


# Manual

## Tyro Cetus/Norma 12 functions simplex remote control

### Cetus transmitter and Norma receiver

Number of functions: 12x pulse, ON/OFF, claxon, emergency stop button.

On LED:  Lights up if the receiver (and the transmitter) is on, flashes if the receiver is off.

Aerial LED: Lights up when a function button is pressed (not confirmation of receipt).


Battery LED: Normally off but flashes if battery is almost empty (10%).

Battery LED: Flashes during charging, even when fully charged.

Emergency stop button: Switches line relays Q1 and Q2 of PLC 1 off, so that you can serial switch your emergency stop circuit.



### Buttons

Activate the Cetus transmitter: Keep the  button pressed down for 2 seconds.

Deactivate the Cetus transmitter: Keep the  button down for 2 seconds or press the emergency stop button.

### Assembly


To optimise the range of the Cetus transmitter, we recommend that the aerial of the Norma receiver be placed as high up as possible and free of metal objects. After connection and assembly, test first before switching on the mains power. The cable connection is as follows:

Cetus transmitter 12	Norma receiver: 1x 10R + 1x 5R PLC		
Button	Relay	Relay input	Relay output
<b>PLC 1</b>			
On 	1+2 activated	C1 & C2	Q1 & Q2
Off 	1+2 deactivated	C1 & C2	Q1 & Q2
Emergency stop	1+2 deactivated	C1 & C2	Q1 & Q2
13 Claxon	3	C3	Q3
1	4	C4	Q4
2	5	C5	Q5
3	6	C6	Q6
4	7	C7	Q7
5	8	C8	Q8
6	9	C9	Q9
7	10	C10	Q10
<b>PLC 2</b>			
8	1	C1	Q1
9	2	C2	Q2
10	3	C3	Q3
11	4	C4	Q4
12	5	C5	Q5



\*Please note: specific systems tailor-made for clients may vary from this configuration. Please see the document "client-specific configuration"

### Blocking buttons:

The standard system is that the buttons are blocked horizontally. It is then not possible to switch buttons 1&2, 3&4, 5&6, 7&8, 9&10, 11&12 at the same time. The claxon, on/off button  and emergency stop button are not affected by this. Optionally, this block can be cancelled.

### Rechargeable handheld transmitter:

For optimum operation we recommend you recharge the transmitter every day.

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**Standard delivery** (in the standard configuration)

Standard	
Cetus transmitter without a LCD	
Norma receiver without a keyboard	
868 Mhz aerial	
230V Car kit or Adapter	
12 function buttons + 1(claxon)	
Pulse switched	
Horizontal button block	
Neversleep (transmitter remains on)	
Button icons 1/12 to be determined by the client	



**Technical specifications:**

Cetus Transmitter	
Max. charging voltage	26Vdc
Min. charging voltage	12Vdc
Battery standby time	± 200 hours
Battery operating time	± 32 hours
Normal charging time	± 5 hours
IP classification	IP65
Transmission range	up to 300 metres
Weight	452 grams
Size	235x105x45 mm
Operating frequency	868 Mhz

Norma Receiver	
Connection voltage	10-38Vdc
Max. output power	3A (with 24 Vdc)
Power consumption per I/O Board	Max. 1A
IP classification	IP-66
PLC	10 + 5 Relays
Weight	1066 grams
Size	240 x 160 x 92 mm

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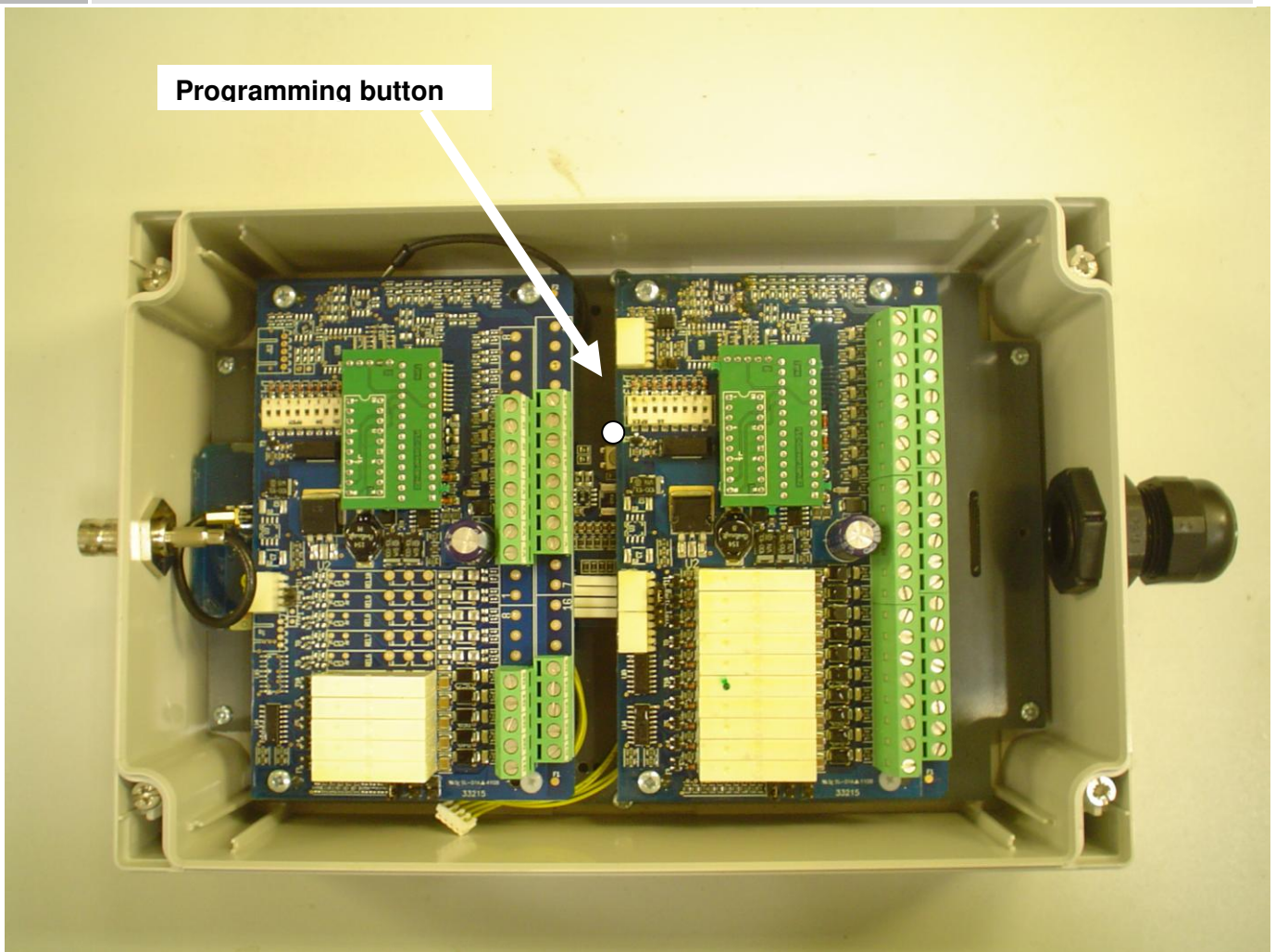
## Tyro Cetus/Norma 12 functions simplex remote control

**PLEASE NOTE: All the systems have already been programmed ex works**

### Programming an additional or a new Cetus transmitter to the Norma receiver

If you want to reprogram the Cetus transmitter and Norma receiver because you want to program an additional or new Cetus transmitter to the Norma receiver, please do so as follows:

Step	Description
1.	Unscrew the Norma receiver casing and open it.
2.	You will now see 3 printed circuit-boards next to each other and one underneath.
3.	Connect the power cable to the V+ screw clamp of the Norma receiver (see diagram).
4.	Connect the earth cable to the V- screw clamp of the Norma receiver (see diagram).
5.	You will see a white button on the lower PC board (see diagram below).
6.	Keep this white button pressed down (also during the following steps).
7.	Keep the white button pressed down whilst you once again switch on the voltage on the receiver.
8.	Continue to keep the white button pressed down whilst you switch on the Cetus transmitter, you will now hear the relay clicking. If you keep the white button pressed down for longer than 10 sec., all the Cetus transmitters will be deleted.
9.	Now release both buttons, the system is programmed and ready for continuous use.
10.	If you want to register several Cetus transmitters on the Norma receiver, then you have to repeat steps 7 to 9 for each Cetus transmitter.



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### Analysis of failures

Check that the transmitter is charging: the battery LED should flash during charging.

If this is not the case, check the charger, power source and plug connections.

Check whether the transmitter is functioning: the aerial LED will be lit if the transmitter is on and you press a button.

If this is not the case, check the rechargeable battery.

Check whether the receiver is on: The on LED (☺) on the transmitter is lit if the receiver is on and flashes if the receiver is off. If the on LED is flashing, check the power source of the receiver V+. Also check whether the range is being hindered (hold the transmitter right next to the receiver to rule this out).

Check whether the transmitter is still registered on the receiver by using the steps on page 3.

Check whether there is power on the outputs (Q1/Q10).

If the system is still not working properly, go to [www.tyroproducts.nl](http://www.tyroproducts.nl) "Support" for more information or consult your supplier. This document can also be downloaded from the aforementioned website.

### Optimising the range

Radio waves can be hindered by the following: metal objects, damp (trees) and other radio waves.

- Check that the aerial is making contact properly.

- Make sure that there are as few metal objects as possible around the aerial. In any case try to prevent any obstacles between the transmitter and receiver aerial. Place the receiver's aerial as high as possible. If necessary, use an aerial extension cable to do so.

- In very damp areas, the range is a lot shorter; you should take this into account.

- Other transmitters can also reduce the range. Try to avoid having systems next to each other that operate on the same frequency. Above all systems that transmit continuously or systems with out of range protection are troubled by this. Try to stay away from radio/TV masts.

### Conditions

All deliveries shall occur in accordance with the general terms and conditions of sale, which you can request from us or download from the website. Our products are certified for many applications. During assembly you should take into account the Machinery Directives that apply for your application.

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### I/O board Norma receiver connection diagram

#### Relay outputs

Depending on the type of control, more or fewer relays can be present on the PLC. The relay contacts on the PLC are of the normally open (NO) type and are between Q and C in the terminal board. The contact between Q1 and C1 belongs with relay 1, Q2 and C2 with relay 2, etc. To see how the relays switch, only the supply voltage (V+ and V-) need be connected. When using the buttons, the orange LEDs will now show which relay is switching.

#### Supply voltage

The positive supply voltage is connected to the V+ and the negative supply voltage (earth) to the V-. The 4 V+ connections are connected to each other as are the 4 V- connections.

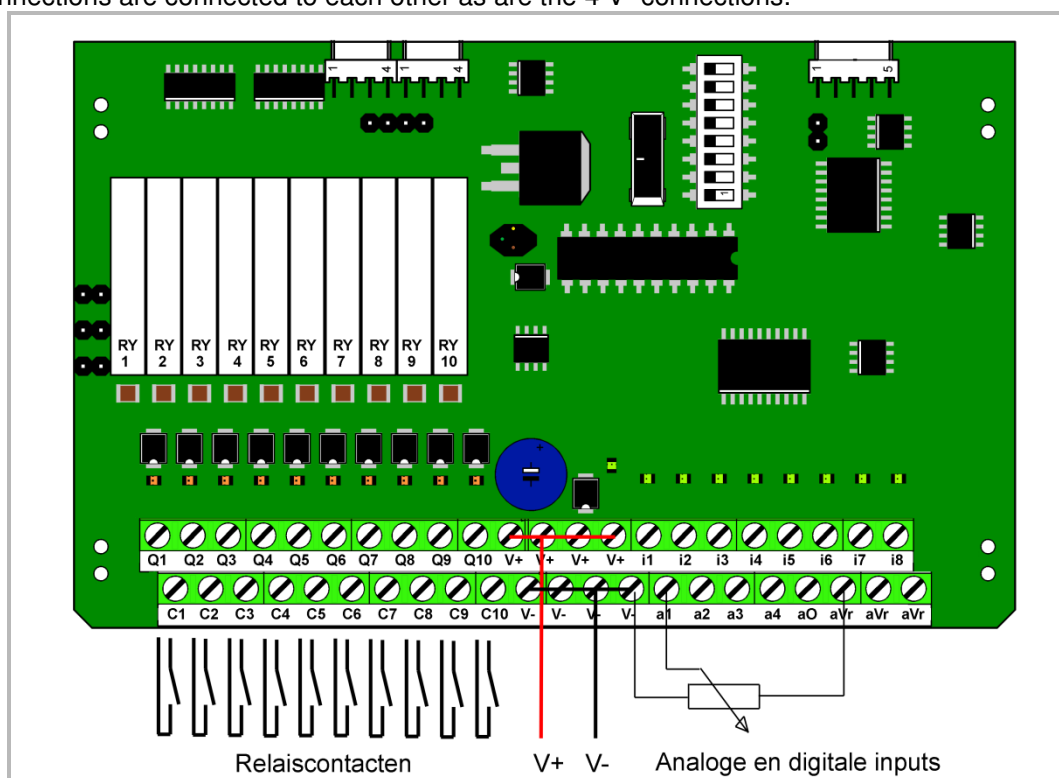


Figure 2

#### Digital inputs

If your control has been programmed for this, signals can be placed on i1 to i8 for feedback to the receiver, for example like a stop switch.

#### Analog inputs

If your control has been programmed for this, analog voltage levels can be placed on a1 to a4 for feedback to the receiver, for example like a potentiometer for level adjustment.

The analog voltage may vary between 0 and 10V.

To this end, use can be made of the reference voltage of 10V that is present on the aVr connection (max. 20mA!). The 3 aVr connections are connected to each other.

#### Analog output

If your control has been programmed for this, in the case of proportional control, analog output voltage can be taken from connection aO. This analog voltage may vary between 0 and 10V and is adjustable in 8 steps.