

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](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.

Parameter	Description	Default	Memory
10.20	Last trip	0	0
10.21	Trip before one above	0	0
10.22	Trip before one above	0	0
10.23	Trip before one above	0	0
10.24	Trip before one above	0	0
10.25	Trip before one above	0	0
10.26	Trip before one above	0	0
10.27	Trip before one above	0	0
10.28	Trip before one above	0	0
10.29	Trip before one above	0	0

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 overhear (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.

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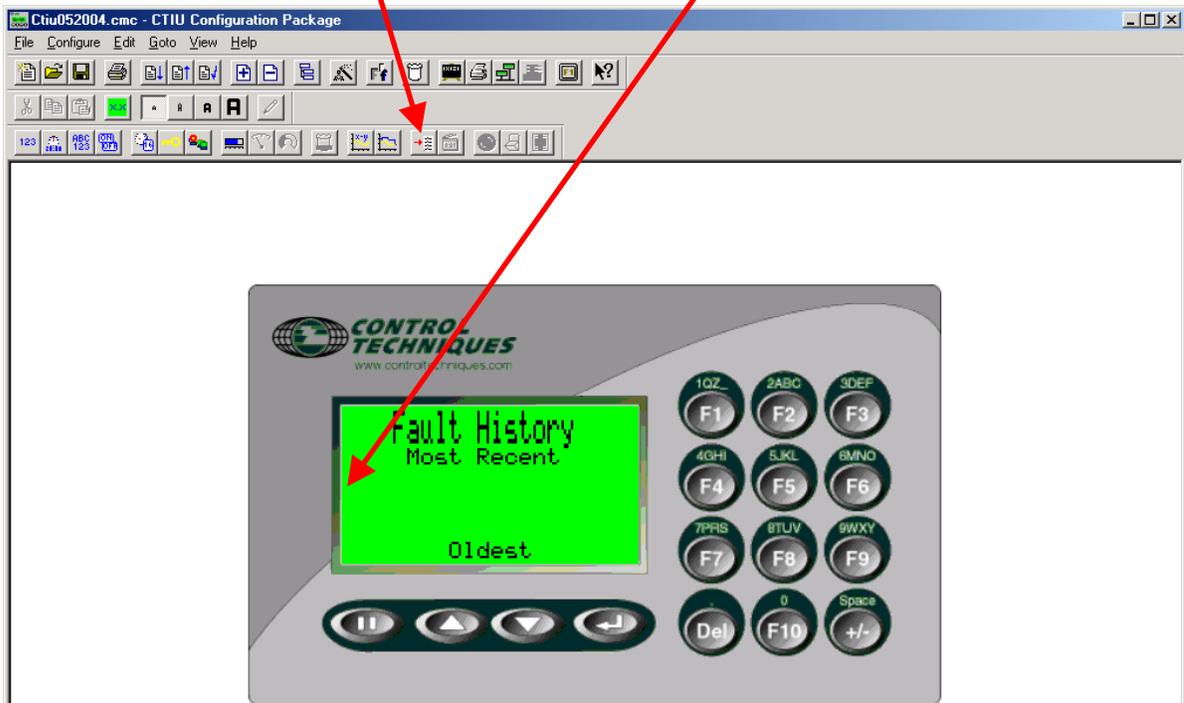
However, to save you time I've already created a Fault List file that can be imported to save you all this time.

The phrases that will be displayed will be:

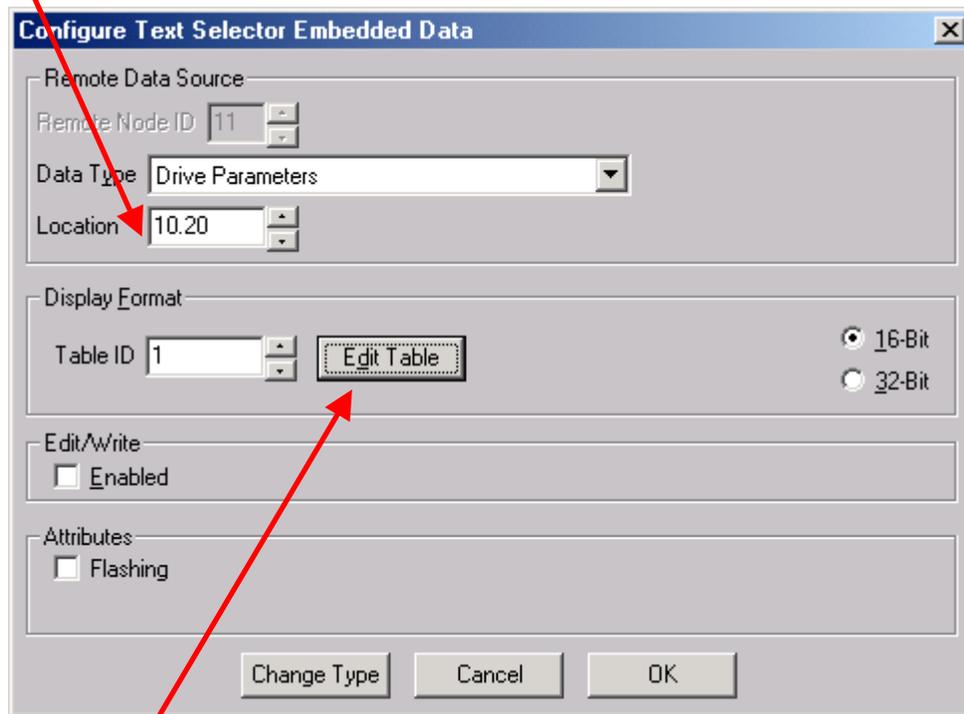
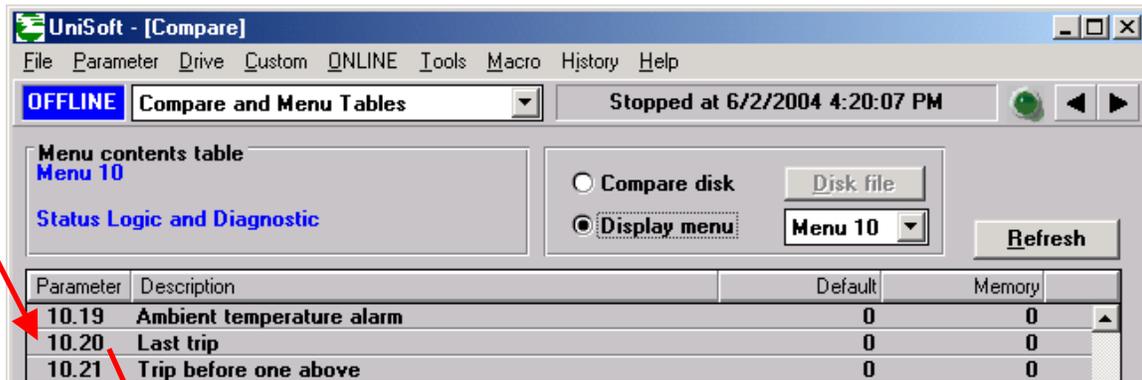
000 : Unknown Trip Code	053 : DPL Program Wrong 53
001 : DC Bus UnderVoltage	054 : DPL Task Overrun 54
002 : DC Bus OverVoltage	055 : RS485 Comms Trip 55
003 : AC OverCurrent Trip	056 : Fieldbus or Wrong OS
004 : Braking Overcurrent	057 : Illegal OS Call 57
005 : Internal Supply Trip	058 : Internal Error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

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

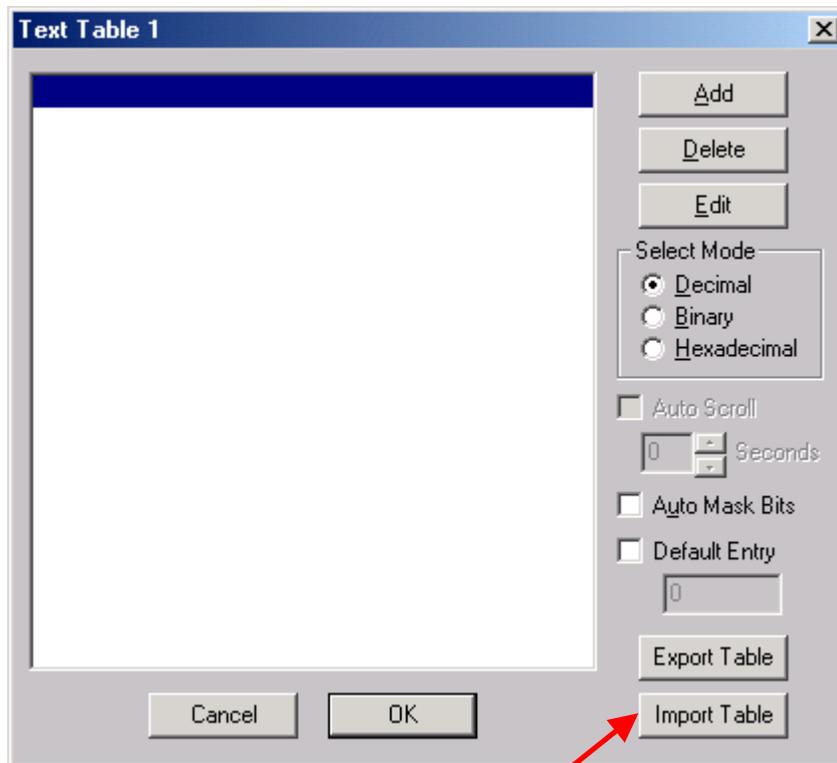
Place the cursor on the line where you want the most Recent Fault phrase to appear then click on the Format Text Selector icon



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.

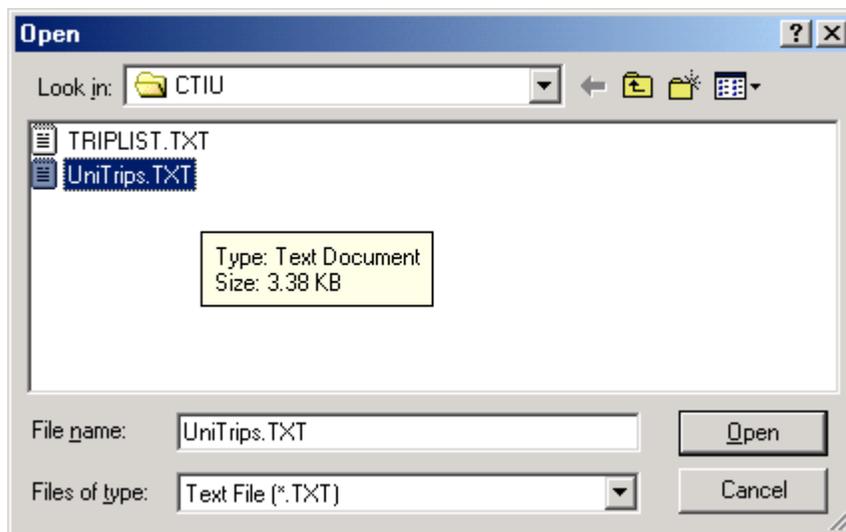


Now click on EDIT TABLE



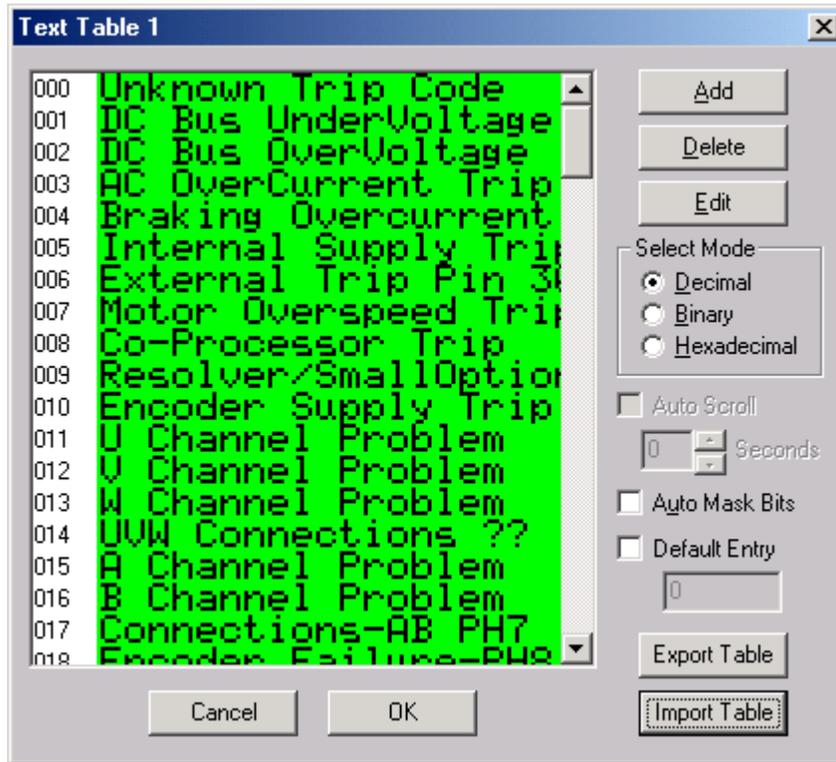
Now click on IMPORT TABLE

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

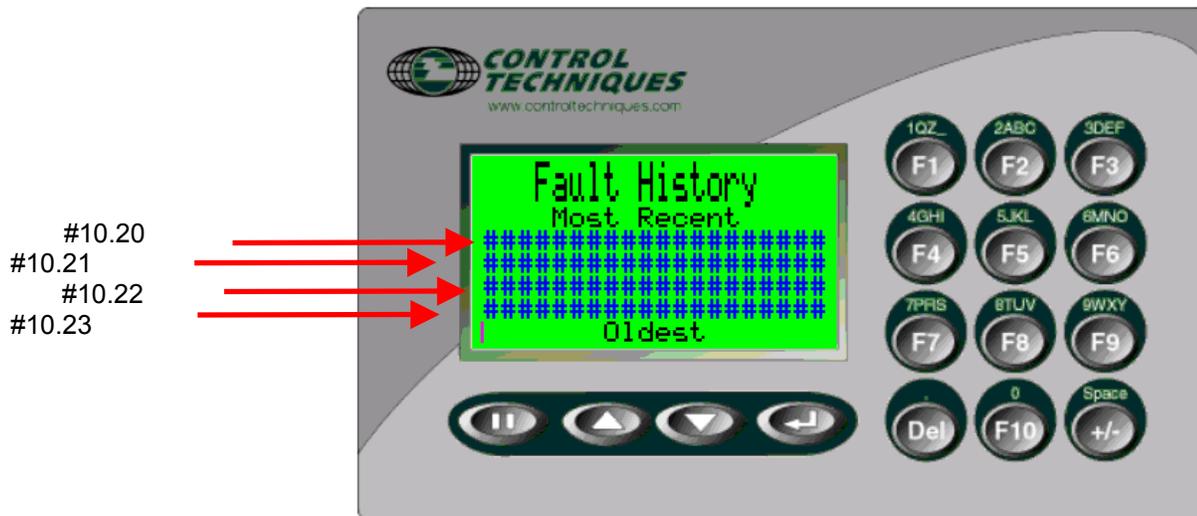


This file is available under Application Notes for AC Drives/Unidrive/CTAN246 or CTAN247.

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

**Questions ?? Ask the Author:**

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