

# IntelliCI™ – 030F0222

## VARIABLE SPEED DRIVE – 1000W INVERTER

### 220–240 VAC – 50/60 Hz – PFC



Tecumseh

#### GENERAL DATA

Part Number	030F0222
Inverter Drawing	DGMX0093
Wiring Diagram Drawing	DEM0061
Compressors Compatibility	VTCX419U-ME5C / VTCX424U-ME5C
Agency Approvals	UL approved

#### APPLICATION DATA

Rated Input Voltage	220 – 240 VAC
Operating Input Voltage Range <sup>1</sup>	180 – 260 VAC
Line Frequency	50 / 60 Hz
Maximum Input Power	1000 W
Power Factor Corrector	Yes
Compressor Speed Range	2010 – 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 <sup>2</sup>	Fan cooling 3 m/s

<sup>1</sup> The inverter can be used with voltage supply in the range between 85 to 260V (Full range).

<sup>2</sup> 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	265 VAC
Input Overvoltage Resume	260 VAC
Input Undervoltage Trip	175 VAC
Input Undervoltage Resume	180 VAC

#### INVERTER INPUTS<sup>3</sup>

Speed Input High Level Voltage Range (Isolated)	5 – 12 V <sub>pk</sub> (Square Wave)
Speed Input Frequency Range	67 – 150 Hz
TAL™ Control Input Voltage Range (Non-isolated)	180 – 260 VAC

<sup>3</sup> See "Inverter Interfaces" Section for more details.

#### APPROVALS INFORMATION

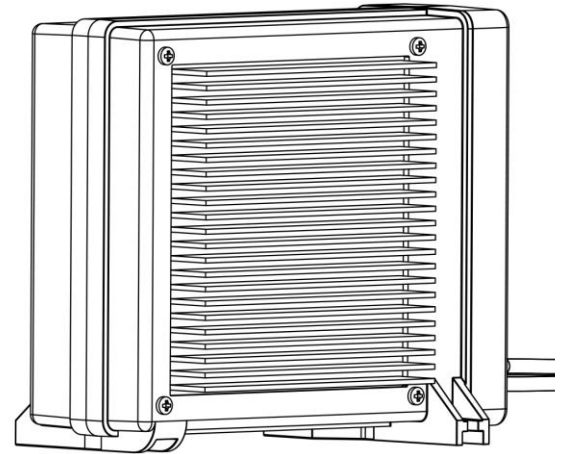
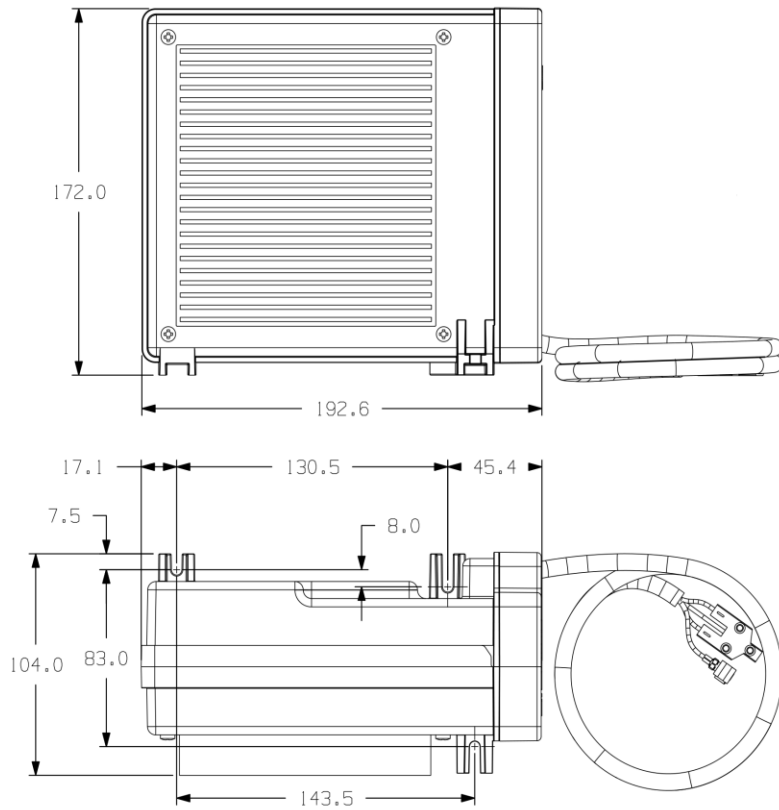
Safety Approval	UL 60335-2-34 with Annex AA
RoHS Conformity	2011/65/EU



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

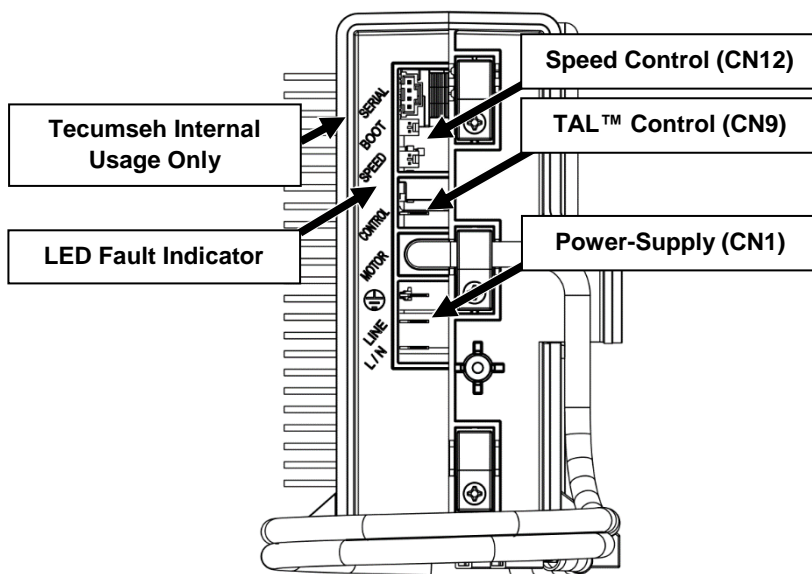
IntelliCI™

## 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” thermostat<sup>1</sup>. 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

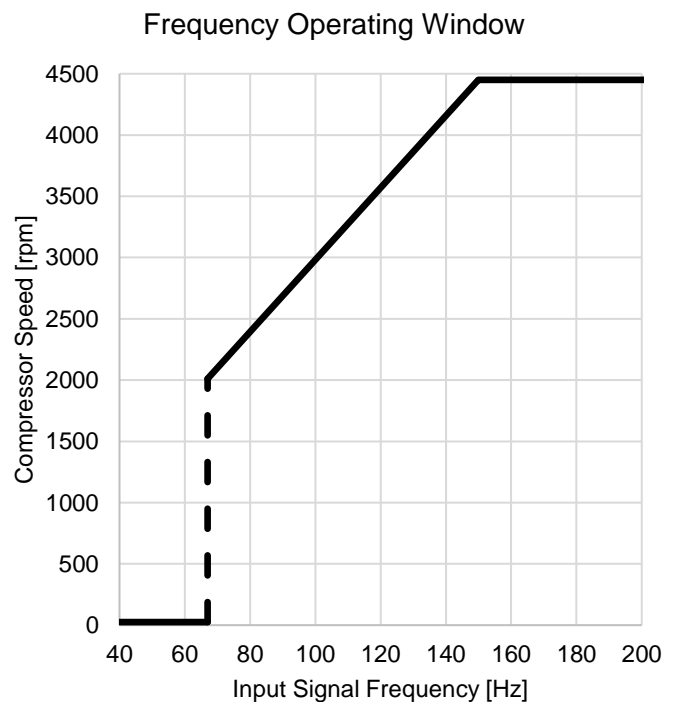
It is possible to control the compressor’s speed by interfacing the frequency input of the IntelliCI™ Tecumseh Variable Speed Drive with electronic thermostats or refrigeration system control devices<sup>2</sup>.

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<sub>pk</sub> and maximum 12V<sub>pk</sub> to control the compressor’s speed.

To run the compressor properly, the frequency input should be in the range of 67 to 150Hz. This means that the compressor speed range goes from 2000 to 4500rpm. To stop the compressor the input frequency should be lower than 62Hz, according to the figure beside.

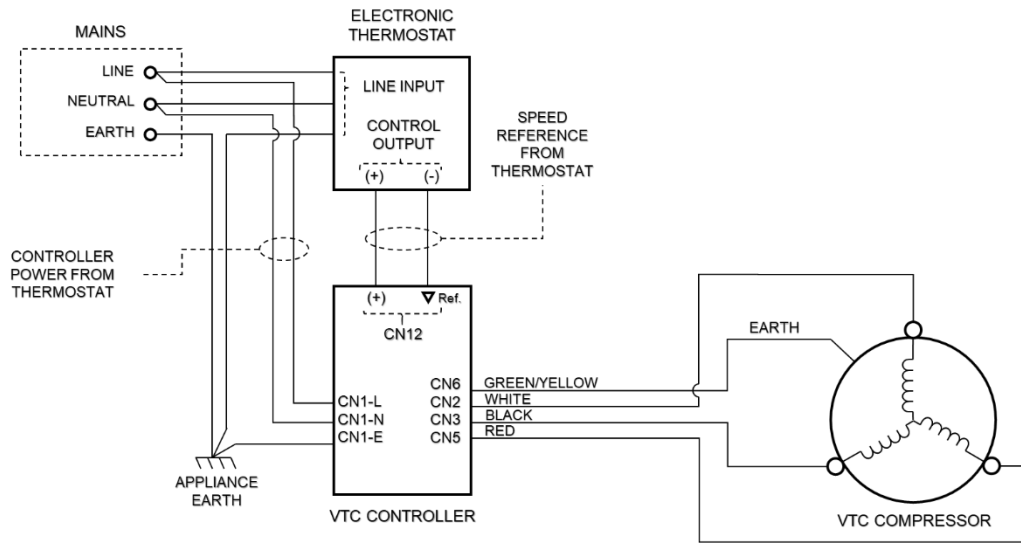
When using the frequency input, the TAL™ algorithm is disabled (CN9 inactive).



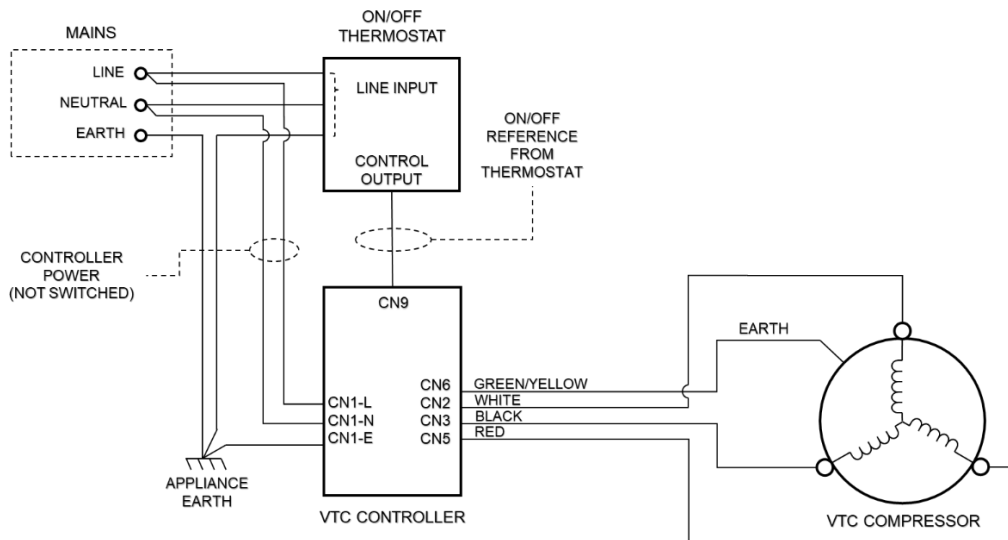
<sup>1</sup> For more details, see Section “Typical Wiring Diagram When Operating with “On/Off” Thermostat”.

<sup>2</sup> 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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