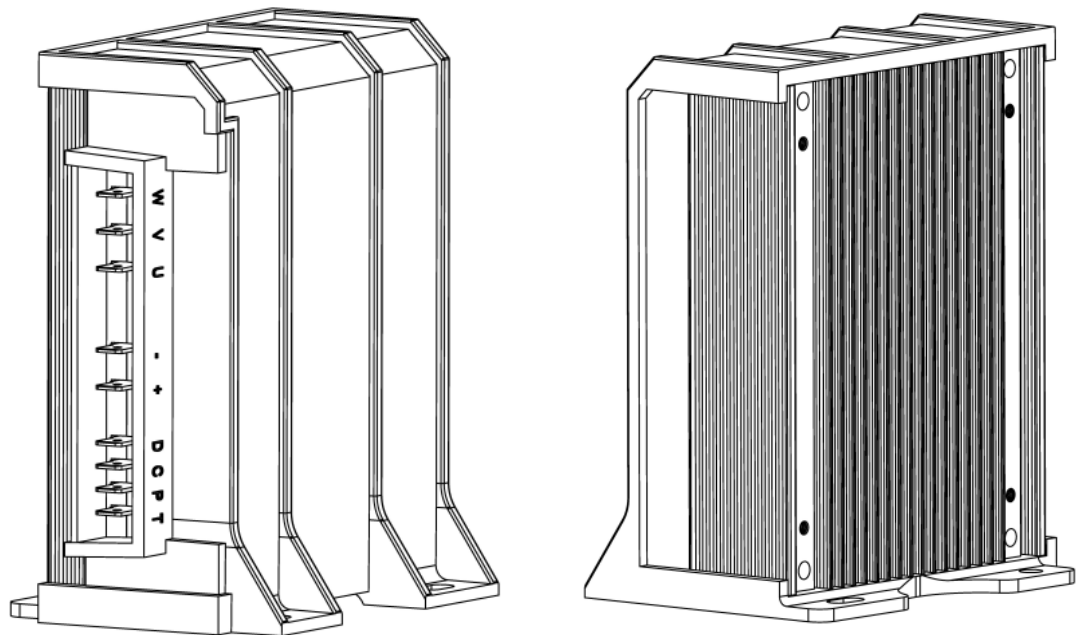


Brushless DC Variable Speed Controller Technical Data Sheet

General Information								
Controller Part Number	Description	Nominal Voltage Range	Controller Drawing	Wiring Diagram Drawing	Weight (Kg)	Compressor Harness	Manual Function Control	Signal Cable
025F0407	Atlas Controller	9.6~17.0 19.0~31.5 32.5~60.0 VDC	DGMX0091	DEMXX0060	.310	040F0276	025F0377	040F0278

Controller			
Controller	# Per Box	Single Pack Part Number	# Per Box
025F0407	24	025F0407-SP	1

Agency Approvals			
Controller	UL	CE - LVD	CE-EMC
025F0407	-	-	-



ATLAS Controller



Electrical Ratings / Specification		025F0407								
Parameter	Conditions	Min.	Nom.	Max.	Min.	Nom.	Max.	Min.	Nom.	Max.
V_M										
Operating Range		9.6V	12V	17.0V	19.0V	24V	31.5V	32.5V	48V	60V
Voltage Fault										
High Voltage Shutdown			17.0V			31.5V			60.0V	
Low Voltage Shutdown	Variable Based on Resistance (Protection Settings)	9.6V		11.3V	19.0V		24.6V	32.5V		36.3V
Low Voltage Resume		11.0V		12.7V	20.4V		26V	33.9V		37.7V
Temperature Fault										
High Temp Shutdown	Restart Delay of 1 Minute					100 °C				
VM										
Over Current Shutdown								48A		
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								

At input voltages below 24VDC, the maximum compressor motor speed will be reduced as a function of voltage and load. Estimated maximum speed at 12VDC input is 3200 rpm.

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.

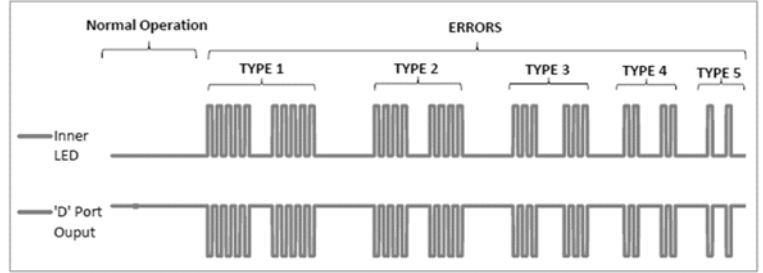
When cycling the power to the controller board the controller will start immediately, but when cycling power to the manual controller there will be a one minute delay.

ATLAS Controller

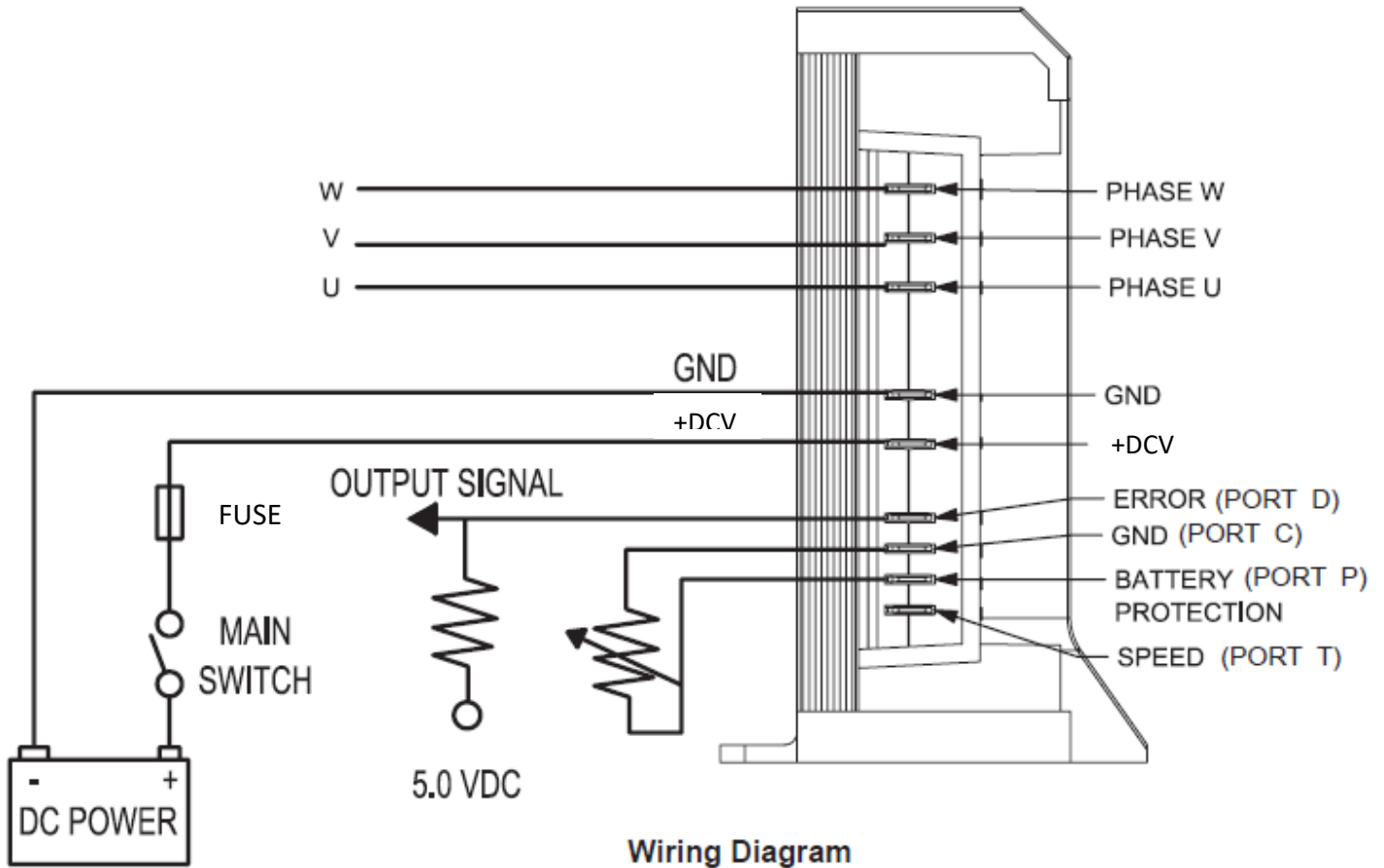


MASTERFLUX

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

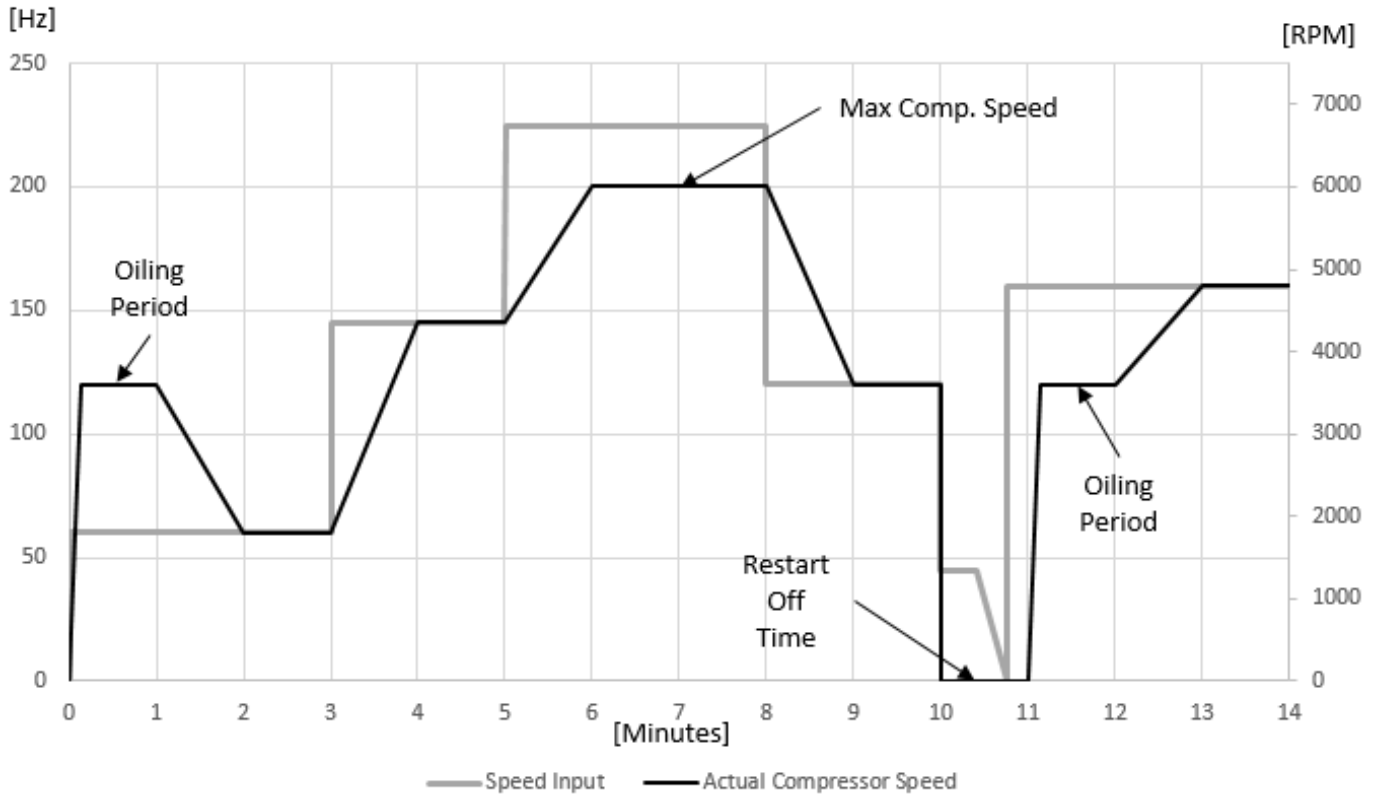


When an error occurs, compressor will stop signal for 1 min.
 If error is not cleared after 1 min, the stop time is increased by 1 min.
 Errors can be checked using port 'D'



Wiring Diagram

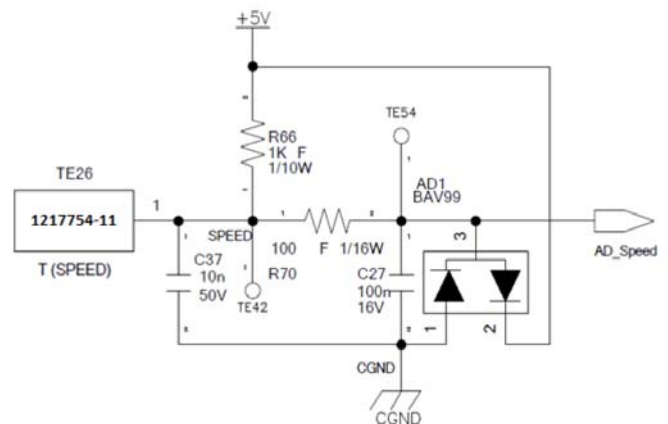
Compressor Speed Controls



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]	12V			24V			48V		
	Cut Out [V]	Cut in [V]	Max Voltage [V]	Cut Out [V]	Cut in [V]	Max Voltage [V]	Cut Out [V]	Cut in [V]	Max Voltage [V]
0	9.6	11	17	21.3	22.7	31.5	33	34.4	60
1.6	9.7	11.1	17	21.5	22.9	31.5	33.2	34.6	60
2.4	9.9	11.3	17	21.8	23.2	31.5	33.5	34.9	60
3.6	10	11.4	17	22	23.4	31.5	33.7	35.1	60
4.7	10.1	11.5	17	22.3	23.7	31.5	34	35.4	60
6.2	10.2	11.6	17	22.5	23.9	31.5	34.2	35.6	60
8.2	10.4	11.8	17	22.8	24.2	31.5	34.5	35.9	60
11	10.5	11.9	17	23	24.4	31.5	34.7	36.1	60
14	10.6	12	17	23.3	24.7	31.5	35	36.4	60
18	10.8	12.2	17	23.6	25	31.5	35.3	36.7	60
24	10.9	12.3	17	23.8	25.2	31.5	35.5	36.9	60
33	11	12.4	17	24.1	25.5	31.5	35.8	37.2	60
47	11.1	12.5	17	24.3	25.7	31.5	36	37.4	60
82	11.3	12.7	17	24.6	26	31.5	36.3	37.7	60
No Connection	9.6	11	17	19	20.4	31.5	32.5	33.9	60

Protections will reset after compressor is stopped for one minute