

## TOS-SN-1

### *Extended Panel Operation Manual*

#### Introduction

The “Extended Panel (TOS-SN-1)” for TOSVERT series inverter can be used for programming or monitoring, but does not contain internal memory. Please read the section regarding safety precaution in the “*Extended Panel Operation Manual*” before powering up your inverter. When using the External Panel, the display and adjustment of the inverter can be controlled remotely for up to 5 meters.

This operation manual gives explanations of how to connect and program the “Extended Panel.” Please read the entire manual carefully before attempting to control your inverter via the Extended Panel. In addition, the manual can be used for future operator maintenance and inspection. The Extended Panel is provided with a connection cable between the inverter and Option Unit. Any of the cables below may also be used with the TOS-SN-1

Part number of connection cable between the inverter and Option Unit	Cable Length
<b>CAB0011</b>	1.5m
<b>CAB0013</b>	3m
<b>CAB0015</b>	5m

#### Connections and Start Up



CN1



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Connect the Extended Panel to the inverter according to the procedure mentioned below.

1. Wait 10 minutes after the S11 is turned off to insure the drive is denergized. The charge lamp can be used as a secondary indicator to determine if the drive is still charged.
2. Connect the communication connectors of the extended panel to the inverter (CN1), which has the common serial option (communication) connector, with the optional cable.
3. Insure a secure connection is made between the inverter and the extended panel once the connection is made.
4. Power on the inverter after connection has been made, and the display should turn on.

Note: Before removing the cable, insure step 1 is confirmed.

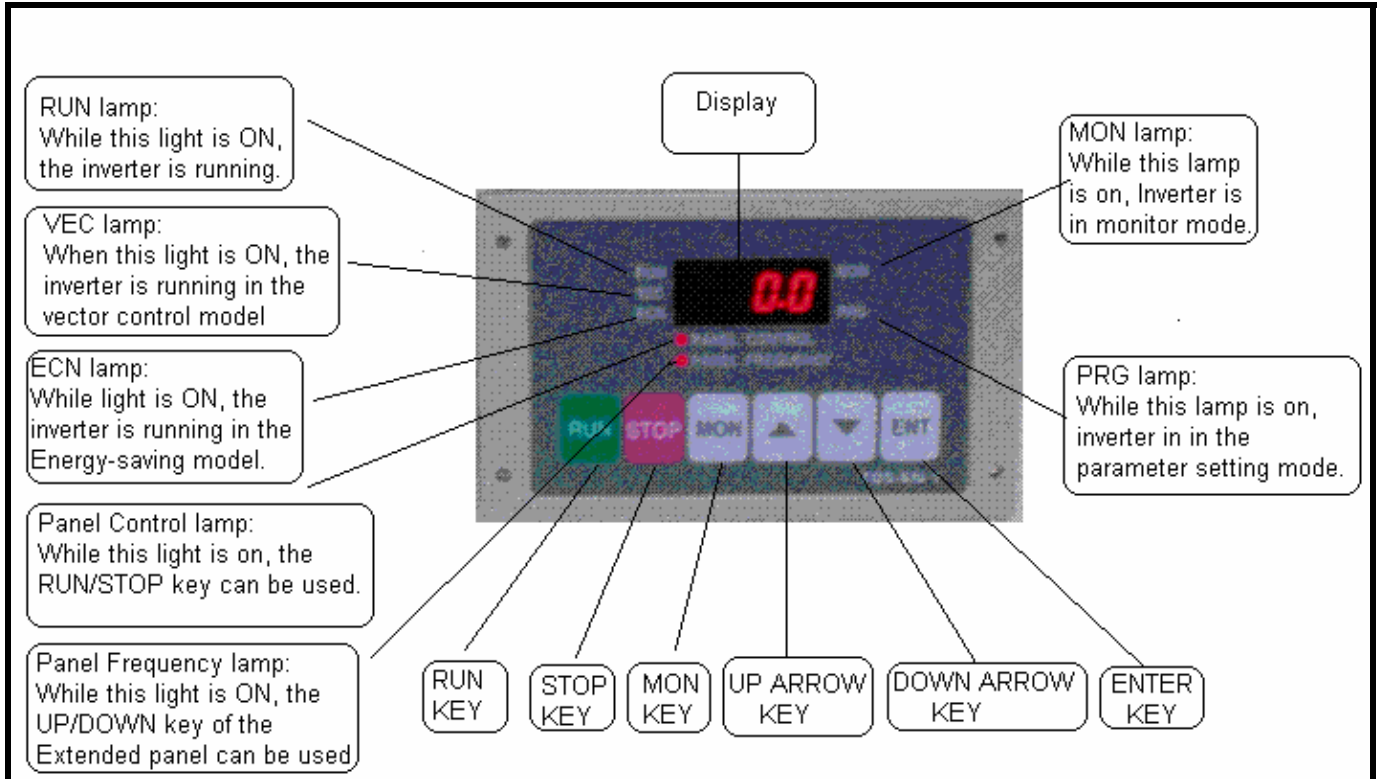
### Programming

Parameter	Description	Default Value	New Value
<i>CNOd</i>	Command mode selection	<i>!</i> Operational Panel	<i>!</i> Operational Panel
<i>FNOd</i>	Frequency setting mode selection 1	<i>0</i> Built-in Potentiometer	<i>3</i> Operational Panel

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### Names and Functions

The names and functions of main parts of the Extended Panel are shown in the following figure. Even though the Extended panel is connected, the inverter's panel remains available.



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### Mounting

Mount the extended panel (TOS-SN-1) in front of the panel board as mentioned below. Make an opening for mounting the extended panel in front of the panel board. Refer to "Figure 1. Panel cut dimensions", for proper dimensions and then set the extended panel in the opening with M3 screws, nuts and spacers supplied as accessories. Refer to "Figure2. Mounting of extended panel" for dimensions of extended panel.

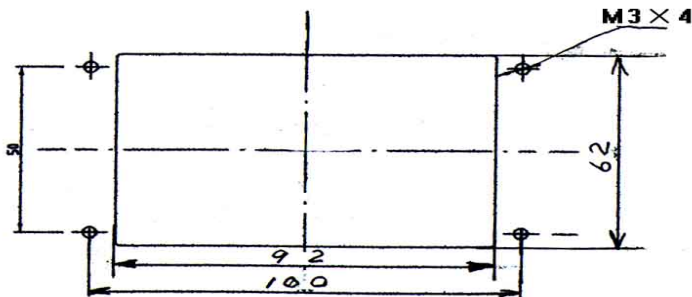


Figure1. Panel cut dimensions (Unit: mm)

### Dimensions

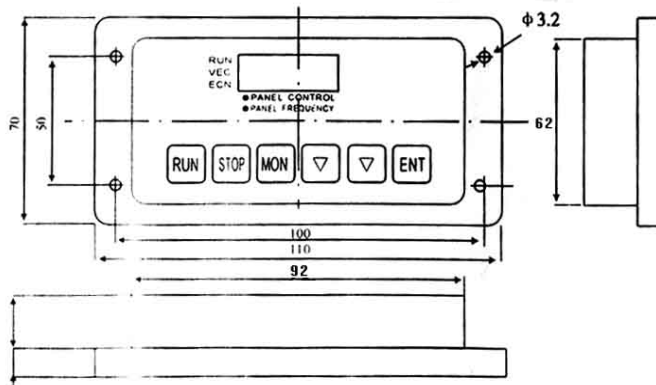


Figure2. Dimensions of the extended panel (unit: mm)

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## Specifications

Item	Specification
Part number	TOS-SN-1
Service Environment	Indoors. Altitude of less than 1000m (3280ft)
	Must not be exposed to direct sunlight, subject to corrosive and/or explosive gases, vapor, dust, chips, cutting oil, grinding agent, etc.
Ambient Temperature	From -10 <sup>0</sup> C to+50 <sup>0</sup> C (14 <sup>0</sup> C to 104 <sup>0</sup> C)
Storage Temperature	From -25 <sup>0</sup> C to+65 <sup>0</sup> C (-12 <sup>0</sup> C to149 <sup>0</sup> C)
Relative humidity	20% to 90% (no condensation allowed)
Vibration	5.9m/s <sup>2</sup> or less
Cool system	Self-cooling

## Protection Functions

If you receive an error code while operating the drive from the extended panel, refer to the table below for solutions to resolve the error.

Error Code	Details	Causes and Remedies
<b>rAN.E</b> <b>rON.E</b> <b>CPU.E</b>	RAM error ROM error CPU error(watch dog)	Reset the extended panel. If the same indication appears again after resetting, ask the dealer to investigate the cause
<b>CON.E</b>	Communication error	The error status will automatically be cancelled by recovery of normal communication status. Check connection of the communication cable. After checking connection of the communication cable, reset the extended panel. If the same indication appears again after resetting, ask the dealer to investigate the cause.

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## Safety Precautions

Located on the inverter and in its instruction manual, important information is contained for preventing injuries to users and damages to assets and for proper use of the device. Read the instruction manual attached to the inverter along with this manual for complete understanding of the safety precautions and adhere to the contents of these manuals.

## Handling

Danger	
Never Disassemble	<ul style="list-style-type: none"> <li>▼ Never disassemble, modify or repair the product. Disassembling the inverter could cause electric shocks, fire or injuries. For repairs, call your agency.</li> </ul>
Prohibited	<ul style="list-style-type: none"> <li>▼ Do not remove connectors when the power is on. It could lead to electric shocks.</li> <li>▼ Do not put or insert foreign objects such as waste table, bars, or wires into the product. It could lead to electric shocks or fire.</li> <li>▼ Do not splash water over the product. It could lead to electric shocks or fire.</li> </ul>
Mandatory	<ul style="list-style-type: none"> <li>▼ Power off the inverter before removing wires.</li> <li>▼ Turn off the power immediately if any abnormalities such as smokes, smells or abnormal noise are found. Neglecting any of these conditions could lead to a fire. For repairs, call your agency.</li> </ul>

## Transportation and installation

Danger	
Prohibited	<ul style="list-style-type: none"> <li>▼ Do not install or operate the inverter if it is damaged or any part is missing from it. Operating the inverter in a defective condition could lead to electric shocks or fire. For repairs, call your agency.</li> <li>▼ Do not put any inflammable material near the product. It could ignite a fire if the product sparks because of a breakdown.</li> <li>▼ Do not install the product where it could be splashed with water and the like. It could lead to electric shocks or fire.</li> </ul>
Mandatory	<ul style="list-style-type: none"> <li>▼ The product must be used under environmental conditions prescribed in this operation manual. Using the product under conditions not specified by the operation manual could lead to breakdown.</li> </ul>

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Cautions	
Prohibited	▼ Do not install the product in any place subject to vibrations or it could fall. Otherwise it can cause injury to people.

### Operation

Danger	
Prohibited	▼ Do not wipe the body with a wet cloth. It could lead to electric shocks. ▼ Do not pull on the cable. It could cause damage or errors.

### About disposal of the product

Cautions	
Mandatory	▼ Dispose of the product as an industrial waste.

### Cautions on use

Cautions	
	<ul style="list-style-type: none"><li>▼ Avoid installation locations that may be subjected to rapid changes in ambient temperature and/or humidity.</li><li>▼ Route the control wires separate from the inverter input/output power wiring. When disconnecting connection cable, make sure to hold its connector with care not to give unreasonable stress to the cable and the unit.</li><li>▼ The optional cable connector has locking pawls to prevent disconnection at the inverter and Option Unit. Disconnect the connector by pressing the pawl with finger to unlock.</li><li>▼ Mount the Option Unit securely on the panel, otherwise it could fall and cause malfunction or breakdown.</li><li>▼ Connect an electromagnetic contactor or something similar between the inverter and the power source to secure an external control of emergency to stop operation.</li></ul>