



Brushless DC Variable Speed Controller Technical Data Sheet

General Information								
Controller Part Number	Description	Nominal Voltage Range	Controller Drawing	Wiring Diagram Drawing	Weight (Kg)	Compressor Harness	Manual Function Control	Signal Cable
025F0433	Atlas Controller	18.0~31.5 VDC	DGMX0091	DEMX0060	.310	040F0276	025F0377	040F0278

Controller			
Controller	# Per Box	Single Pack Part Number	# Per Box
025F0433	24	025F0433-SP	1

Agency Approvals			
Controller	UL	CE - LVD	CE-EMC
025F0433	-	-	-

Electrical Ratings / Specification		025F0433		
Parameter	Conditions	Min.	Nom.	Max.
V_M				
Operating Range		18 V	24V	31.5 V
Voltage Fault				
High Voltage Shutdown			31.5 V	
Low Voltage Shutdown	Variable Based on Resistance (Protection Settings)	18 V		24.6 V
Low Voltage Resume		19.4 V		26 V

Temperature Fault				
High Temp Shutdown	Restart Delay of 1 Minute		100 °C	

VM				
Over Current Shutdown				55A

Motor Speed				
Speed Range		1680 RPM		6000 RPM

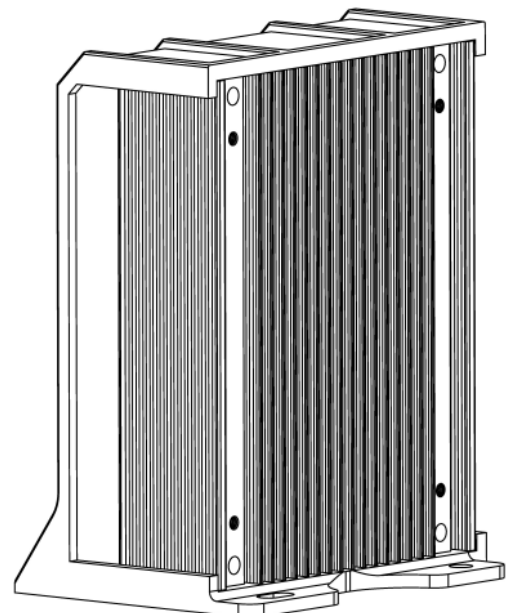
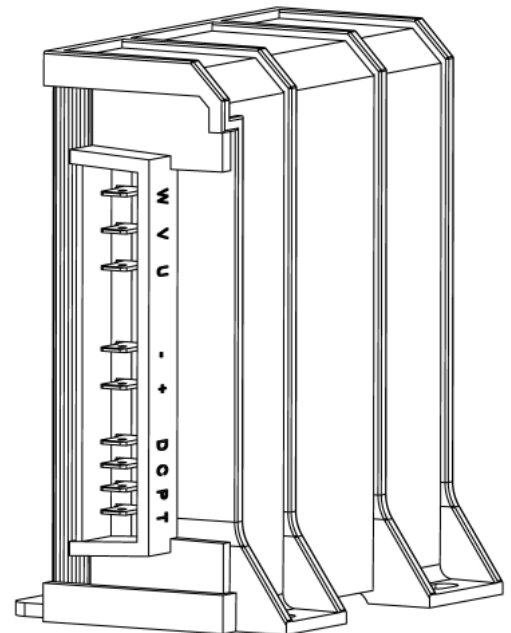
Mating Connectors	
Compressor Phase Wires	TE/AMP PN 40450
All Other Wires	TE/AMP PN 63609-2

Measured current is steady state. The controller presents a capacitive load to the system. On initial application of power, a substantial in-rush current will result if not limited by external components.

If compressor stops running, there will be a one minute delay before restart

An external fuse with sufficient voltage and current ratings, must be used to protect the controller and associated wiring. This is required to protect the system from reverse-wiring and other adverse conditions.

When cycling the power to the controller board the controller will start immediately, but when cycling power to the manual controller there will be a one minute delay.

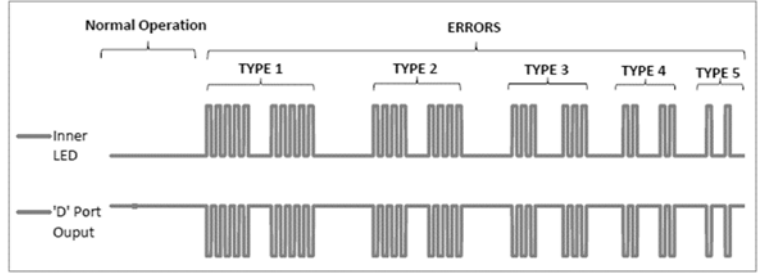


ATLAS Controller

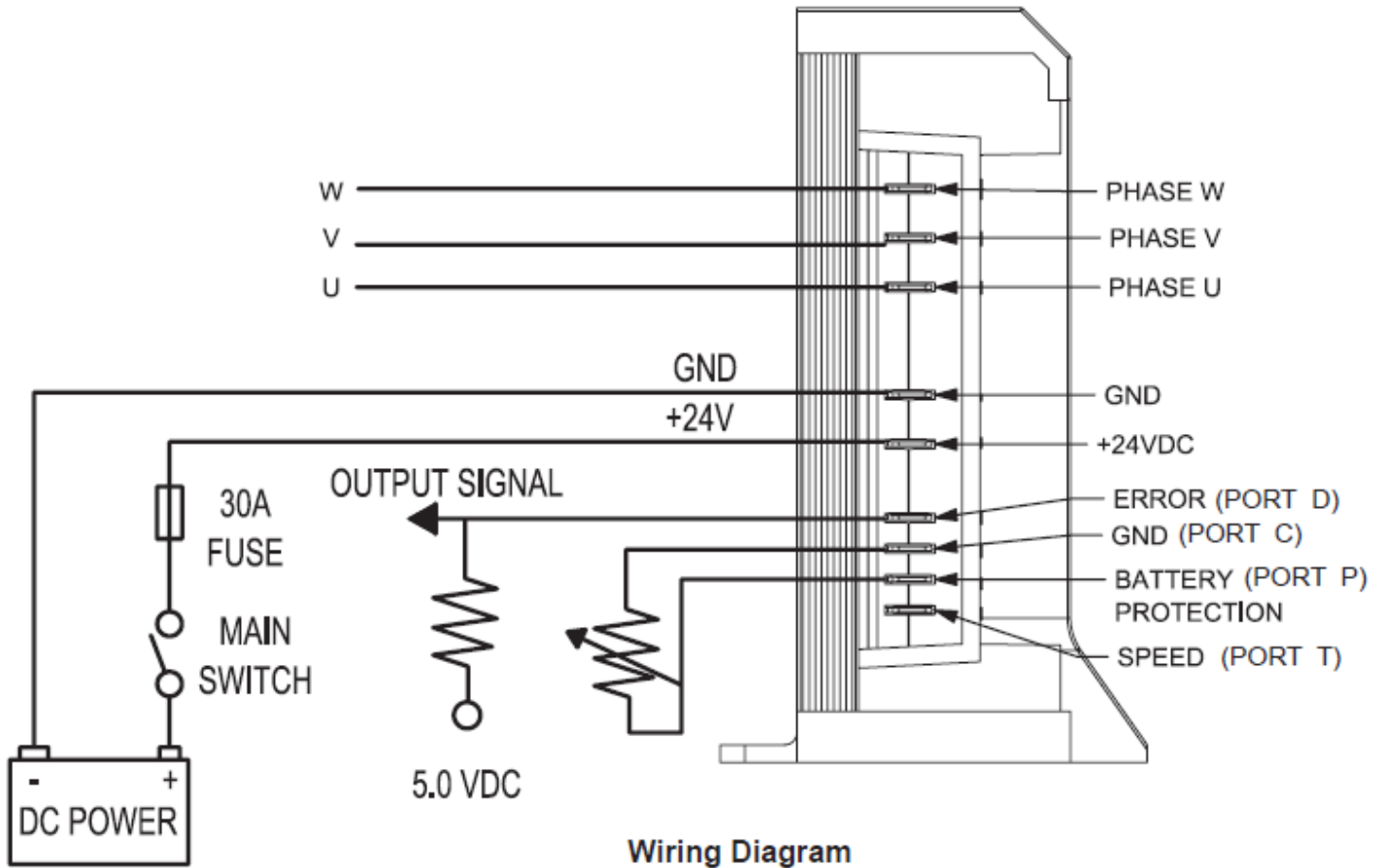


MASTERFLUX

Fault Indicator Output		
Error Type	Flashes	Error
5	1	Compressor Overload
4	2	Loss of Compressor Connection
3	3	Over Current/Short Circuit
2	4	Over/Under Voltage
1	5	Controller Overheat

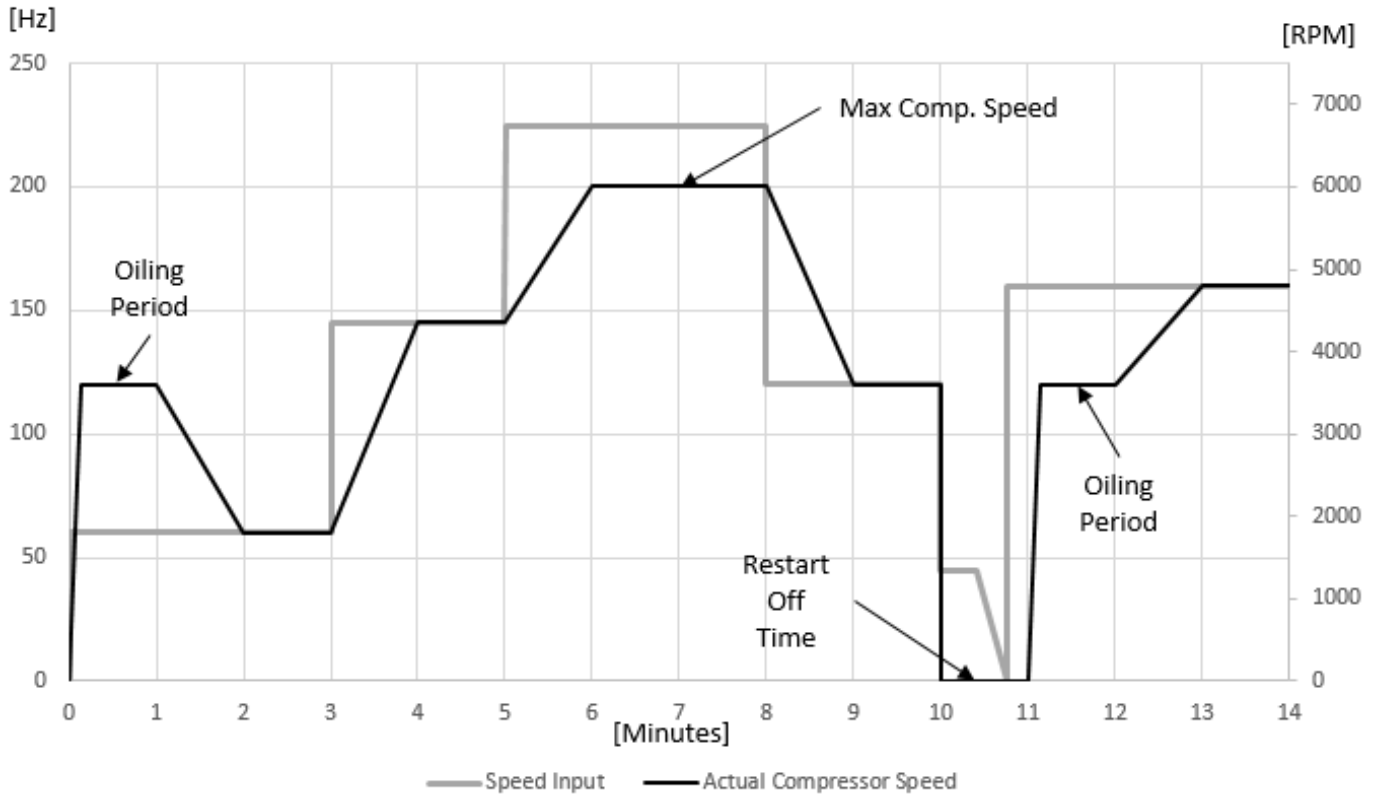


When an error occurs, compressor will stop signal for 1 min.
 If error is not cleared after 1 min, the stop time is increased by 1 min.
 Errors can be checked using port 'D'



Wiring Diagram

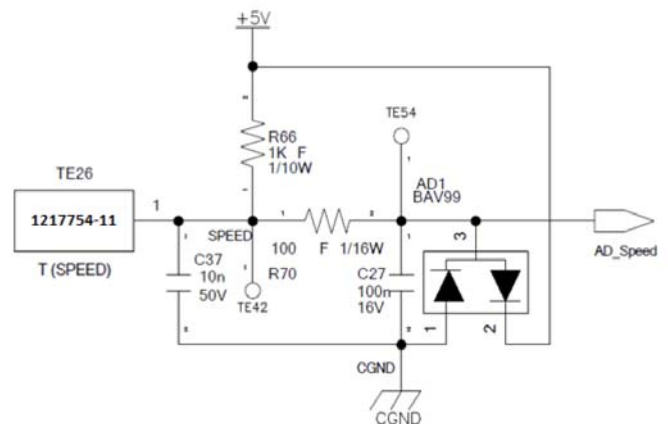
Compressor Speed Controls



Compressor Operation Based on Inputs

1. Target Speed: In digital signal target speed [RPM] = Freq [Hz] × 30. See below table for more information.
2. Minimum frequency input for compressor to start 57 Hz
3. Oiling Period: When started compressor will run for at least 1 min to allow oil circulation
4. Max Speed: Max compressor speed is 6000 RPM. If 200 Hz input is exceeded compressor will run at 6000 RPM
5. Acceleration/Deceleration Rate: Compressor speed will change by 30 RPM per second
6. If input frequency is less than 50 Hz compressor will stop
7. Restart Time: After shutting down, compressor will remain off for a minimum of 1 minute

Variable Resistor	Digital Signal	RPM
Resistor [Ω]	5V Frequency [Hz]	
850	56	1680
1200	80	2400
1500	100	3000
1800	120	3600
2100	140	4200
2400	160	4800
2700	180	5400
3000	200	6000



If digital signal is applied, use square wave with duty rate of 50%.

Resistance between error port and +5V is a minimum of 10k Ohms.

Battery Protection

P↔C Resistor[kΩ]	24V		
	Cut-Out [V]	Cut-In [V]	Max. Voltage [V]
0	21.3	22.7	31.5
1.6	21.5	22.9	31.5
2.4	21.8	23.2	31.5
3.6	22.0	23.4	31.5
4.7	22.3	23.7	31.5
6.2	22.5	23.9	31.5
8.2	22.8	24.2	31.5
11	23.0	24.4	31.5
14	23.3	24.7	31.5
18	23.6	25.0	31.5
24	23.8	25.2	31.5
33	24.1	25.5	31.5
47	24.3	25.7	31.5
82	24.6	26.0	31.5
above 220	18.0	19.4	31.5

Protections will reset after compressor is stopped for one minute