This Application Note applies to Mentor MP and Quantum MP series drives

Masking Faults and Stopping on Trip Conditions

Background

In some cases, it is required to mask certain trips when it does not apply to ones application. Some examples may be using a Permanent Magnet Motor (PMM), have an external field regulator or a lower AC supply voltage to accommodate for low voltage motors.

In other situations, on less important trips, you would like the fault to still occur but not immediately go into a trip condition. It might be best if the trip occurred after the drive ramps to a stop. In this document we will try to give a clear explanation of how to accomplish this.

Non- Maskable Faults

Some faults are intended to protect the drive, motor and system and are crucial to machine/personal safety of each. For these reasons, certain parameters cannot be masked.
Those would include:

Fault #	Display Indication
1	UV
3	AOC
5	PS
7	O.SPd
21	O.ht1
22	O.ht2
27	O.ht3
31	EEF
172	S.OV
174	PLL Err
197	EnC9
156	SLAVE.Er
200/205/210	SLx.HF
217-229	HF17 to HF29

Masking Trips

Masking trips is a new idea in comparison to its' predecessors the Mentor II and the Quantum III. Previously, if the unit tripped out on a "Low Priority" fault, the unit would trip out immediately which could cause additional concerns especially when using armature contactors. In the Mentor/Quantum MP, high priority trips will still cause the unit to trip out due to the severity and the risks that can come with that fault.

The Mentor/Quantum MP drive can respond in 3 different ways to a "**Low**" Priority Fault:

1) **Drive Faults Out Immediately** - As soon as the fault occurs, the unit will trip out and cause the drive to become disabled. This is how the drive is set from manufacturing.

2) **Ramp to a Stop on a Masked Fault –** If a regenerative drive is being used, you can Mask the trip and have the drive ramp to a stop then fault out.

To do this, from the chart (on the following page), place the number that precedes the fault that you are trying to mask into any parameter **#10.52 through #10.61** and ensure that the corresponding Parameter **#10.62 through #10.71** is set to **ON**. (Corresponding Par #10.52 is to #10.62, Par #10.53 is to Par #10.63… and so on).

Example:

You may want to know if you have lost a 4- 20mA signal and you would like the drive to Ramp to a Stop and then trip out. The fault that would occur if this happens would be **cL2**.
To mask the **cL2 (Current Loop Loss to Analog Input 2)**

Parameters that need to be changed to have the drive Ramp to a Stop on a Masked **cL2** fault:

  Set Parameter **#10.52** the value of **28**
  Set Parameter **#10.62** to **ON**

3) **Mask the Trip Completely -** Masking the trip will block the drive from seeing that this particular fault has occurred, and it will carry on normally with out causing the unit to "trip out".

To have the drive respond in this manner, from the chart below, place the number that precedes the fault that you are trying to mask into any parameter **#10.52 through #10.61** and ensure that the corresponding Parameter **#10.62 through #10.71** is set to **OFF**. (Corresponding Par #10.52 is to #10.62, Par #10.53 is to Par #10.63… and so on).

Example:

An application that you would want to use this function would be if you have a PM (Permanent Magnet) motor. PM motors do not have a field circuit, and even though you do not have the field enabled, the drive still monitors for a loss of field.
The fault that you would see is **FdL (Field loss)**

Parameters that need to be changed to have the drive Mask a **FdL** trip completely:

  Set Parameter **#10.52** the value of **168**
  Set Parameter **#10.62** to **OFF**

Table 5-6 Serial communications look-up table

No.	String	No.	String	No.	String
1	UV	92	UP ro	190	EnC2
2	t002	93	UP So	191	EnC3
3	AOC	94	UP ovr	192-196	t192 - t196
4	t004	95	UP OFL	197	EnC9
5	PS	96	UP uSEr	198	EnC10
6	Et	97	UP udf	199	dESt
7	O.SPd	98	UP ACC	200	SL1.HF
8	PS.10V	99	t099	201	SL1.tO
9	PS.24V	100		202	SL1.Er
10	t010	101	t101	203	SL1.nF
11	tunE1	102-111	t102 - t111	204	SL1.dF
12	tunE2	112-155	t112 - t155	205	SL2.HF
13	tunE3	156	SLAVE.Er	206	SL2.tO
14	tunE4	157	F.OVL	207	SL2.Er
15	tunE5	158	AOP	208	SL2.nF
16	tunE6	159	FbL	209	SL2.dF
17	tunE7	160	Fbr	210	SL3.HF
18	tunE	161-167	t161 - t167	211	SL3.tO
19	t019	168	FdL	212	SL3.Er
20	It.AC	169	FOC	213	SL3.nF
21	O.ht1	170	SL	214	SL3.dF
22	O.ht2	171	S.OLd	215	SL.rtd
23	t023	172	S.OV	216	t216
24	th	173	th.Err	217-229	HF17 – HF29
25	thS	174	PLL Err		
26	O.Ld1	175	C.Prod		
27	O.ht3	176	t176		
28	cL2	177	C.Boot		
29	cL3	178	C.BUSy		
30	SCL	179	C.Chg		
31	EEF	180	C.Optn		
32-33	t032 - t033	181	C.RdO		
34	Pad	182	C.Err		
35	CL.bit	183	C.dat		
36	SAVE.Er	184	C.FULL		
37	PSAVE.Er	185	C.Acc		
38-39	t038 - t039	186	C.rtg		
40-89	t040 - t089	187	C.Typ		
90	UP div0	188	C.cpr		
91	UP Par	189	EnC1		

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