

IntelliCI™ – 030F0218

VARIABLE SPEED DRIVE – 600W INVERTER

FULL-RANGE (85–260 VAC) – 50/60 Hz – PFC



Tecumseh

GENERAL DATA

Part Number	030F0218
Inverter Drawing	DGMX0093
Wiring Diagram Drawing	DEMXX0061
Compressors Compatibility	VTCX330U-MD5C / VTCX360U-MD5C VTCX410U-MD5C / VTCX415U-MD5C
Agency Approvals	UL approved

APPLICATION DATA

Rated Input Voltage	85 – 260 VAC
Operating Input Voltage Range ¹	85 – 260 VAC
Line Frequency	50 / 60 Hz
Maximum Input Power	600 W
Power Factor Corrector	Yes
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 ²	Fan cooling 3 m/s

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

² 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	80 VAC
Input Undervoltage Resume	85 VAC

INVERTER INPUTS³

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 – 260 VAC

³ See "Inverter Interfaces" Section for more details.

APPROVALS INFORMATION

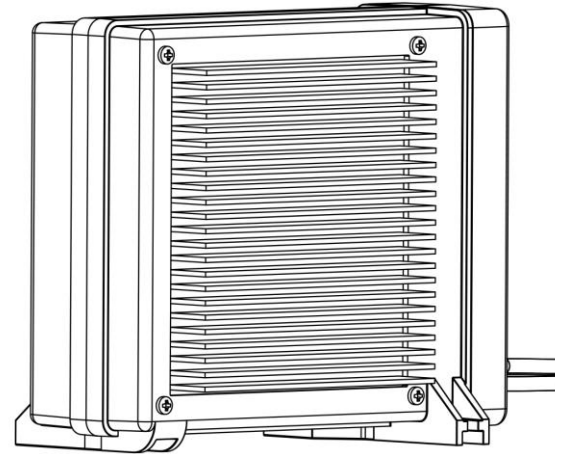
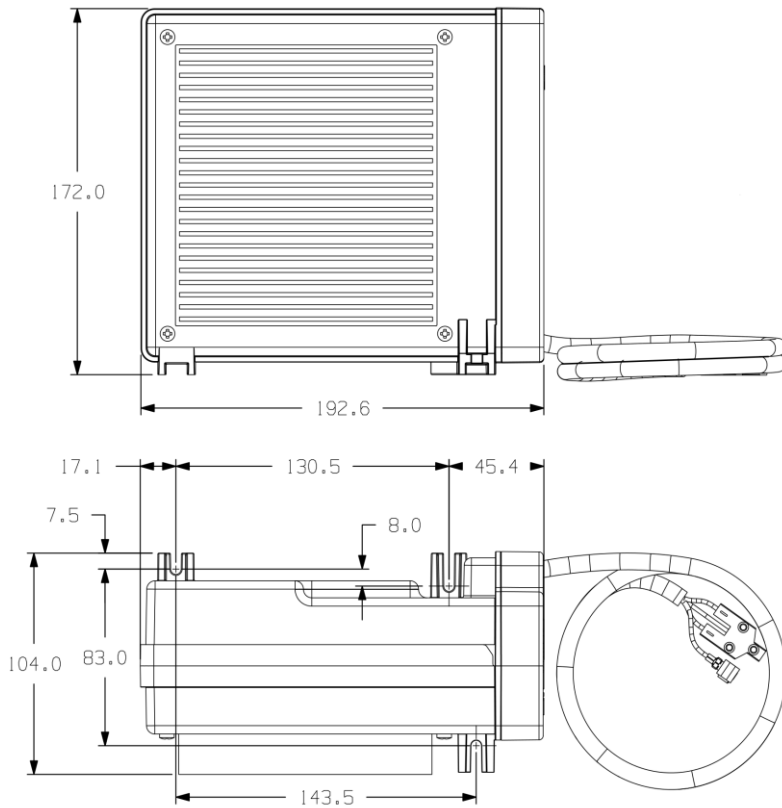
Safety Approval	UL 60335-2-34 with Annex AA
RoHS Conformity	2011/65/EU



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

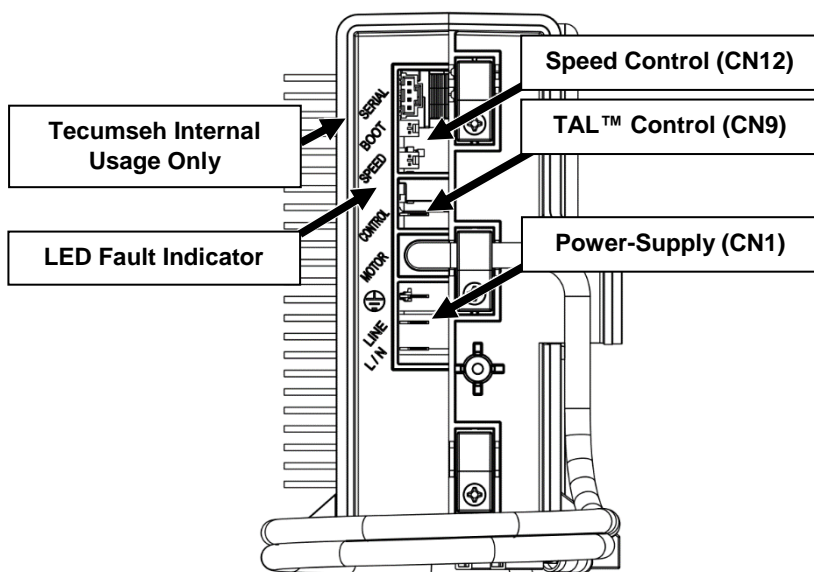
IntelliCI™

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” 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

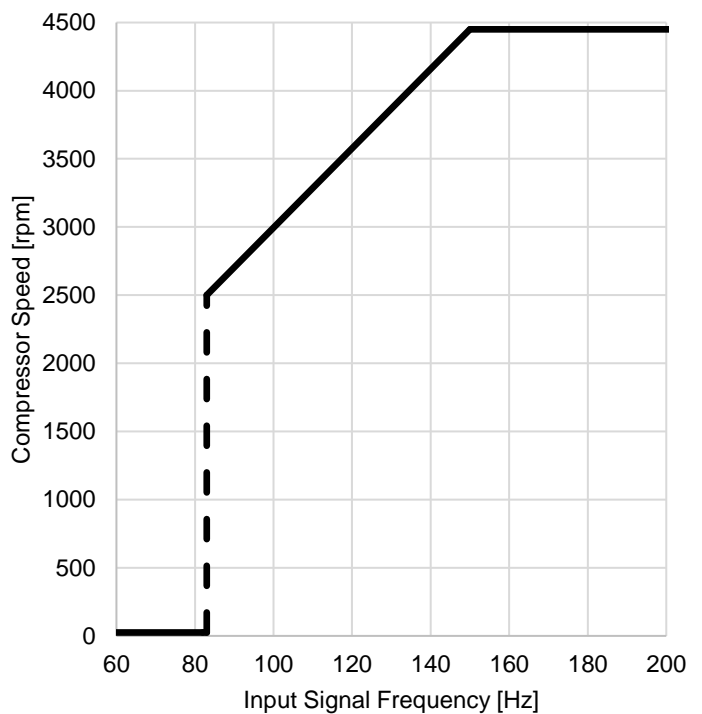
It is possible to control the compressor’s speed by interfacing the frequency input of the IntelliCI™ Tecumseh Variable Speed Drive with electronic thermostats or refrigeration system control devices².

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.

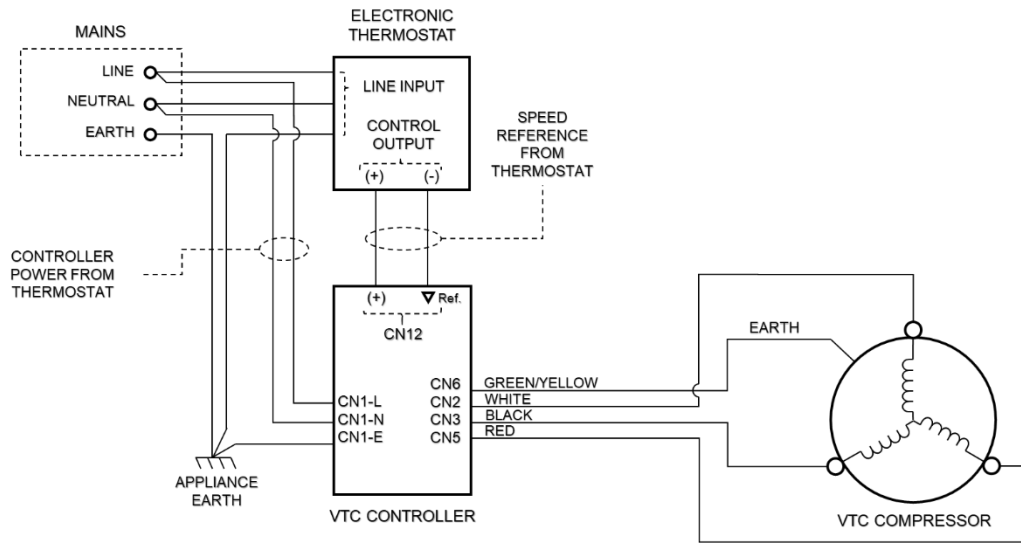
When using the frequency input, the TAL™ algorithm is disabled (CN9 inactive).



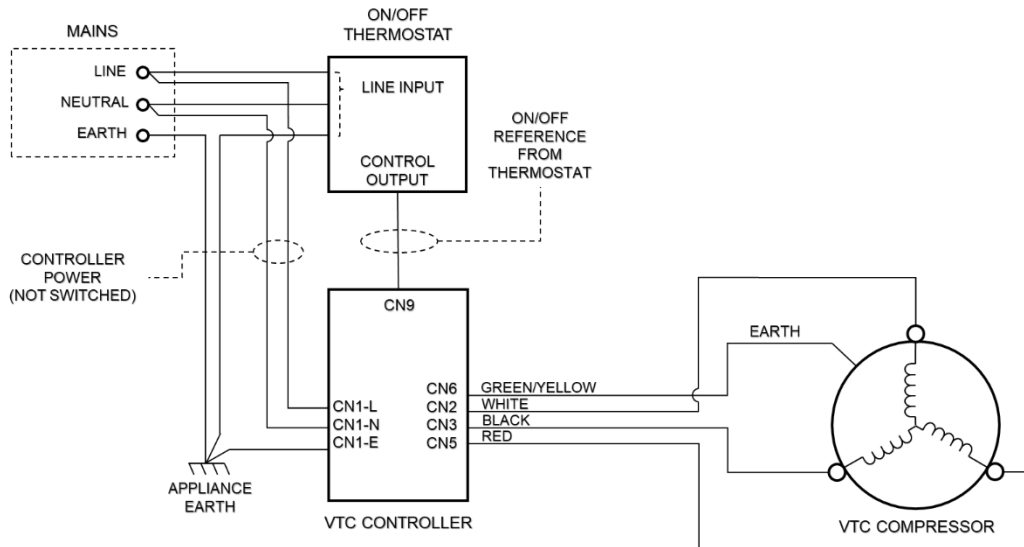
¹ For more details, see Section “Typical Wiring Diagram When Operating with “On/Off” Thermostat”.

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



IMPORTANT PRODUCT NOTICE

All statements, technical information or data related to Tecumseh Products Co. are based on information believed to be reliable. However, no representation or warranty, express or implied, is made as to their completeness, accuracy, fitness for a particular purpose or any other matter, including, without limitation, that the practice or application of any such statements, technical information or data is free of patent infringement or other intellectual property misappropriation.

All information provided in this specification is intended for persons having the requisite knowledge, skill, and expertise to properly and completely evaluate such information. Tecumseh Products Co. shall not be responsible or liable for the use, application or implementation of the information provided herein, and all such information is to be used at the risk, and in the sole judgment and discretion, of such persons, their employees, advisors and agents and only after their independent evaluation and determination that the product is suitable for the application intended by such persons.

Tecumseh Products Co. is not in the business of providing technical, engineering or operational information for a fee, and, therefore, any such information is provided as an accommodation and without charge. Tecumseh Products Co. reserves the right to make changes to its products or to discontinue any product at any time without notice and advises customers to obtain the latest relevant information prior to ordering.

LIMITED WARRANTY; DISCLAIMER OF WARRANTY; LIMITED REMEDY; LIMITED LIABILITY

All Tecumseh Products Co. products are sold subject to the terms and conditions of sale supplied at the time of order acknowledgement, including, but not limited to, those pertaining to warranty (as stated in its "Warranty to Original Equipment Manufacturers"), patent infringement, and limitation of liability. TECUMSEH PRODUCTS CO. MAKES NO OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE INCLUDING, WITHOUT LIMITATION, ANY WARRANTY THAT TECUMSEH PRODUCTS CO. PRODUCTS ARE SUITABLE OR FIT FOR USE IN ANY HUMAN SAFETY OR LIFE SUPPORT SYSTEMS. If a Tecumseh Products Co. product is found to be defective in materials or workmanship within the warranty period set forth in the "Warranty to Original Equipment Manufacturers," Tecumseh Products Co.'s sole and exclusive obligation, exercisable in its sole discretion, shall be to repair or replace the product or refund the purchase price of the product as more fully set forth in the "Warranty to Original Equipment Manufacturers."

"Tecumseh Products Co. will not be liable for any loss or damage arising from any Tecumseh Products Co. product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, even if Tecumseh Products Co. shall have been advised of the possibility of such potential loss or damage. This publication supersedes and replaces all information previously supplied."

Tecumseh Products Company Tecumseh do Brasil Ltda.

Rua Ray Wesley Herrick, 700 – Jardim Jockey Club
São Carlos, SP - CEP 13565-090
Phone (16) 3363-7000 / (16) 3363-3000