

IntelliCI™ – 030F0216

VARIABLE SPEED DRIVE – 600W INVERTER

115–127 VAC – 50/60 Hz



Tecumseh

GENERAL DATA

Part Number	030F0216
Inverter Drawing	DGMX0093
Wiring Diagram Drawing	DEM0061
Compressors Compatibility	VTCX330U-MD5C / VTCX360U-MD5C VTCX410U-MD5C / VTCX415U-MD5C
Agency Approvals	UL approved

APPLICATION DATA

Rated Input Voltage	115 – 127 VAC
Operating Input Voltage Range	85 – 135 VAC
Line Frequency	50 / 60 Hz
Maximum Input Power	600 W
Power Factor Corrector	N/A
Compressor Speed Range	2500 – 4500 rpm
Operating Ambient Temperature Range	-10 to +43 °C (+14 to +109 °F)
Storage Ambient Temperature Range	-40 to +85 °C (-40 to +185 °F)
IP Class	IP54
Operating and Storage Ambient Humidity	Less than 90% (non-condensing)
Cooling Requirements ¹	Fan cooling 3 m/s

¹ See "Installation Instructions" for additional assembly details.

DESIGN INFORMATION

Absolute Dimensions (H x W x L)	172 x 104 x 193 mm
Weight	1.80 kg
Mounting Location	Remote assembly
Compressor Cable Length	0.8 – 1.0 m
Housing Material	Lexan 503R
Line Input Mating Connector	Keystone Quick Connect receptacle 4470
Wire Minimum Specification	16AWG / 105°C / 600V, PVC, UL approved
TAL™ Control Input Mating Connector	Keystone Quick Connect receptacle 4470
Wire Minimum Specification	18AWG / 105°C / 600V, PVC, UL approved
Speed Input Mating Connector	Molex 22013027
Wire Minimum Specification	24AWG / 105°C / 600V, PVC, UL approved

INVERTER PROTECTIONS

Input Overvoltage Trip	140 VAC
Input Overvoltage Resume	135 VAC
Input Undervoltage Trip	80 VAC
Input Undervoltage Resume	85 VAC

INVERTER INPUTS²

Speed Input High Level Voltage Range (Isolated)	5 – 12 V _{pk} (Square Wave)
Speed Input Frequency Range	83 – 150 Hz
TAL™ Control Input Voltage Range (Non-isolated)	85 – 135 VAC

² See "Inverter Interfaces" Section for more details.

APPROVALS INFORMATION

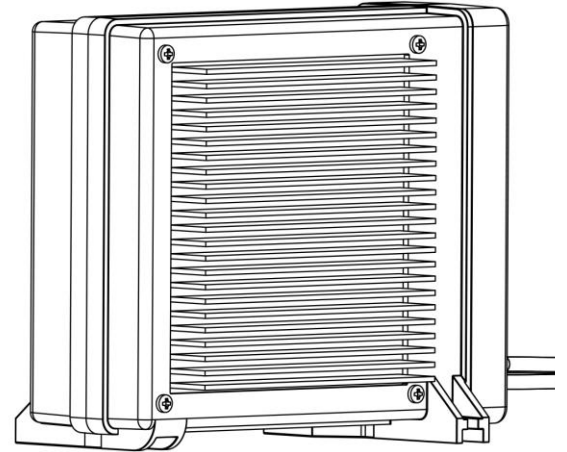
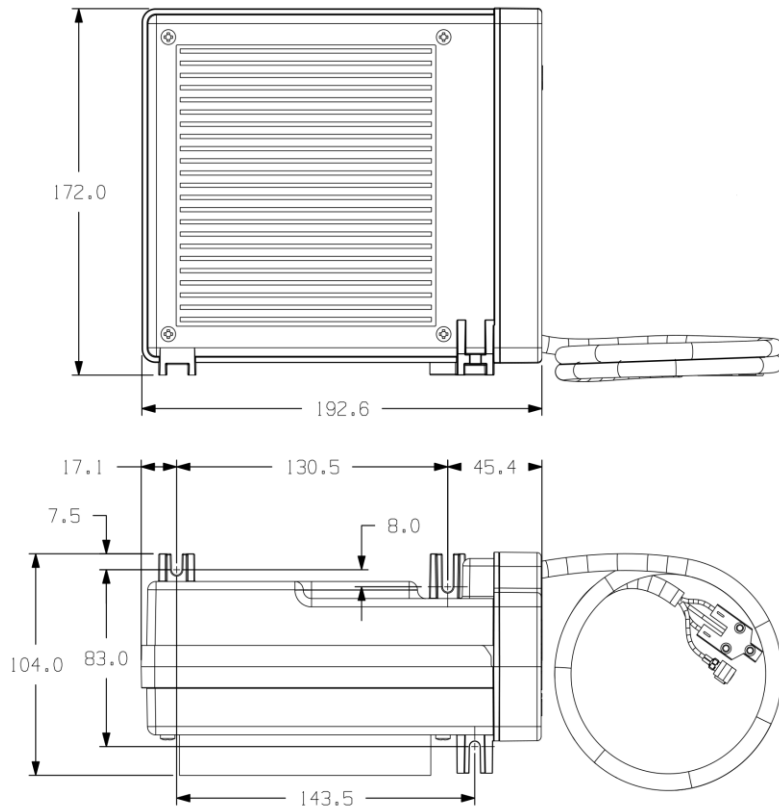
Safety Approval	UL 60335-2-34 with Annex AA
RoHS Conformity	2011/65/EU

IntelliCI™



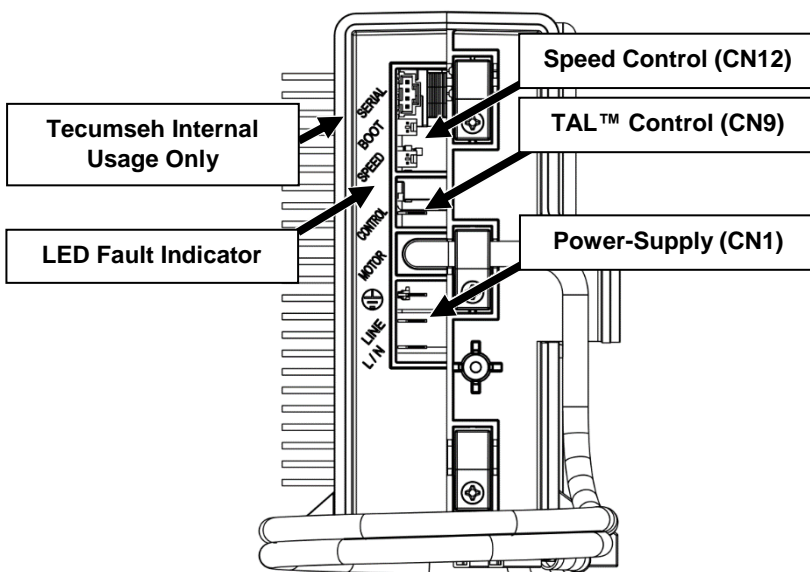
THE TECUMSEH VARIABLE SPEED DRIVE MUST BE USED ONLY WITH THE APPROPRIATE
TECUMSEH VARIABLE SPEED COMPRESSOR.

INVERTER DIMENSIONS



Note: Dimensions in millimeters and only for reference. Refer to DGMX0093.

INPUT CONNECTORS AND FAULT BLINK CODE



Start-up Failure	1 Flash
Undervoltage	2 Flashes
Overvoltage	3 Flashes
Overcurrent	4 Flashes
Inverter Overtemperature	5 Flashes
Locked Rotor	6 Flashes
Tecumseh Internal Usage Only ...	7 Flashes
Phase Loss	8 Flashes
FOC Plausibility Check Failure ...	9 Flashes

INVERTER INTERFACES

Tecumseh Adaptive Logic (TAL™)

Tecumseh offers an adaptive speed control solution embedded in IntelliCI™ Tecumseh Variable Speed Drive which can determine the best rotation according to the thermal load and ambient temperature variation without any additional changes to the refrigeration system.

The TAL™ Control interface connector (CN9) is controlled by an “On/Off” thermostat¹. Ideally designed for quick and direct replacement of fixed speed compressors without any system changes or parameters tuning.

Some of the TAL™ features are:

- Rapid temperature pull-down
- Rapid temperature recovery after energy faults
- Thermal load temperature maintenance
- Robustness against ambient temperature variation
- Self-adapting refrigeration capacity algorithm

Frequency Input

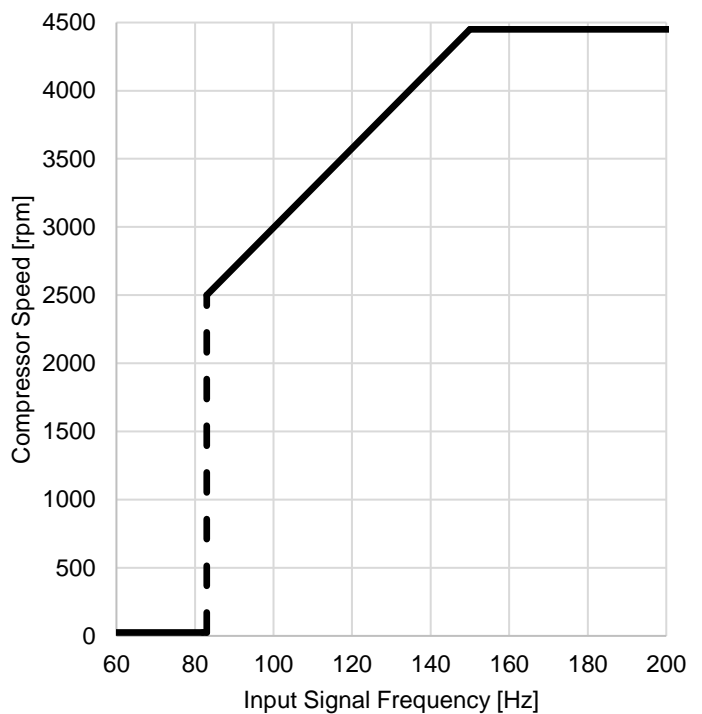
It is possible to control the compressor’s speed by interfacing the frequency input of the IntelliCI™ Tecumseh Variable Speed Drive with electronic thermostats or refrigeration system control devices².

This isolated frequency input connector (CN12) makes the integration of Tecumseh inverters with several electronic temperature control devices easy.

The external device should generate a square wave, minimum 5V_{pk} and maximum 12V_{pk} to control the compressor’s speed.

To run the compressor properly, the frequency input should be in the range of 83 to 150Hz. This means that the compressor speed range goes from 2500 to 4500rpm. To stop the compressor the input frequency should be lower than 78Hz, according to the figure beside.

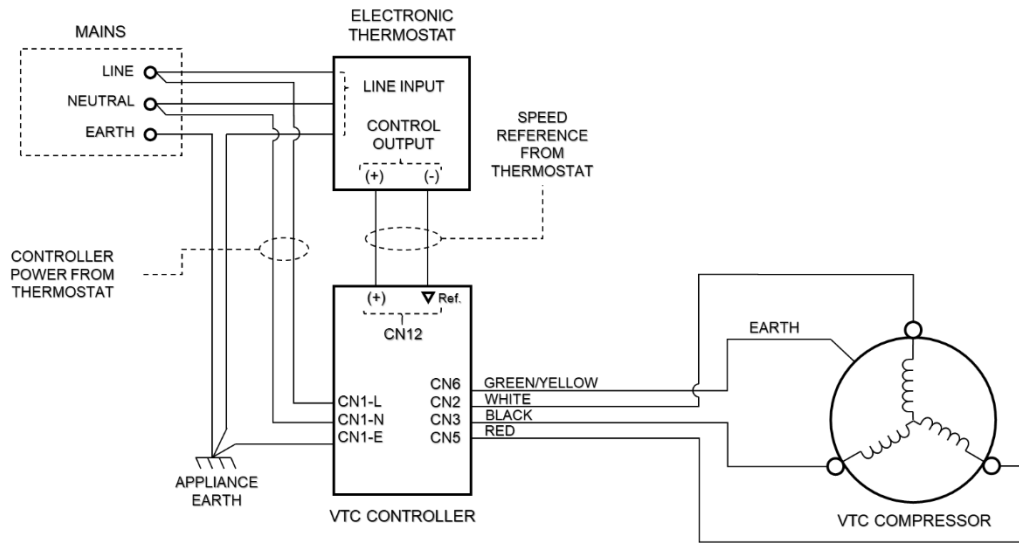
When using the frequency input, the TAL™ algorithm is disabled (CN9 inactive).



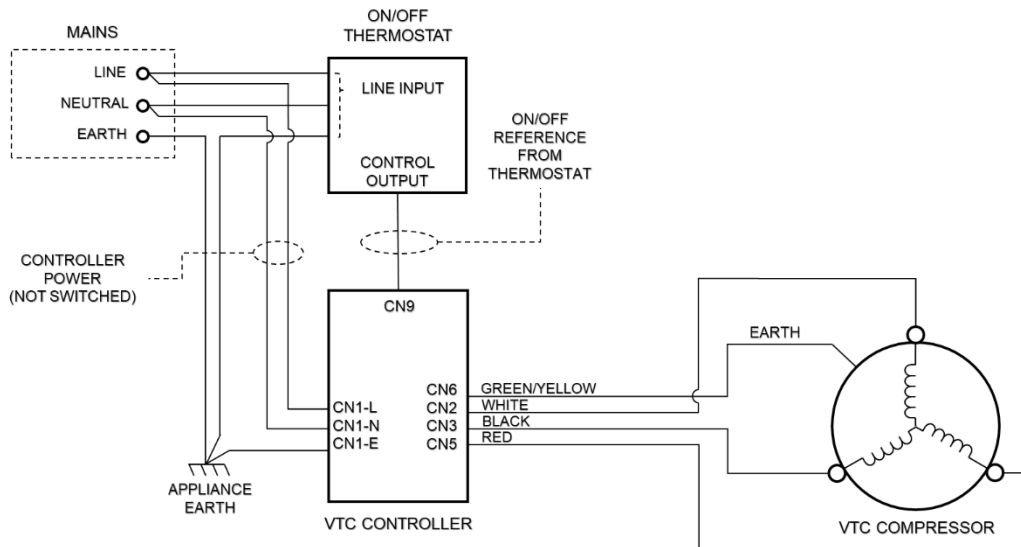
¹ For more details, see Section “Typical Wiring Diagram When Operating with “On/Off” Thermostat”.

² For more details, see Section “Typical Wiring Diagram When Operating with Variable Speed Thermostat”.

TYPICAL WIRING DIAGRAM WHEN OPERATING WITH VARIABLE SPEED THERMOSTAT



TYPICAL WIRING DIAGRAM WHEN OPERATING WITH ON/OFF THERMOSTAT



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