Application Note
CTAN #247

The Application Note is pertinent to our CTIU and Unidrive Family Range

Creating a Unidrive Fault History Screen with the CTIU Operator Interface Unit

It is often desirable to offer a Fault History Screen on an HMI Operator Interface Unit that will indicate the past few Faults the drive has experienced.. This application note will outline a procedure to allow you to create a Fault History Screen such as the one shown below on our CTIU multi-line units:

In order to create a Fault screen, you will need the CTIU Configuration program.

The CTIU configurator can be downloaded from our website at or by clicking on the link below:

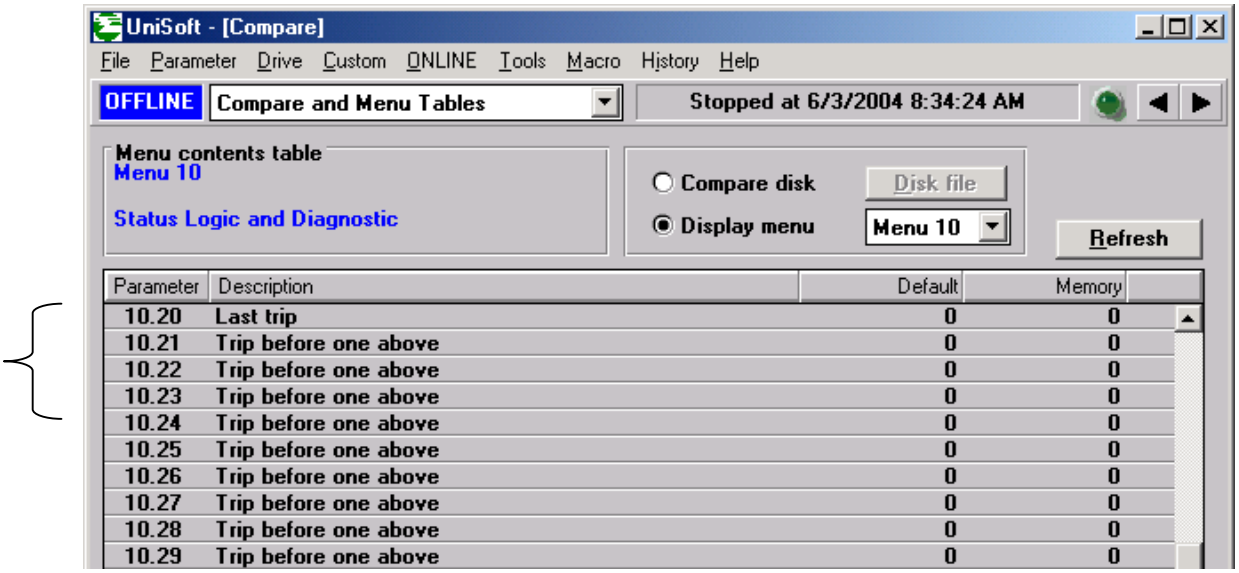
http://www.emersonct.com/download_usa/software_drives.htm

Step 1

Start out by creating a screen like you see below:

Step 2

The Unidrive holds the last 10 faults in memory. This can be found in the following registers:
We may wish to display only the last 4 for instance.



When the CTIU interrogates these registers , the Unidrive sends back a numeric fault code as shown on the next page.

Now as far as displaying a phrase for the Drive Fault, we could create a specific phrase for each of the Drive Faults. Listed below are only some of them:

UV	1	DC Bus Under voltage (< 450V DC)
OV	2	DC Bus Over voltage (> 830V DC)
OI.AC	3	AC instantaneous current trip **
OI.br	4	Instantaneous braking circuit over current **

** A delay of 10 seconds is imposed before reset is allowed on Over current trips

PS	5	Power supply trip (Internal drive fault)
Et	6	External trip (see p10.32)
OV.SPd	7	Overspeed of motor (see p3.08 for threshold)
Prc2	8	Processor 2 trip (UD70 Applications Module)
SEP	9	Trip detected in small option module (eg. Resolver break)
ENC.OVL	10	Encoder supply or F/D output overload
ENC.PH1	11	Encoder phasing failure - U missing *
ENC.PH2	12	Encoder phasing failure - V missing *
ENC.PH3	13	Encoder phasing failure - W missing *
ENC.PH4	14	Encoder phasing failure - UVW connections *
ENC.PH5	15	Encoder phasing failure - A missing *
ENC.PH6	16	Encoder phasing failure - B missing *
ENC.PH7	17	Encoder phasing failure - A/B swapped *
ENC.PH8	18	Autotune general failure*

* Detected during commissioning tests

It_br	19	IxT on braking resistor (see p10.30)
Oh1	21	Drive overheat (Drive thermal model protection)
It.AC	20	IxT overload in motor (see p4.15)
Oh2	22	Excessive heatsink temperature detected by thermistor (see p7.04)
OA	23	Excessive ambient temperature (>70°C)
TH	24	Thermistor trip - excessive heat in motor (see Input spec)
THS	25	Thermistor short circuit (see Input spec)

Non important trips - drive can stop before tripping if required (see p10.37)

OP.OVLd	26	Overload of 24V output, or digital outputs
CL1	27	Current loop 1 loss (Trip level is 3mA in 4-20 or 20-4mA modes)
CL2	28	Current loop 2 loss (Trip level is 3mA in 4-20 or 20-4mA modes)
CL3	29	Current loop 3 loss (Trip level is 3mA in 4-20 or 20-4mA modes)
SCL	30	Serial comms loss (serial mode 2 only)

Important trips - drive trips immediately:

EEF	31	Internal EEPROM failure
Ph	32	Loss of an AC supply phase (Always stops before tripping)more...
rS	33	Failed during stator resistance measurement
ST GL	34	Size 5 Spurious trip
SEP EC	35	Small option module encoder comms failure.
SEP EF	36	Small option module encoder fault.

……

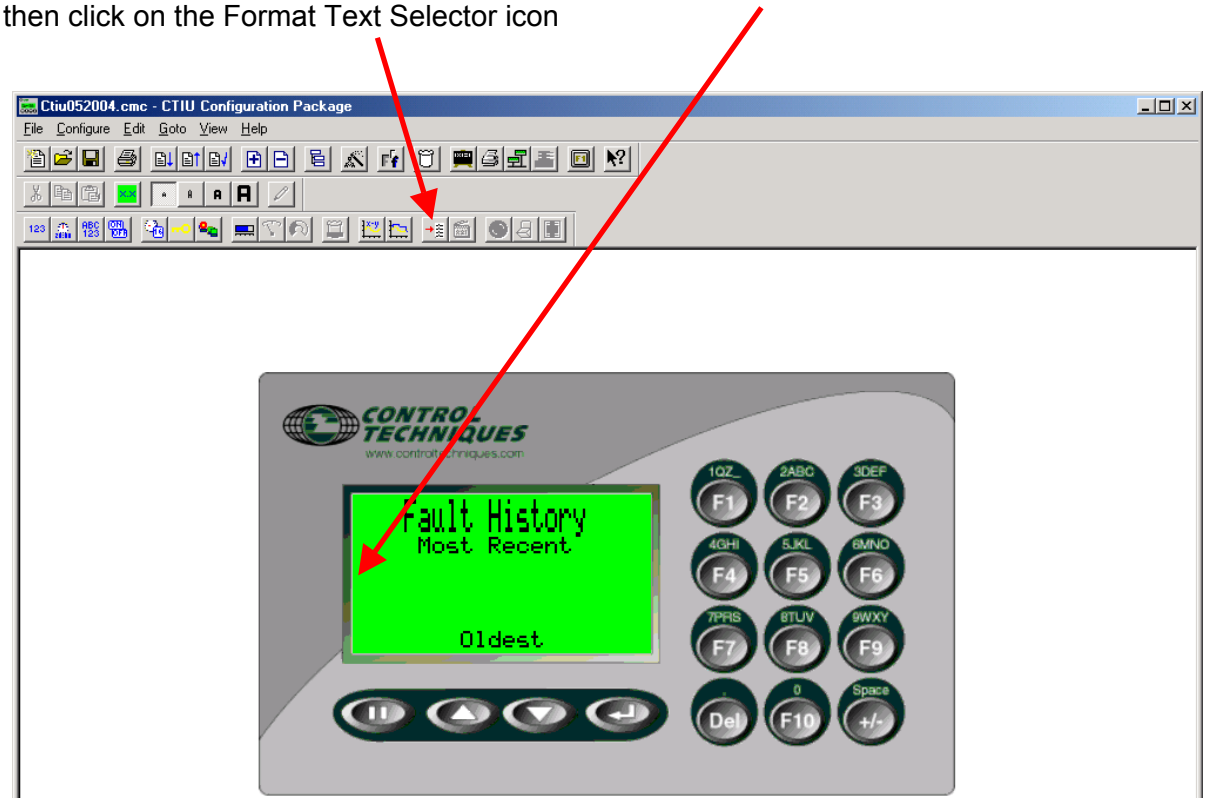
However, to save you time I've already created a Fault List file that can be imported to save you all this time.

The phrases that will be displayed will be:

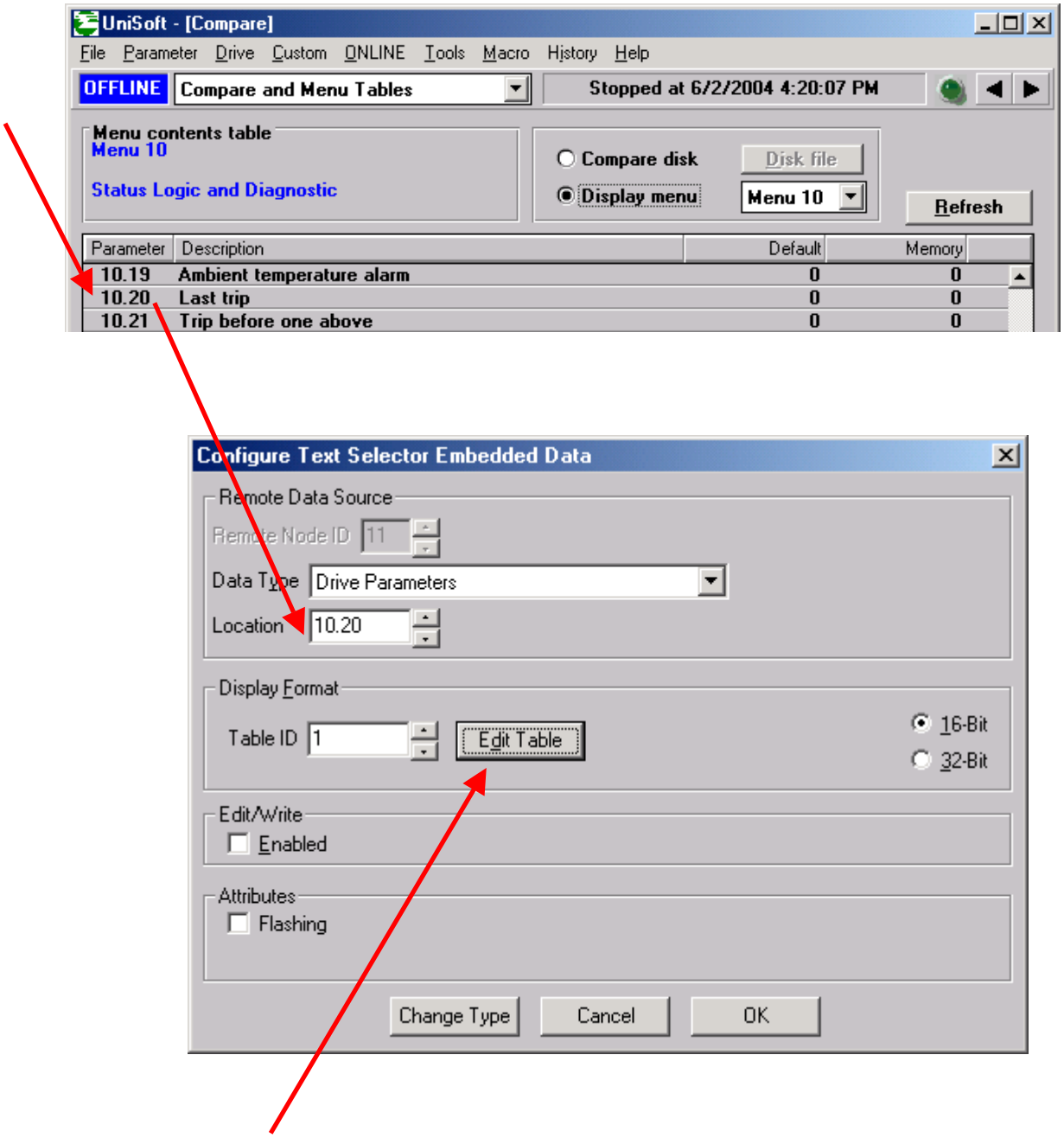
```
000 : Unknown Trip Code
001 : DC Bus UnderVoltage
002 : DC Bus OverVoltage
003 : AC OverCurrent Trip
004 : Braking Overcurrent
005 : Internal Supply Trip
006 : External Trip Pin 30
007 : Motor Overspeed Trip
008 : Co-Processor Trip
009 : Resolver/SmallOption
010 : Encoder Supply Trip
011 : U Channel Problem
012 : V Channel Problem
013 : W Channel Problem
014 : UVW Connections ??
015 : A Channel Problem
016 : B Channel Problem
017 : Connections-AB PH7
018 : Encoder Failure-PH8
019 : Braking Overload
020 : Ixt Overload Trip
021 : Heatsink (Ixt)-Oh1
022 : Drive was Hot! Oh2
023 : Electronics was Hot!
024 : Motor was Hot!
025 : MotorThermistor Bad
026 : Drive 24v Overloaded
027 : mA Current Ref1 Loss
028 : mA Current Ref2 Loss
029 : mA Current Ref3 Loss
030 : Communication Loss
031 : Data EEPROM Failure
032 : AC Input Phase Loss
033 : Stator ohms range ?
034 : Uni 5 Spurious Trip
035 : SOM Enc Comms failed
036 : SOM Encoder Fault
037 : UD78 is not present?
041 : No Such Parameter-41
042 : Write to Read Only42
043 : Parameter Write Only
044 : Value OverRange 44
045 : IObox Link Failure ?
046 : Stack Overflow 46
047 : Internal Error 47
048 : Internal Error 48
049 : Wrong OS Loaded 49
050 : Divide by 0 Math 50
051 : Array Range Error 51
052 : Control Word Trip 52
053 : DPL Program Wrong 53
054 : DPL Task Overrun 54
055 : RS485 Comms Trip 55
056 : Fieldbus or Wrong OS
057 : Illegal OS Call   57
058 : Internal Error  58
059 : Internal Error  59
060 : CTNet Hardware  60
061 : CTNet Baud/Node Err
062 : CTNet Baud Conflict
063 : CTNet Duplicate Node
064 : Illegal Cyclic Rate
101 : Uni5 OverTemperature
102 : HeatSink Hot Unit 1
103 : HeatSink Hot Unit 2
104 : HeatSink Hot Unit 3
105 : HeatSink Hot Unit 4
106 : HeatSink Hot Unit 5
107 : HeatSink Hot Unit 6
108 : HeatSink Hot Unit 7
109 : HeatSink Hot Unit 8
110 : PowerSupply Unit 1
111 : PowerSupply Unit 2
112 : PowerSupply Unit 3
113 : PowerSupply Unit 4
114 : PowerSupply Unit 5
115 : PowerSupply Unit 6
116 : PowerSupply Unit 7
117 : PowerSupply Unit 8
118 : OverCurrentAC Unit 1
119 : OverCurrentAC Unit 2
120 : OverCurrentAC Unit 3
121 : OverCurrentAC Unit 4
122 : OverCurrentAC Unit 5
123 : OverCurrentAC Unit 6
124 : OverCurrentAC Unit 7
125 : OverCurrentAC Unit 8
126 : DCOverVoltage Unit 1
127 : DCOverVoltage Unit 2
128 : DCOverVoltage Unit 3
129 : DCOverVoltage Unit 4
130 : DCOverVoltage Unit 5
131 : DCOverVoltage Unit 6
132 : DCOverVoltage Unit 7
133 : DCOverVoltage Unit 8
134 : DCOverCurrent Unit 1
135 : DCOverCurrent Unit 2
136 : DCOverCurrent Unit 3
137 : DCOverCurrent Unit 4
138 : DCOverCurrent Unit 5
```

```
139 : DCOverCurrent Unit 6
140 : DCOverCurrent Unit 7
141 : DCOverCurrent Unit 8
142 : Unknown Fault Unit 1
143 : Unknown Fault Unit 2
144 : Unknown Fault Unit 3
145 : Unknown Fault Unit 4
146 : Unknown Fault Unit 5
147 : Unknown Fault Unit 6
148 : Unknown Fault Unit 7
149 : Unknown Fault Unit 8
150 : Configuration Unit 1
151 : Configuration Unit 2
152 : Configuration Unit 3
153 : Configuration Unit 4
154 : Configuration Unit 5
155 : Configuration Unit 6
156 : Configuration Unit 7
157 : Configuration Unit 8
180 : Small Module Missing
181 : Servo Phasing Wrong?
182 : UD55 Memory Corrupt?
183 : No Cloning Data ??
184 : Wrong Drive Type
185 : UD55 is Read only ?
186 : Co-Processor Missing
187 : Menu 20 Data Missing
188 : Cloning Conflict ?
```

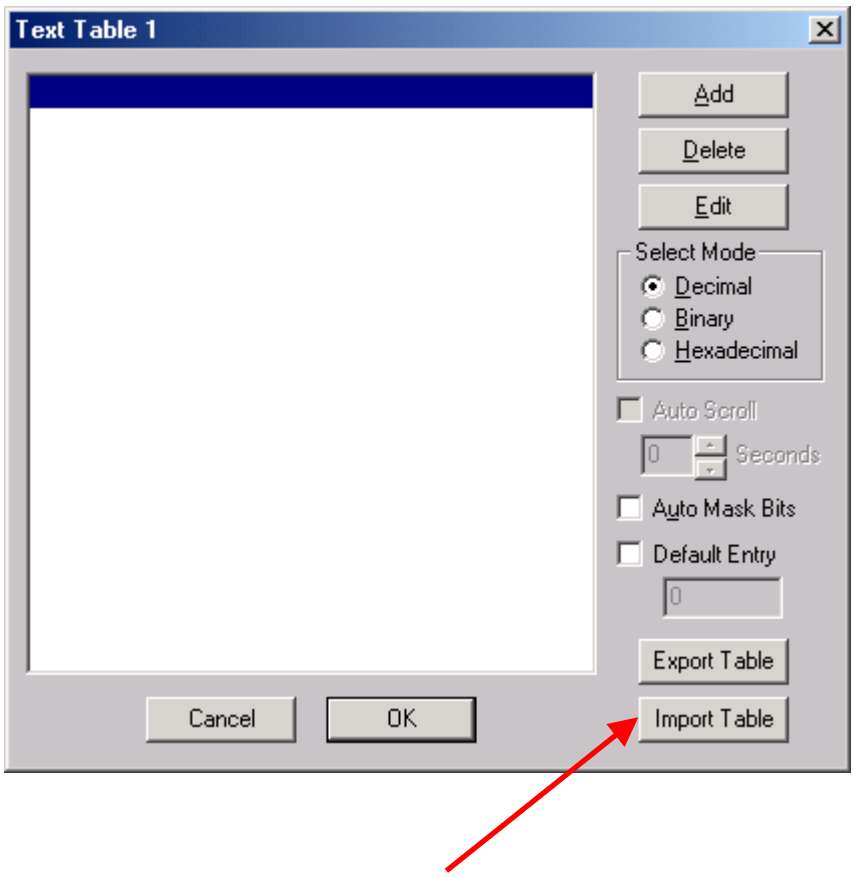
Place the cursor on the line where you want the most Recent Fault phrase to appear then click on the Format Text Selector icon



Parameter #10.20 in the Unidrive will indicate the Fault Code of the last trip. We would want to decode that into a text phrase.

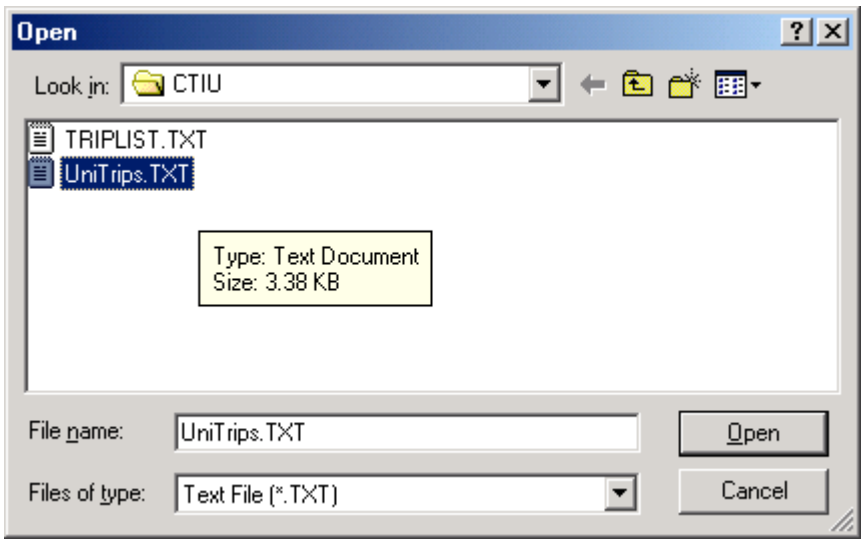


Now click on EDIT TABLE



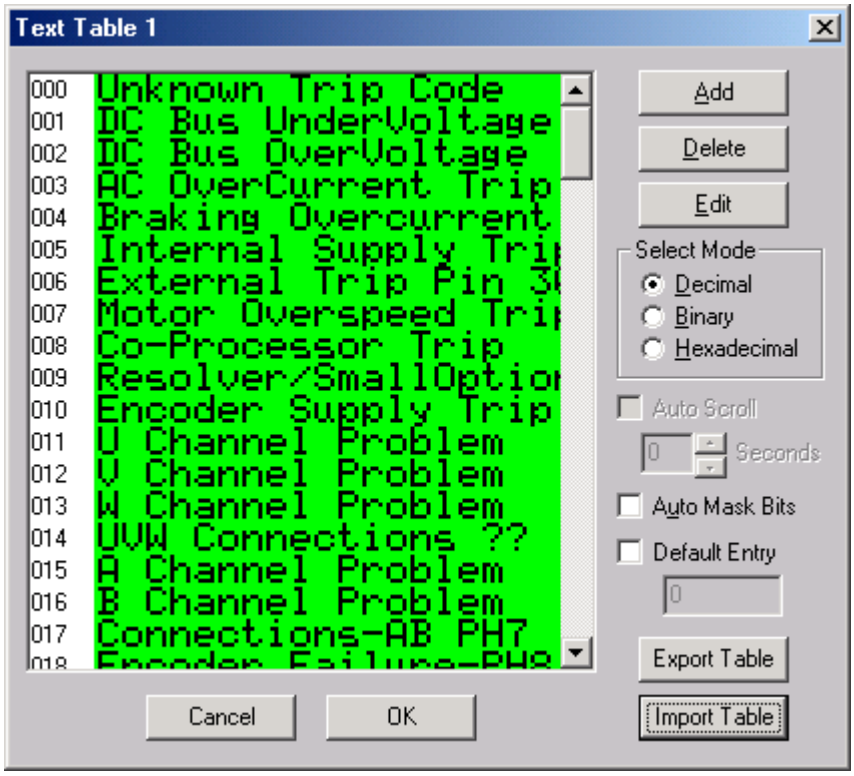
Now click on IMPORT TABLE

The Fault Trip list can be imported from a text file named **UniTrips.txt**

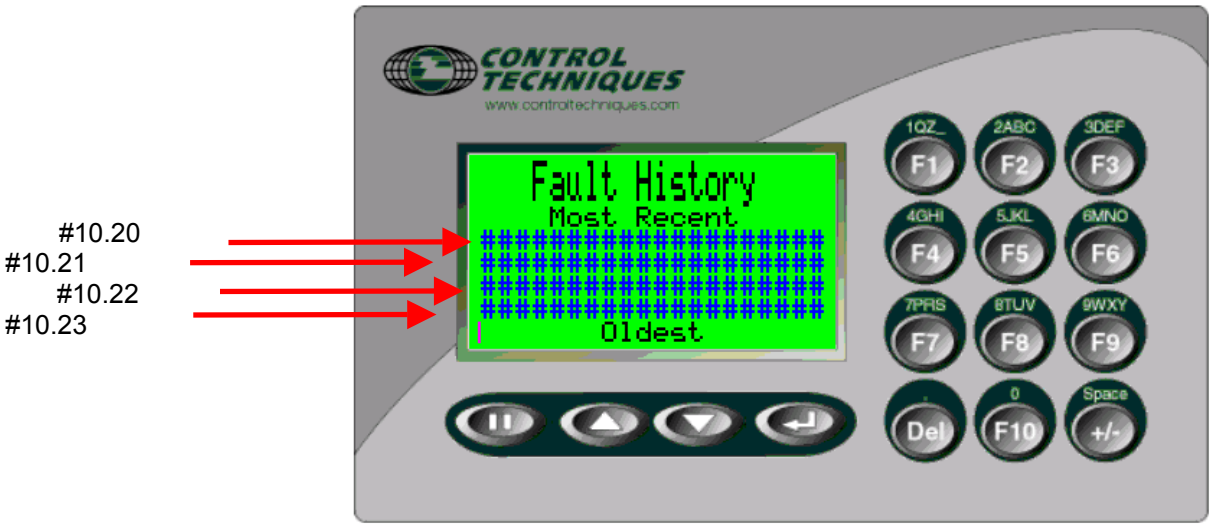


This file is available under Application Notes for AC Drives/Unidrive/CTAN246 or CTAN247.

This should pull in a proper text phase for each Unidrive fault. Click OK after this.



Now your Fault Screen should look as shown below- repeat for the next 3 older faults but use #10.21, #10.22 and #10.23



Summary

An example file for this exact situation (using a CTIU110) is available from our website within the Application Note Area under Application Notes for AC Drives/Unidrive **CTAN247**.

Other applicable Application Notes

CTAN245 Creating Power Up Splash Screen
CTAN246 Creating a PopUp Fault Screen Screen
CTAN248 Creating PopUp Fault Screen using Maths

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