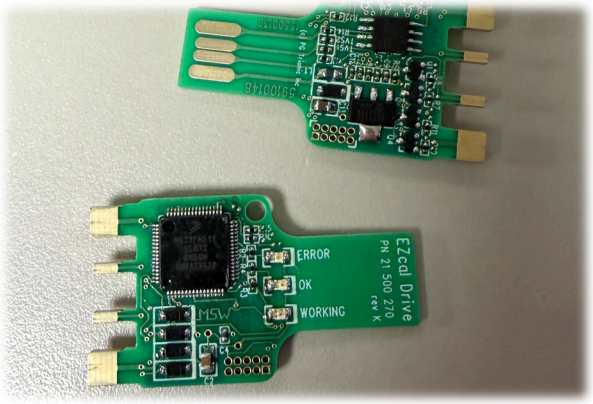
EZcalDrive Instructions

EZcalDrive

Low cost USB / RS232 device for PGT products

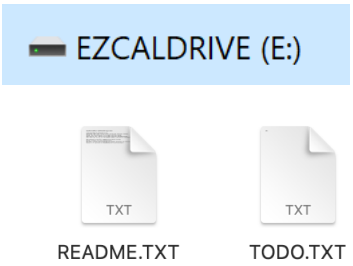


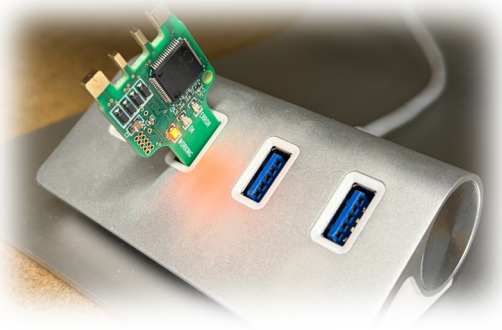
General features:

- Low cost
- Built-in USB storage for file transfer between controllers and PCs
- SAVE and LOAD functions allow controller settings to be saved for documentation, and loaded to another controller for easy repeating of machine configuration
- “PGFLASH” function for easy controller software updates
- Configuration via “TODO.TXT” file

1.1 EZcalDrive functionality

When connected to a PC via USB, the drive “EZCALDRIVE” appears with at minimum two files README.TXT and TODO.TXT:





README.TXT contains a quick description of EZcalDrive capabilities and use.

TODO.TXT is a list of functions that EZcalDrive should perform when connected to a PG Trionic Inc controller. This file is initially empty and should be edited as needed.

1.2 EZcalDrive LEDs

Three colored LEDs on EZcalDrive show activity: WORKING (orange), OK (green) and ERROR (red); during activity WORKING will be on or flashing; when activity is finished OK will go on – or if there is a problem ERROR will be on or flashing

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1.3 README.TXT

Double-click to open README.TXT and see a “reminder” of how to use EZcalDrive:

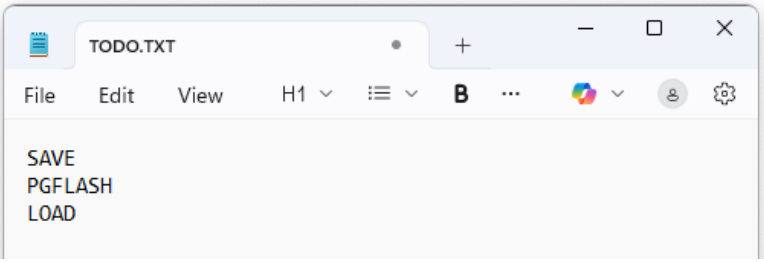
EZCALDRIVE README.TXT INSTRUCTIONS (August 2025)

Create/edit TODO.TXT configuration file
Add PGFLASH, LOAD, SAVE to carry out that function when controller connected
PGFLASH finds the matching REC file to update controller program
LOAD finds the .PGT / .PGT.TXT file to update controller adjustments/setups
SAVE creates new .PGT.TXT file (with sequence number) from controller adjustments/setups/etc

When connected to controller, commands are carried out in order
Working, finished, error LEDs indicate progress
When TODO is finished (and finished LED is on steady), disconnect from controller
Reconnect to PC and check file EZCALDRIVELOG.TXT to confirm activity

1.4 TODO.TXT

Double-click to open TODO.TXT in a text editor (i.e. Notepad), and make changes as needed to determine the behavior of EZcalDrive when connected to a controller. Each “command” should be on a single line.
For example adding SAVE on a single line will result in EZcalDrive creating a PGT SAVE file from the controller data when next connected to a controller.
Adding three lines as shown below will result in EZcalDrive carrying out the three “commands” in sequence *(Each command must successfully complete before the next is carried out)*



NOTE: Typically, just a single command (i.e. PGFLASH) is desired and added to TODO.TXT
NOTE: If TODO.TXT is empty, both ERROR and OK will light when connected to a controller, to indicate the specific problem.

1.5 EZCALDRIVELOG.TXT

Double-click to open EZCALDRIVELOG.TXT and see everything that EZcalDrive did when connected to a controller. Example:

```
     0 EZCALDRIVE START V9010A
   118 CONNECTED TO M21017V035 21301014 (S/N=00000/00000)
   119 TODO: SAVE
  9277 SAVE: CREATED USBSAVE.0000.PGT.TXT
  9277
 10274 CONNECTED TO M21017V035 21301014 (S/N=00000/00000)
 10274 TODO: PGFLASH
 10333 PGFLASH: NO FILES!
 10333 EZCALDRIVE END
```

This shows that EZcalDrive did a SAVE, and then was instructed to do PGFLASH but no REC / SREC file was found. The number to the left indicates time (in milliseconds).

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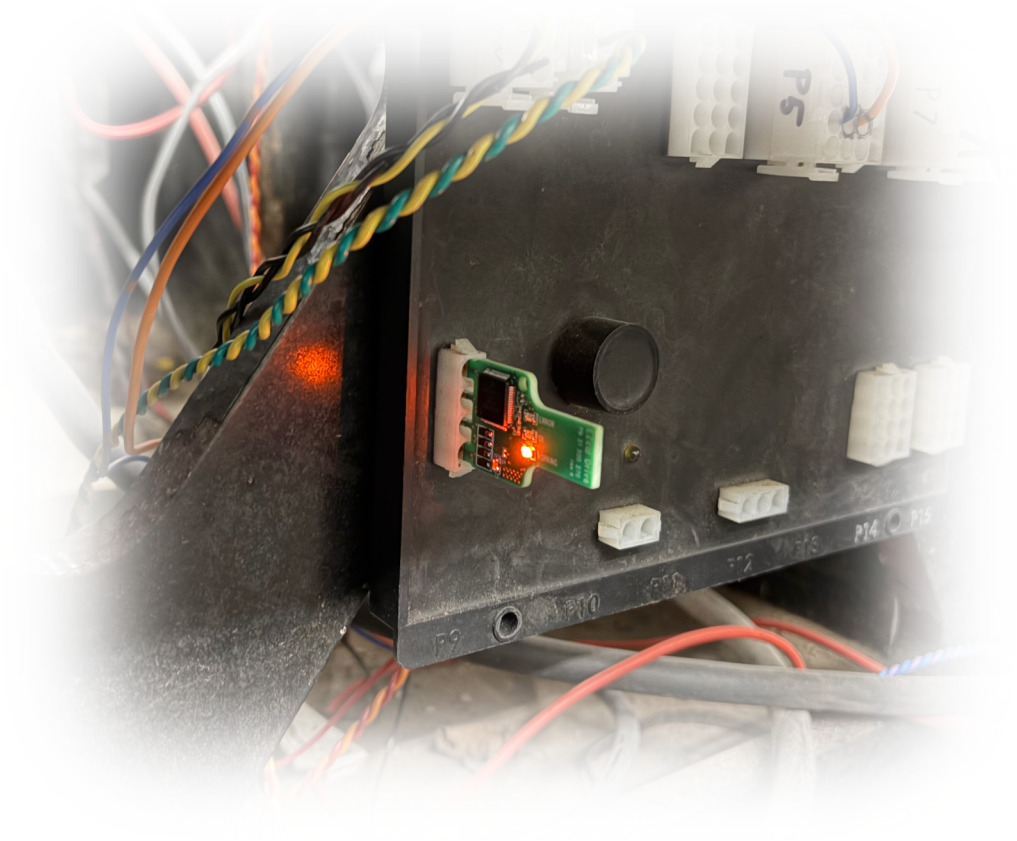
1.6 Connecting EZcalDrive

EZcalDrive is designed with four “probes” to insert into the four way RS232 connector of a controller – it is OK to insert in either orientation (LEDs to left or to right).
When connected the WORKING LED will light or flash while EZcalDrive connects to the controller and carries out commands.
DO NOT DISCONNECT until the OK (or ERROR) light is on steady, indicating that commands are completed.



2.1 EZcalDrive SAVE

Adding SAVE to TODO.TXT makes EZcalDrive do a SAVE of controller data, to a file of the name USBSAVE.nnnn.PGT.TXT; the nnnn increases on every SAVE, and the .TXT final extension allows the file to be easily viewed on PC. The file is fully compatible with EZcal Pro / Max. Example of the beginning of a SAVE file:

```
PGT=Mmmmmm
PGT=V035
CLONEOK=YES
EZCALTINY=V9010A
SNAPSHOT=NO

[DIAGNOSTICS]
"SYSTEM ENABLED","LOCKED","4",7
"SYSTEM ENABLED DLD","3=LIFT","3",8
"SYSTEM ENABLED STARTUP","WAITING","240",9
"SYSTEM ENABLED STARTUP MRR","0","0",10
"SYSTEM ENABLED PLATFORM MODE","OFF","230",11
"SYSTEM ENABLED GROUND MODE","ON","230",12
"SYSTEM INTERLOCK","NO","0",13
"SYSTEM SUPPLY","11.8V","9669",14
```

So long as EZcalDrive is connected to a PG Trionic Inc controller with RS232, SAVE should always work successfully.
EZCALDRIVELOG.TXT reports what happens, for example:

```
3531 TODO: SAVE
9325 SAVE: CREATED USBSAVE.0002.PGT.TXT
```

2.2 EZcalDrive LOAD

Adding LOAD to TODO.TXT makes EZcalDrive load settings from a PGT SAVE file, updating the controller as needed. It is of course necessary that the file be for the exact same controller.
EZCALDRIVELOG.TXT reports what happens, for example:

```
   0 EZCALDRIVE START V9010A
 117 CONNECTED TO M21017V035 21301014 (S/N=00000/00000)
 129 TODO: LOAD
 141 LOAD FILES: 2
 144 LOAD: IGNORING LOAD2.PGT.TXT
 144       BECAUSE DIFFERENT MACHINE 21012
 145 LOAD: FOUND LOAD1.PGT.TXT
 145 LOAD: USING LOAD1.PGT.TXT
 800 LOAD: CHANGECOUNT=4
2443 LOADCOMPARE: "TILT#1 Xtrip" FROM 1.0' TO 2.0'
2459 LOADCOMPARE: "LIFT UP MIN" FROM 5% TO 0%
2470 LOADCOMPARE: "LIFT UP MAX" FROM 50% TO 100%
2487 LOADCOMPARE: "OVERLOAD TRIP@" FROM 107% TO 110%
2491 LOADCOMPARE: END
2491 LOADCOMPARE: FINISHED
2539 LOAD: FINISHED
```

Here EZcalDrive found two files and selected the one to use (the one for the connected controller); EZcalDrive found four changes (which it described).

2.3 EZcalDrive PGFLASH

Adding PGFLASH to TODO.TXT makes EZcalDrive PGFLASH update the controller to the REC / SREC file which must also be on the USB drive. EZcalDrive ensures that the file matches the controller.

EZCALDRIVELOG.TXT reports what happens, for example:

```
      0 EZCALDRIVE START V9010A
    117 CONNECTED TO M21017V035 21301014 (S/N=00000/00000)
    118 TODO: PGFLASH
    119 PGFLASH FILES: 1
    121 PGFLASH: FOUND 21301014_20250811.SREC
    121 PGFLASH: USING 21301014_20250811.SREC
    204 PGFLASH: ACCESSING BOOT
    239 PGFLASH: CHECKING BOOT
   6435 PGFLASH: ERASING
   6670 PGFLASH: PROGRAMMING
  30062 PGFLASH: FINISHED
```

Here EZcalDrive found the SREC file and used it to update the controller.

2.4 EZcalDrive WAIT

Adding WAIT x to TODO.TXT makes EZcalDrive wait for a number of seconds, before continuing with additional commands. This is generally not necessary but for example might be useful if a situation that some one wants to get a save of takes a few seconds to occur. In such a case TODO.TXT might be:

WAIT 5
SAVE

The resulting SAVE then would occur after the issue being diagnosed.

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3.1 EZcalDrive SAVE additional

There are no special options.

3.2 EZcalDrive LOAD additional

Generally it is recommended to put only a single PGT SAVE file onto EZcalDrive so that there is no problem for example where LOAD cannot choose between multiple files. However in the case that there are multiple files, or just to be completely clear, it is possible to add the [complete] filename to the LOAD instruction in TODO.TXT. For example:
LOAD JUNEUPDATE.PGT.TXT
(which will LOAD the controller with data from file “JUNEUPDATE.PGT.TXT” assuming it exists)

Possible errors reported in the log file include:
LOAD: NO FILES (no PGT SAVE file found that matches the controller)
LOAD: MULTIPLE FILES FOUND (more than one file matches the controller)
LOAD: COULD NOT READ filename (the file is damaged?)
LOAD: NO DATA IN filename (the file is damaged or not a PGT SAVE?)
LOAD: MISSING VEHICLE# (the file is incomplete?)
LOAD: MISSING MODEL# (the file is incomplete?)

3.3 EZcalDrive PGFLASH additional

Generally it is recommended to put only a single REC / SREC file onto EZcalDrive so that there is no problem for example where PGFLASH cannot choose between multiple files. However in the case that there are multiple files it is possible to add the [complete] filename to the PGFLASH instruction in TODO.TXT. For example:
PGFLASH 20250808.SREC
(which will PGFLASH the controller with the program in file “20250808.SREC” assuming it exists)

Possible errors reported in the log file include:
PGFLASH: NO FILES (no REC / SREC file found that matches the controller)
PGFLASH: MULTIPLE FILES FOUND (more than one file matches the controller)
PGFLASH: COULD NOT READ filename (the file is damaged?)
PGFLASH: BAD FILE AT LINE x (the file is damaged?)
PGFLASH: UNSUPPORTED (controller is not supported by EZcalDrive)
PGFLASH: BOOT MISMATCH (REC / SREC file is not for this controller)
PGFLASH: STUCK IN BOOT WITH MULTIPLE FILES

The last error needs more description: In the event that a controller has no PGFLASH program it will be “STUCK IN BOOT”; this can for example happen if power is removed or EZcal Pro / Max / Drive is disconnected during PGFLASH. In this case EZcalDrive cannot identify the controller.
If there is a single REC / SREC file present when the controller is STUCK IN BOOT, EZcalDrive assumes that the one file is to be used – but if multiple files are found, it’s not possible to decide which file to use and results in this error.