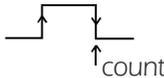


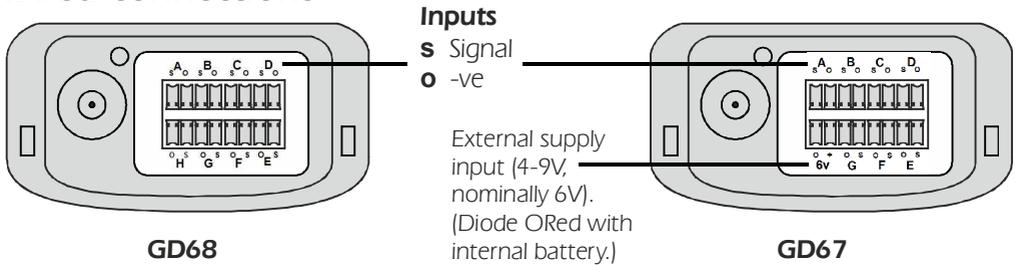
# Eltek TU1036 - GD67/GD68 transmitter User Instructions

## Product summary

- 8 x pulse inputs (voltage free or digital)
- Maximum pulse rate is 15 Hz.
- A maximum of 65,000 pulses can be counted every logging interval. When the maximum count is reached the counter rolls over and continues counting.
- At the (random) transmission time, the value of the pulse count register is transmitted.
- The pulse input can be voltage input or voltage-free contacts (<1V = low, >2.7V = high).
- The counter increments on the falling edge of a pulse:

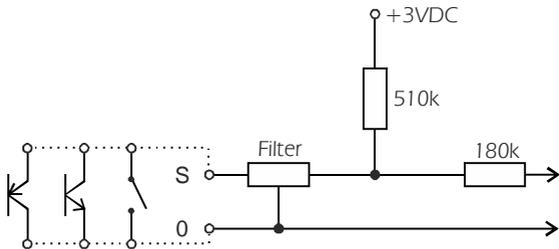


## Wired connections



## Input type

- open collector npn /
- open emitter pnp /
- contact closure



Transmitter input circuit

## Technical note

Logger pulse channels are not reset to zero when logging is started. This is so that during stop/download/reset/restart of the logger, counts from connected sensors are not lost. Consequently, when a system is first started after configuration or a period of no use, no transmissions have been received from the transmitters, so the first reading logged on a pulse count channel will be meaningless. If you want the first recorded value to be meaningful, then do the following:

1. Start the logger logging
2. Wait for at least 2 transmission intervals so that a value is definitely received from each pulse transmitter channel
3. Stop logging
4. Reset and restart the logger

The first value logged will now represent the pulses counted between the first two received transmissions.

# Eltেক TU1036 - GD67/GD68 transmitter User Instructions

## Scaling (adding Engineering Units) to the GD67/GD68

Ensure that the device connected to the transmitter output does not exceed 15 pulses per second and that the number of pulses does not exceed 65,000 pulses per LOGGING interval.

## Using Darca Plus to configure the transmitter

In the **Squirrel Channel to Transmitter Channel Assignments** window:

Check **Sensor-On time** is 0

Click **Set Log Int & Preferred Tx Int** and follow prompts

The screenshot shows the Darca Plus software interface for configuring a transmitter. At the top, there are buttons for 'Help', 'Refresh', 'Next Transmitter >>', and 'Close Transmitter Connections'. The main area is divided into several sections:

- Transmitter: Tx-20000**: Includes fields for 'Sensor-On time (s): 0', 'User Preferred Tx Int: 00:00:10', and 'Tx Interval: 00:00:50'. There are buttons for 'Set Sensor On Time', 'Set Tx Interval', and 'Set Log Int & Preferred Tx Int'. A status box shows: 'Total transmitter channels: 8', 'Used transmitter Channels: 1', 'Free transmitter Channels: 7', and 'Battery Level (%): 100'. A 'Delete All Tx Channels' button is also present.
- Channel:** A dropdown menu shows 'Current Squirrel Start Channel: 1' and an 'Update Channel Allocation' button.
- Channel Assignment Table:**

Tx Chan:	Range:	Sq Chan:				Match:	Alarms:	Hi:	Lo:	
A	Pulse Count (0 to 65000 pulse)	1	Set Channel	Delete Channel	Meter	Edit EU Range	<input checked="" type="checkbox"/>	Edit Alarm	Not Set	Not Set
B	Not Configured	2	Set Channel	Delete Channel		Edit EU Range	<input checked="" type="checkbox"/>	Edit Alarm	Not Set	Not Set
C	Not Configured	3	Set Channel	Delete Channel		Edit EU Range	<input checked="" type="checkbox"/>	Edit Alarm	Not Set	Not Set
D	Not Configured	4	Set Channel	Delete Channel		Edit EU Range	<input checked="" type="checkbox"/>	Edit Alarm	Not Set	Not Set
E	Not Configured	5	Set Channel	Delete Channel		Edit EU Range	<input checked="" type="checkbox"/>	Edit Alarm	Not Set	Not Set
F	Not Configured	6	Set Channel	Delete Channel		Edit EU Range	<input checked="" type="checkbox"/>	Edit Alarm	Not Set	Not Set
G	Not Configured	7	Set Channel	Delete Channel		Edit EU Range	<input checked="" type="checkbox"/>	Edit Alarm	Not Set	Not Set
H	Not Configured	8	Set Channel	Delete Channel		Edit EU Range	<input checked="" type="checkbox"/>	Edit Alarm	Not Set	Not Set

Below the table, there are buttons for 'Save Configuration', 'Delete Channels', 'Transmitter Setup', and 'Send to Squirrel'. The 'Squirrel' ID is 'K00849-9388'.

At the bottom, there is a table showing the channel configuration:

Channel	Ident	Input	Range	Unit	Transmitter ID	Transmitter Channel	Transmit Interval	Hi Alarm	Lo Alarm
1	Channel 001	Pulse Count	0 to 65000	pulse	20000	A	00:00:50		
2									
3									

## How does the logger store data from pulse transmitters?

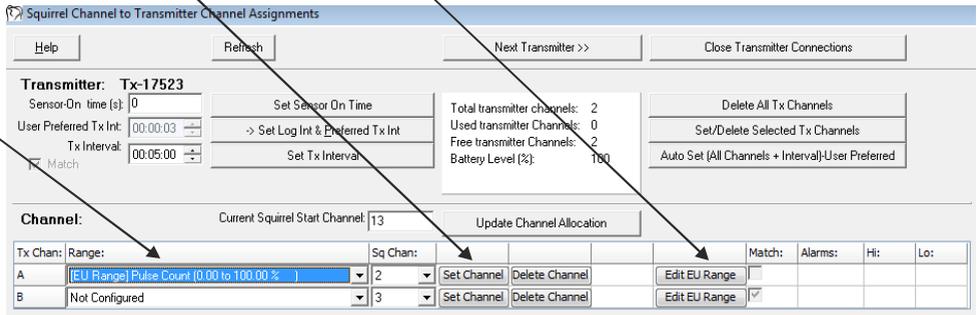
- Each pulse transmitter contains a counter which counts the pulses from a connected sensor. This counter rolls over when it reaches its maximum value.
- During each logging interval, the logger will receive a number of transmissions of this counter value from each pulse transmitter. These will occur at random times in order to minimise signal clashes.
- When the logger reaches the end of the logging interval, it looks at the last counter value it received from a transmitter. It compares this with the counter value from the previous logging interval and stores the difference of the two values. If the counter has rolled over during the logging interval, it will see the newer value as lower than the previous value and will take this into account when calculating the value to store.
- The value of measured pulses that the logger stores is therefore never tied to a strict time interval as the time between transmissions is random. Over longer periods of time, however, this fact becomes irrelevant.

# Eltex TU1036 - GD67/GD68 transmitter User Instructions

## Worked example with a PRO1TE connected to input A

PRO1TE is an electricity energy meter with a pulse output providing 2000 pulses /1000Wh. This equates to 1 pulse per 0.5Wh. 0.5 will be the value **B** in the formula below, and one decimal point resolution is required.

In the **Squirrel Channel to Transmitter Channel Assignments** window, select **EU Range (Pulse Count)** from the drop down list (ignore the units at this stage). Click **Set Channel** and then **Edit EU Range** for the appropriate transmitter channel.



1. Ensure **Hardware Range** is as shown:

2. Set **Maximum** to 32500

3. Leave or set **Minimum** at 0

7. Check **Sample** is range as required

6. To calculate **Count Limit**, use the formula

Count Limit =  $A / (B \times C)$ , where:

**A** = Maximum (32500)

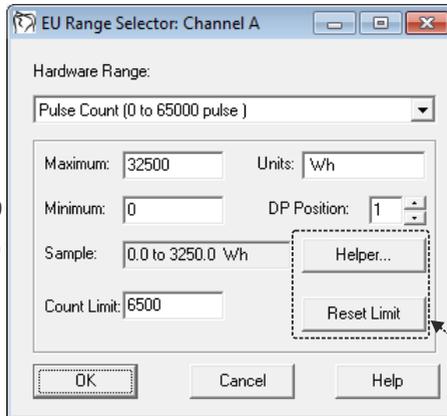
**B** = Value per pulse (0.5Wh)

**C** = Factor calculated from DP

Position:

DP Position	C
0	1
1	10
2	100
3	1000
etc.	etc.

$$= 32500 / (0.5 \times 10) = 6500$$



4. Overwrite **Units** as appropriate e.g. Wh

5. In **DP Position**, Enter number of decimal points needed.

do not use

Click **OK** to close the window when you are finished.

Note: to redo the above example with the units as **kWh** instead of **Wh**:

- The value per pulse is now 0.0005 kWh.

- The **DP Position** should now be set to 4 because we're scaling everything down by 1000.

- Thus, the **Count Limit** remains the same:

$$32500 / (0.0005 \times 10000) = 6500$$

# Eltek TU1036 - GD67/GD68 transmitter User Instructions

Your new configuration will appear in the **Squirrel Channel to Transmitter Channel Assignments** window:

**Squirrel Channel to Transmitter Channel Assignments**

Help Refresh Next Transmitter >> Close Transmitter Connections

**Transmitter: Tx-20000**

Sensor-On time (s): [00:00:10] Set Sensor On Time  
 User Preferred Tx Int: [00:00:10] -> Set Log Int & Preferred Tx Int  
 Tx Interval: [00:00:50] Set Tx Interval  
 Match

Total transmitter channels: 8  
 Used transmitter Channels: 0  
 Free transmitter Channels: 8  
 Battery Level (%): 100

Delete All Tx Channels  
 Sel/Delete Selected Tx Channels  
 Auto Set (All Channels = Interval)/User Preferred

**Channel:** Current Squirrel Start Channel: [2] Update Channel Allocation

Tx Chan:	Range:	Sq Chan:				Match:	Alarms:	Hi:	Lo:	
A	[EU Range] Pulse Count (0.0 to 3250.0 wh )	1	Set Channel	Delete Channel	Meter	Edit EU Range	<input checked="" type="checkbox"/>	Edit Alarm	Not Set	Not Set
B	Not Configured	2	Set Channel	Delete Channel		Edit EU Range	<input checked="" type="checkbox"/>	Edit Alarm	Not Set	Not Set
C	Not Configured	3	Set Channel	Delete Channel		Edit EU Range	<input checked="" type="checkbox"/>	Edit Alarm	Not Set	Not Set
D	Not Configured	4	Set Channel	Delete Channel		Edit EU Range	<input checked="" type="checkbox"/>	Edit Alarm	Not Set	Not Set
E	Not Configured	5	Set Channel	Delete Channel		Edit EU Range	<input checked="" type="checkbox"/>	Edit Alarm	Not Set	Not Set
F	Not Configured	6	Set Channel	Delete Channel		Edit EU Range	<input checked="" type="checkbox"/>	Edit Alarm	Not Set	Not Set
G	Not Configured	7	Set Channel	Delete Channel		Edit EU Range	<input checked="" type="checkbox"/>	Edit Alarm	Not Set	Not Set
H	Not Configured	8	Set Channel	Delete Channel		Edit EU Range	<input checked="" type="checkbox"/>	Edit Alarm	Not Set	Not Set

**Squirrel: K00849-9388**

Save Configuration Delete Channels Transmitter Setup Send to Squirrel

Channel	Ident	Input	Range	Unit	Transmitter ID	Transmitter Channel	Transmit Interval	Hi Alarm	Lo Alarm
1	Channel 001	Pulse Count	0.0 to 3250.0	Wh	20000	A	00:00:50		
2									

Check that the Squirrel Channel and Tx Channel detail is as required. Click **Next Transmitter** to set up additional transmitter channels or **Close Transmitter Connections** if you have set up all the channels you require.

## Display

- Not configured: Battery gas gauge only is active
- At power up:
1. All LED segments lit for 1 second
  2. Firmware version installed displayed for 1 second
  3. Serial number displayed for 1 second
  4. Display will then repeatedly scroll through all configured inputs displaying channel letter alongside the number of counts since last transmission\* (999 max)

\*Technical note: In order to prevent signal clashes, the transmission of data does not occur exactly at the Tx Interval, but randomly within a window of Tx Interval ± 5 seconds. Therefore, if you are testing the system with a regularly timed pulse, you would expect to see slight variations in the current value displayed on the transmitter.

# Eltek

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