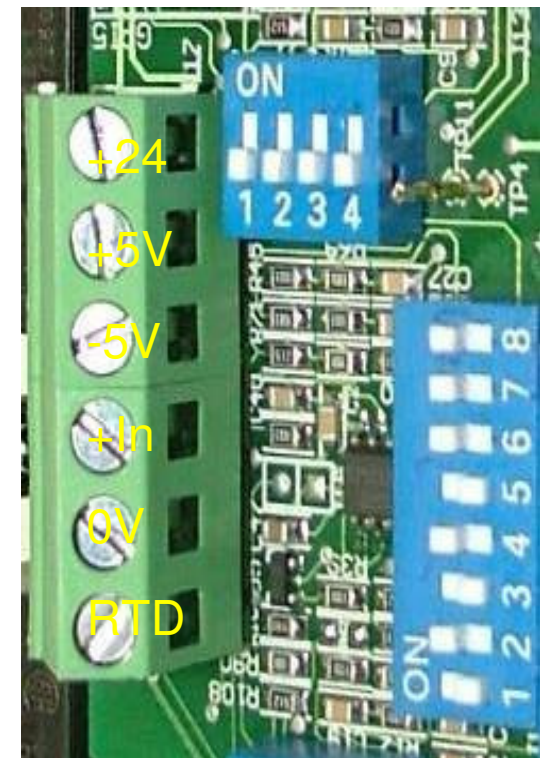
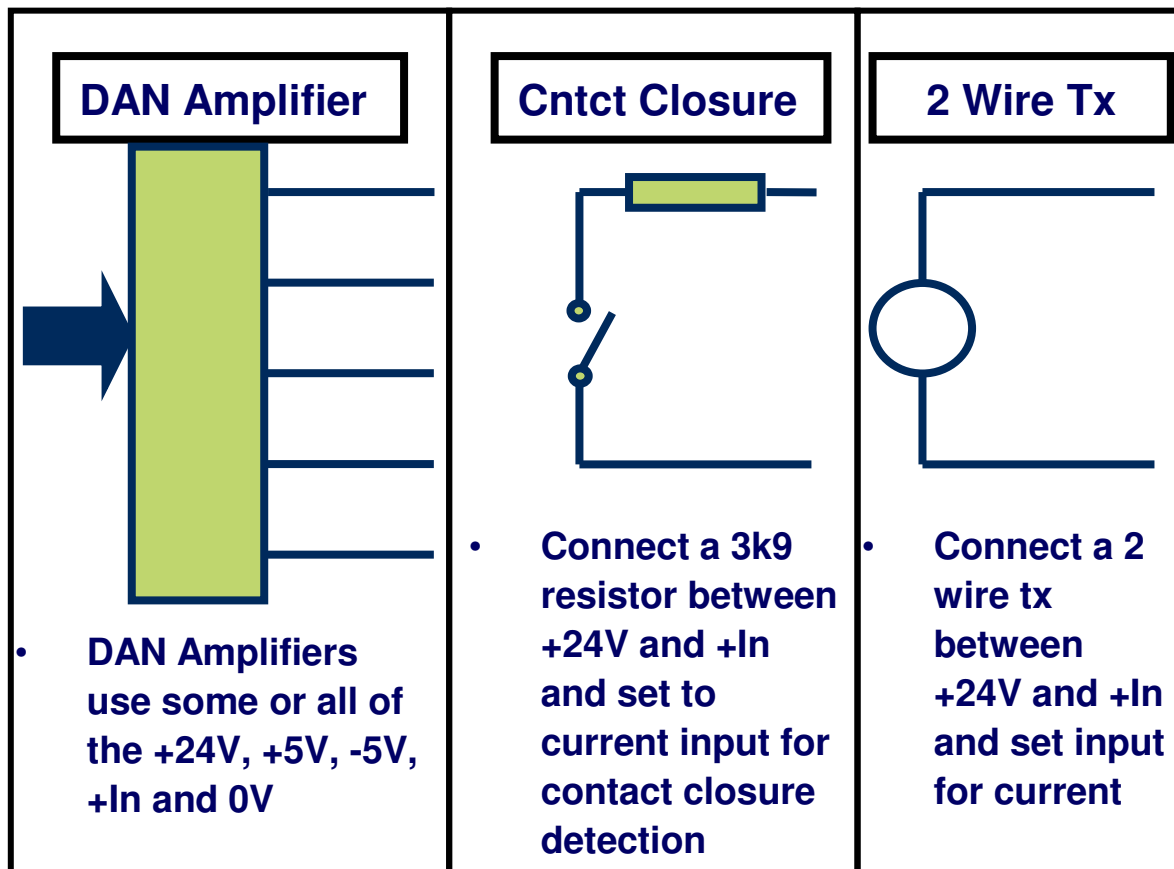
- 6 analogue inputs
- 1 x 4 byte pulse counter / or seconds timer
- 1 x 4 byte totaliser (combining analogue input 1 & counter)
- 3 relays which can be associated with any alarm condition
- 2 alarms per input, counter and totaliser (16 alarms)
- Built in GPRS/GSM modem
- 24V lead acid battery to run system
- Can be charged by mains adapter or solar power
- Housed in IP65 enclosure with hinged lid

## DM01 Analogue Input Features

- 6 Inputs accept mA, V and RTD direct
- All common industrial milliamp and voltage ranges accepted
- RTD standard range is -25 to +125 °C
- If spare, input 5 can be connected to the on-board battery voltage monitoring terminal

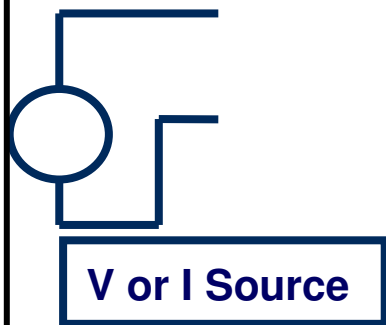


# DM01 Analogue Input Connections 1



# DM01 Analogue Input Connections 2

- Connect a voltage or current source between +In and 0V



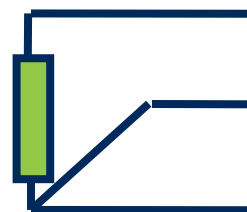
V or I Source

- Connect an RTD between +In and 0V and link RTD and 0V

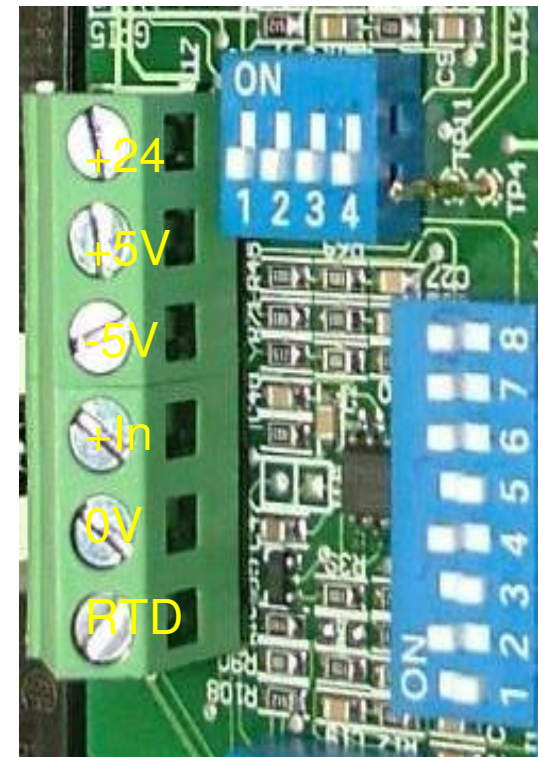


RTD 2 Wire

- Connect an RTD between +In and 0V and the lead length compensation wire to RTD



RTD 3 Wire





## Switch Settings for DM01 Analogue Inputs

Signal	mA, V								Pt100 RTD			
	1	2	3	4	5	6	7	8	1	2	3	4
0-20mA/4-20mA	0	1	0	1	X	1	1	1	0	0	0	0
0—5V/1-5V/0-10V	0	1	0	1	X	0	1	0	0	0	0	0
pH/ORP/-2 to +2V	0	0	1	1	X	1	1	0	0	0	0	0
0-4V	0	1	0	1	X	1	1	0	0	0	0	0
-10 to +10V	0	0	1	1	X	0	0	0	0	0	0	0
-25 to +125oC	0	0	0	0	x	0	0	0	1	1	1	1



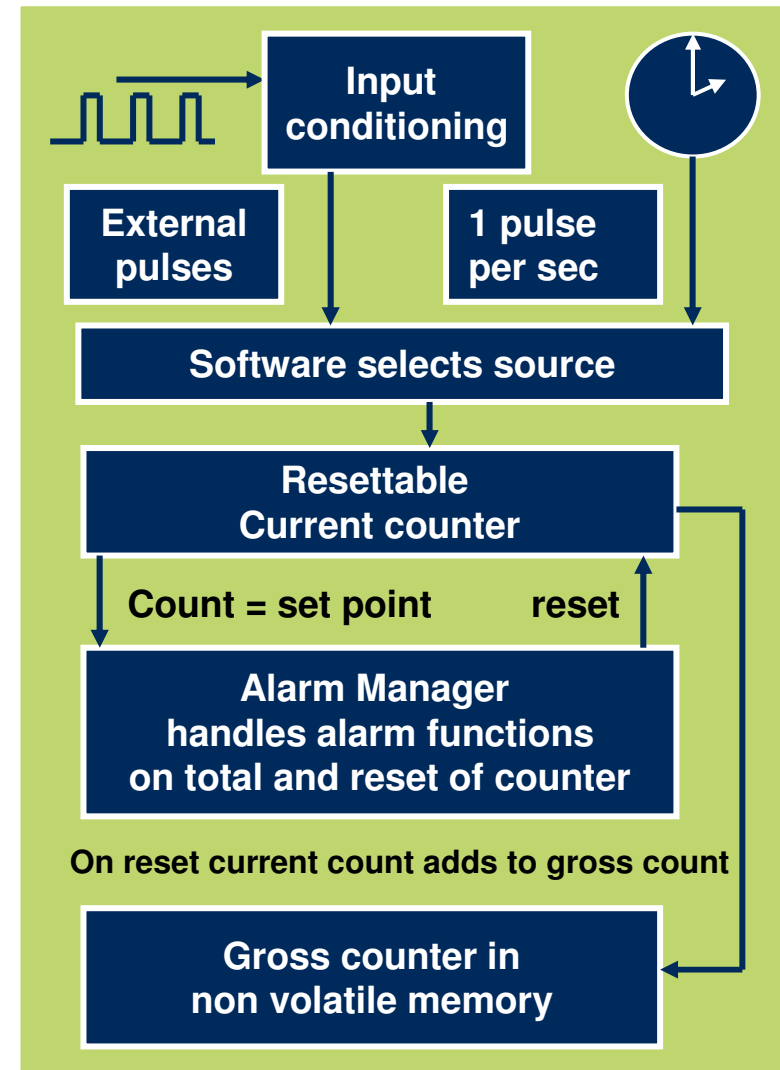
# Terminal Connections for DM01 Analogue Inputs

Terminal numbers	1	2	3	4	5	6
Type of Input	+24Vdc	+5Vdc	-5Vdc	+In	GND	R Sense
Two wire tx	+ of TX	N/C	N/C	- of TX	N/C	N/C
Current or voltage source	N/C	N/C	N/C	+In	0V	N/C
RTD 2 wire	N/C	N/C	N/C	A	B	Link to 5
RTD 3 Wire	N/C	N/C	N/C	A	B	B Sense
External DAN Amplifier	N/C	+V	-V	Signal	0V	N/C



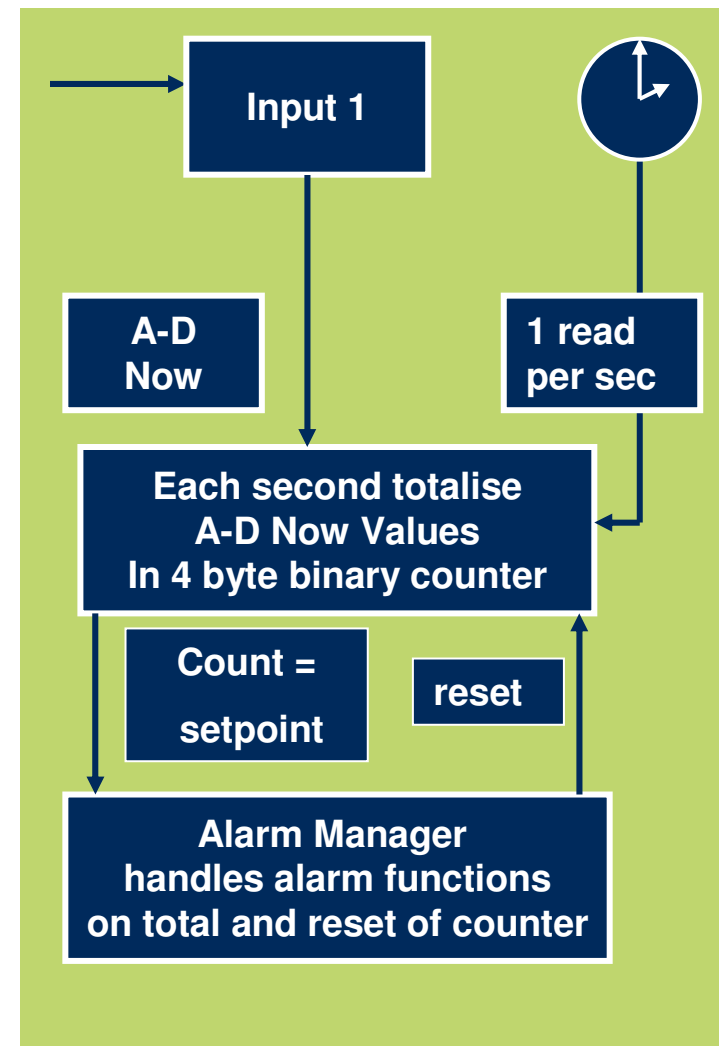
# DM01 Digital Input

- Can count external pulses or seconds
- Count up to 4kHz without missing pulses
- Two set-points on total for batching quantities or measuring elapsed time
- Two counters
- Resettable current counter in RAM
- Non resettable gross counter in non volatile EEPROM
- Resettable counter's value transfers to gross counter on reset
- Reset can be configured to occur from any alarm condition or via web-server command
- Resettable counter can reset itself and thus transfer its total to the accumulating gross counter every time the set point is reached



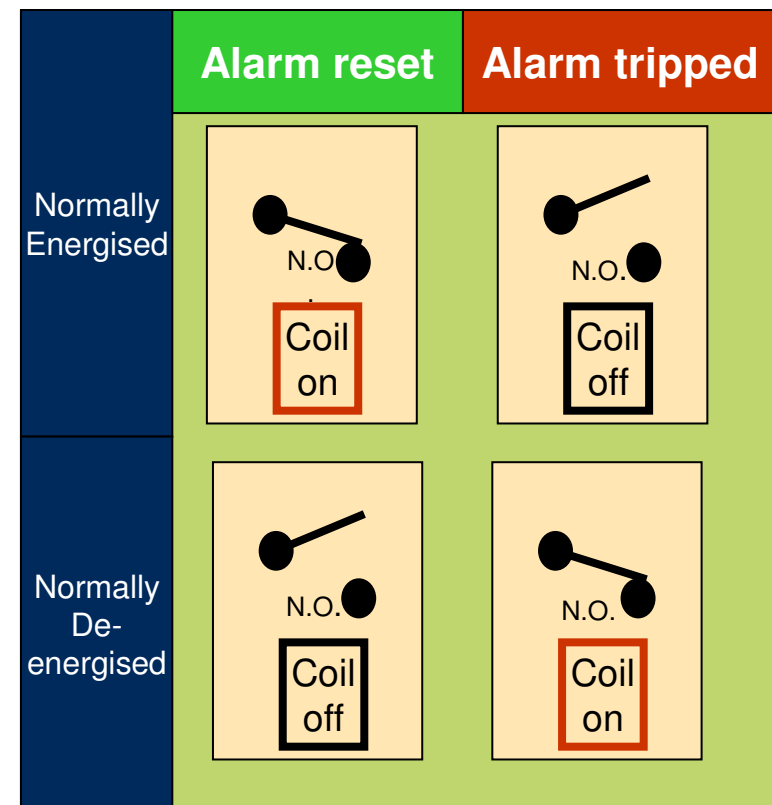
# DM01 Totaliser

- **Totalises input 1 if selected**
- **Reads A-D value of input 1 and adds it to the binary counter once per second**
- **Will totalise for 47 days at maximum flow rate before counter overflows.**
- **2 set-points for batching as per standard configuration.**
- **Website calculate the actual flow from the start and end values of the counter each reporting period taking into account calibration values recorded on the website**

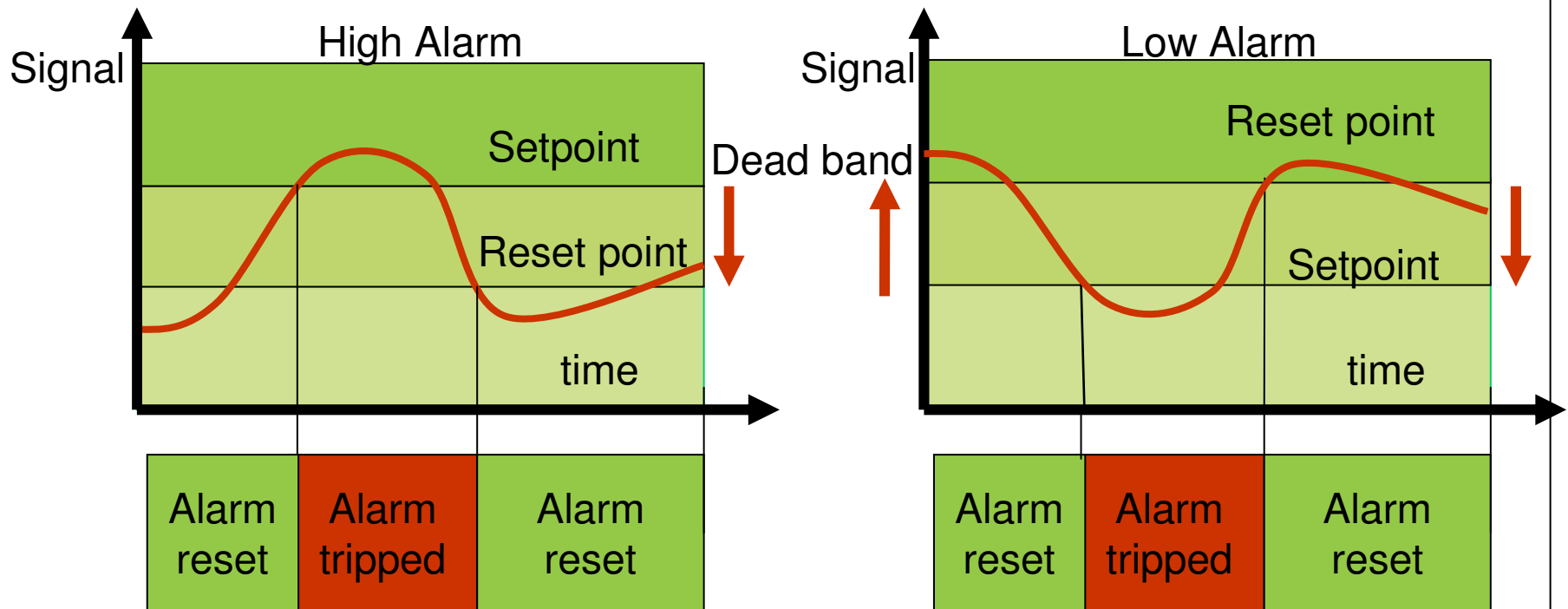


# Normally Energised & De-energised Relay Operation

- We define the “Normal” State of an alarm relay as the state it is in when there is no alarm trip condition
- Thus a “Normally Energised” Relay is one which has its coil energised when there is no alarm condition. The coil will become de-energised when an alarm condition occurs. Also called Fail Safe mode because the alarm condition and power failure result in the same relay state
- A “Normally De-energised” Relay is one which has its coil de-energised when there is no alarm condition. The coil will become energised when an alarm condition occurs. If power fails the relay remains de-energised



# Understanding Alarm Operation

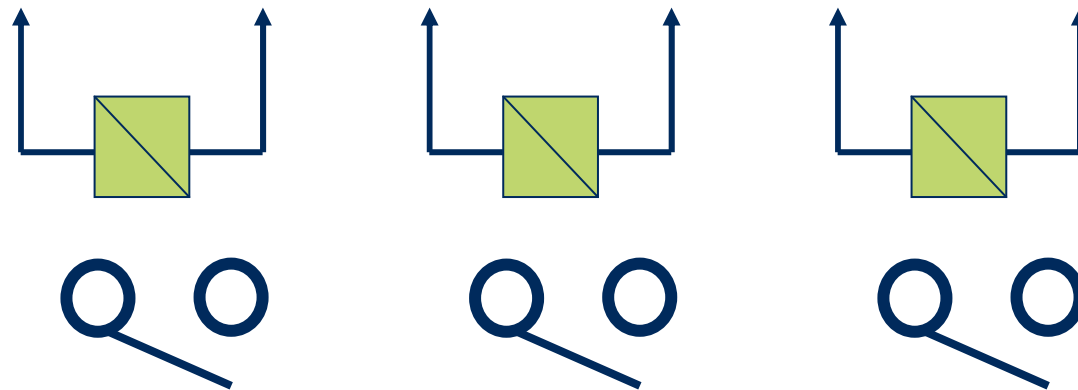


**When the signal is greater than or equal to the setpoint then a presently reset alarm will trip. Once the alarm is tripped it will remain so until the signal decreases to the reset point**

**When the signal is less than or equal to the setpoint then a presently reset alarm will trip. Once the alarm is tripped it will remain so until the signal increases to the reset point**

## List of DM01 Alarms

- 2 alarms per analogue input allow local control
- 2 alarms on counter/timer allow local control
- 2 alarms on totaliser allow local control
- Any of these 16 alarms can be configured to act on any of the relays
- Any of the Alarm conditions can also be configured to reset the digital counter/ timer and the analogue totaliser

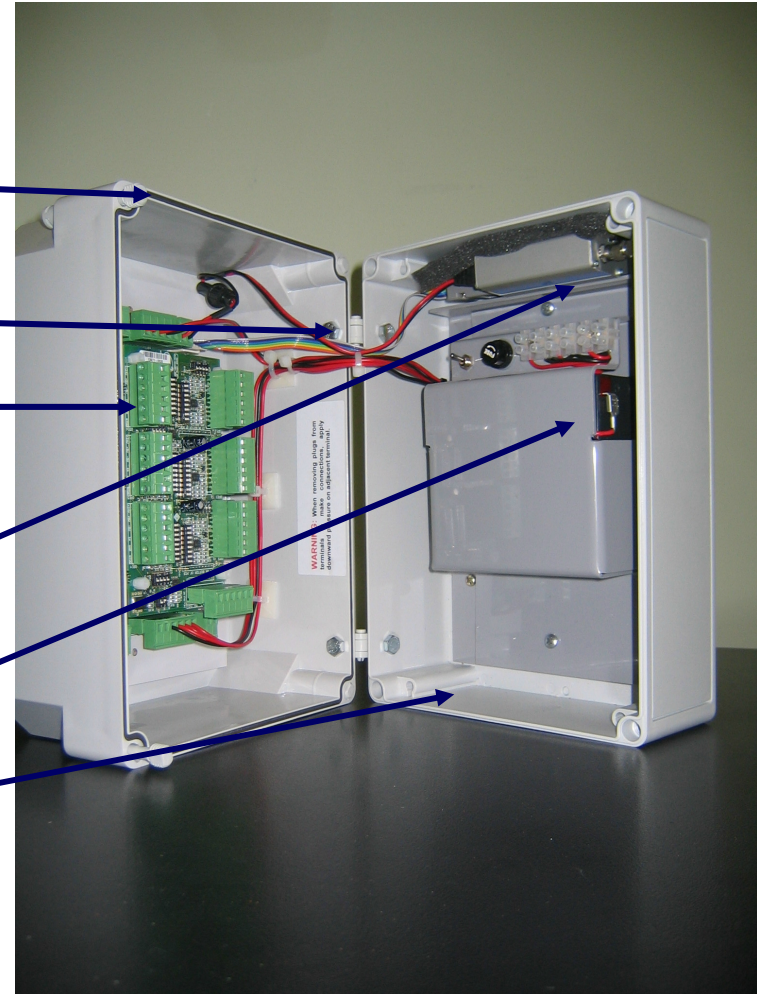


• *Note that alarms on derived inputs do not allow direct local control but can be used by website to modify set points of the inputs used in the derivation and send these to DM01.*



# DM01 Construction

- Enclosure is suitable for outdoors and is IP65 rated
- It has a hinged lid.
- The electronics circuit is mounted in the lid for easy access to the terminals.
- The modem clips into a bracket mounted on the gear-plate.
- The batteries sit in a recess under a plastic cover
- Space for 10 cable glands to bring in cables through the bottom of the enclosure





# DM01 Main Board Connections

