

FREDs

Issue 1.0 15/02/2021

1. What is a FRED?

For many years the FREMO-community used a [simple hand-held throttle](#) with just a rotary knob for Speed Control and a Direction Switch. This throttle proved very successful and user friendly in analog DC-operations.

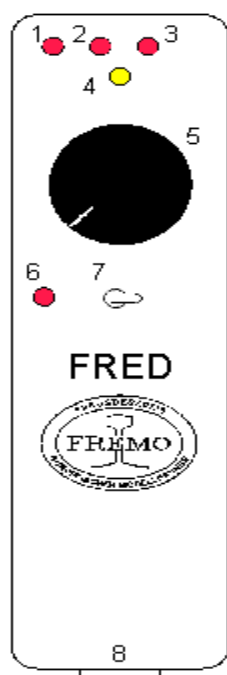
The FRED is an operationally and form-factor look-alike of that throttle for use with Loconet®. Originally developed by [Digitrax](#), Loconet is the DCC communication protocol and is now also used by other companies and has been adopted by FREMO as its DCC system.

The FRED-throttle was developed by Stefan Bormann and Martin Pischky to be used at FREMO meetings with DCC-operation. The idea was that, by limiting the functions of the throttle to the essential ones, inexperienced users would also be able to operate a loco with this throttle, without having to learn the intricacies of a more complicated throttle such as the Digitrax DT402.

So the FRED is in fact a **S**imple **L**oco**N**et **T**HRottle. As SLNTHR would not be easy to pronounce, Bart Bakker coined FRED as short for Fremo's Einfacher Drehregler (rotary-throttle), or in English: Fremo's Easy Digital throttle.

2. Appearance

There are now a number of versions of a Fred. The main differences are the layout of the function buttons; newer ones have more than the early version shown here but the principals of operation etc. are the same.



Nr. Meaning

- 1 Function Button F0
- 2 Function Button F1
- 3 Function Button F2
- 4 Status led (red, green, yellow possible)
- 5 Speed Control rotary knob
- 6 Emergency STOP (for this loco)
- 7 Direction Change
- 8 RJ12 socket (LocoNet) with cable

NB The diagram shows an old version Fred but the principals are the same for all.

Colours of the status-LED:

<u>LED-colour</u>	<u>Function</u>
flashing yellow	after plugging in: a loco has been allocated to this FRED
green	loco allocated, reconnected
flashing green	protocol successful
red	“turn to zero, dummy!!” no loco number assigned to this FRED, can be done by a DT100

If the LED does not light up, the FRED is not yet connected to the LocoNet. Even if the RJ12 seems to be plugged in, it may be badly connected: so just plug it out and in again.

3. What is a FRED capable of doing?

Quite a lot and also quite little ;-)

One can drive a locomotive, but one cannot select it with the FRED. This function has deliberately not been built in, to prevent an inexperienced user from accidentally ‘stealing’ someone else’s loco.

You have to acquire a loco by having it selected and [dispatched](#) through a throttle that has more rights, like a Digitrax DT100.

With the FRED you can operate one (your) loco and are not able to change any parameters of the loco’s decoder. But you can control direction, speed, lights other functions (F0, F1 etc.).

4. Setup

Before you can use a newly built Fred you must first set it up. To do this you will need a Loconet command station e.g. the Digitrax Superchief.

If the FREDI is connected to a DCC central, the self-test should start automatically and the LEDs perform a running light. Now you have to push all switches and to turn the potentiometer.

Important: The emergency stop button (ESTOP) has to be pressed at the end!

A successful test is indicated by changing the LED blinking speed from slow to fast. Afterwards disconnect the FREDI and reconnect it for dispatching.

5. How do I acquire a loco?

Via another throttle that is capable of selecting a loco, like a [Digitrax](#) DT402 using a Superchief or another Loconet command station. Needless to say, you also need a Fred and a loco that will be assigned to your FRED.

NB Fred numbers are centrally assigned and only those Freds with the official number should be used at meetings.

This is to prevent more than one Fred from having the same address and therefore potentially controlling someone else's loco (that you might not even be able to see) by mistake.

In this example a Digitrax DT402 throttle is used, (the exact steps for selecting and dispatching an address will vary by manufacturer, see their instructions).

First you plug in both the DT402 and Fred to the command station and then select the loco address with the DT402 as usual. It is a good idea to confirm this selection with a short test-run on the track.

To make this loco available for the LocoNet, push first [LOCO] on the DT100, the display will flash, and then [DISP].

Please note. The Chief can only dispatch ONE loco at a time for selection. Therefore it is wise to inform all other users that you are going to dispatch a loco.

Then push EMERGENCY STOP (6) on the FRED and hold it, followed by one of the Function Buttons (1,2,3).

Or on newer Freds

Then push Shift on the FRED and hold it, followed by EMERGENCY STOP (6)

If the address is properly acquired the LED changes from red to green.

NB You will of course also have to assign the same address to the loco.

6. How to operate a loco?

Plug the RJ12 plug (8) in a LocoNet-box. Otherwise nothing will happen...

Then check whether that loco has been acquired. The [LED](#) colour (4) will tell if this is the case. If no loco has been assigned to this FRED, it should be done now ([see 5 above](#)).

Now the loco can be controlled in the same fashion as with the familiar analog Fremo-throttle.

The Speed Control knob (5) is an old-fashioned potmeter: if turned in the zero-position (maximum to the left) the loco stands still, if turned to the right speed increases until 100% speed is reached when the knob notches to the right. The Direction Control switch (7) controls forward/backward.

Please note: if the direction is reversed when the Speed Control (5) is not at the zero-position, an Emergency STOP is invoked for this loco, which is indicated by a green flashing of the LED.

When the Speed Control (5) is turned to the zero position the Emergency STOP is released.

Because you can walk around with the FRED, it may happen that the Direction Control switch (7) points to the right, while the train moves to the left. This is quite normal for DCC-

operation, because 'forward' is defined as a characteristic of the loco: boiler end for steam engines, 'F'-marked end for diesels.

The STOP Button (6), to the left of the Speed Control Button (5), invokes an Emergency STOP when pushed. Only for this loco, not global for the whole section. Turn the Speed Control (5) to the zero position to release the Emergency STOP.

7. Remove old address from a Fred.

Note this is necessary before you can enter a new address into a Fred that has an existing address

Plug in the Fred, green led lights up, then push the 2 buttons furthest apart. Both buttons at the same time. Red led lights up, green led is off.

On the classic Fred, these two buttons are the stop button and f0

On the newer Fredis, press Shift and Stop. Note: Shift, not double shift

8. Panic mode, or what to do when everything seems to fail to work?

Don't rush to call the dispatcher to halt the fast clock, but verify everything is set up right:

- Is it plugged in correctly?
- Did you try to change de direction of a moving locomotive?
- Was the STOP Button accidentally pushed?

If those things are all right and nothing happens, it might help to unplug the FRED and plug it in again after about 5 seconds.

9. Uhlenbrock Fred

The German company also produce a Loconet DCC Throttle called a Fred. Although based upon the FREMO Fred, it differs in that you can assign up to three addresses to it at any one time. They are not normally used at FREMO meetings because of the risk of assigning an address to it that someone else also has.