Important: **Read and save these instructions. This guide to be left with equipment.**

OnLine

GSTC/SETC
B+ Models

Installation and Operation Manual

Includes installation, operation maintenance and troubleshooting information for your GSTC/SETC B+ Nortec OnLine Options.

2553429-B | 21 JUN 2010

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www.humidity.com

Thank you for choosing NORTEC.

INSTALLATION DATE (MM/DD/YYYY)

MODEL #
SERIAL #

Contents

Overview

The Nortec OnLine Option provides a web-based remote monitoring capability to equipped GSTC (sold after March 2009) or SETC (sold after March 2010) series humidifiers. The Nortec OnLine option operates in conjunction with a centralized server based at Nortec 's facilities. This server allows the user to monitor and control various aspects of the humidifier operation. If a fault or service warning is detected the Nortec server will send an email response to three user-specified personnel. Nortec OnLine also provides Nortec with the ability to diagnose the humidifier's performance remotely, ensuring quick response to customer inquiries.

Nortec OnLine provides the advantages of immediate notification and quick diagnosis of humidifier fault conditions, should they arise. Nortec OnLine also provides a user-friendly BMS-like interface, even when a dedicated Building Management System is not available or unfeasible. All that is required for Nortec OnLine's operation is either an internet connection, an external phone line or a wireless network connection.

Offerings

Nortec OnLine supports three types of connections to the internet: Ethernet, Dialup modem, and GPRS modem. Both static IP and DHCP addressing is available for ethernet connections. Simply specify at the time of order, which type of connection type would be preferable and any details that may apply (refer to the configuration form at the back of the manual). Once in the field, a user can differentiate between the different connection types by inspecting a tag present on the OnLine module. This identifier tag will provide details such as connection type and part number information.

For sites where LAN/internet connections are available, the OnLine module may be plugged into the network through an ethernet port present on the control board. NORTEC OnLine is capable of operating with either a Static IP address or a Dynamic IP address. Wide area network (WAN) port 5222 must be opened to TCP traffic for the units to communicate with the NORTEC OnLine Service.

The Nortec OnLine module also comes equipped with a serial port which allows a dial-up modem or a wireless GPRS modem to be connected. All the necessary programming for the connection details will be pre-programmed at the factory.

Humidifier Wiring

It is possible to network up to a maximum of 8 units to a single Nortec OnLine module. This OnLine module is located internally to the GSTC or SETC unit. When multiple humidifiers are present, only a single module is required and will be installed inside a 'lead' unit, which can be specified by the user. Since each unit is separately addressed, it is possible to monitor and control each unit independently.

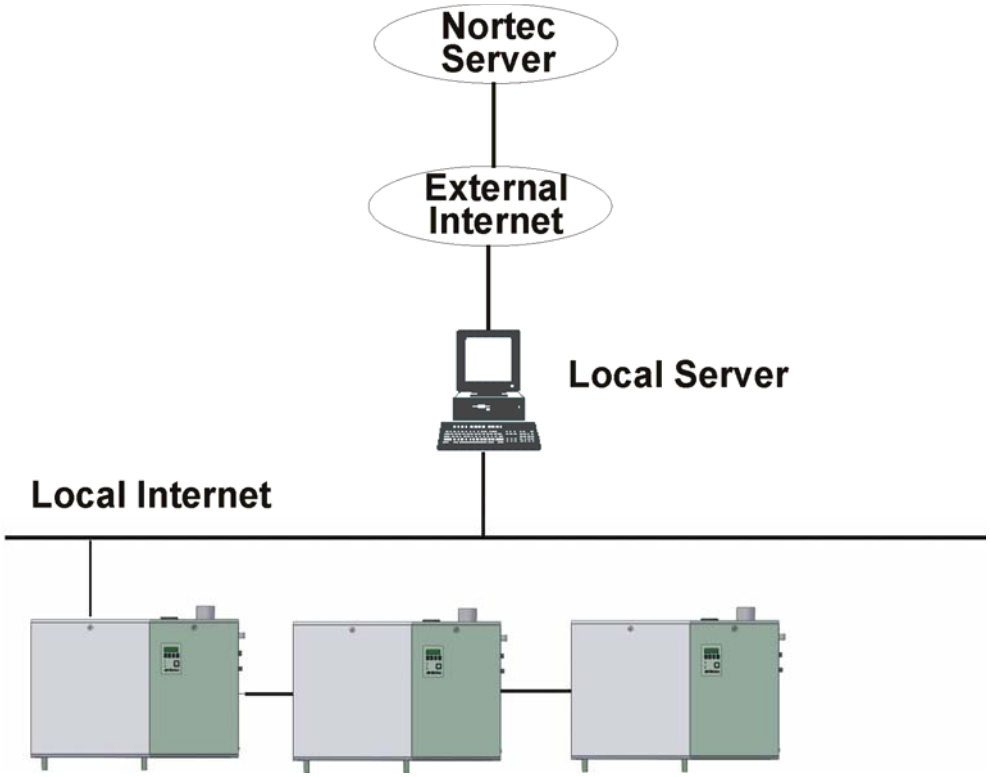


Figure 1: Networking Layout

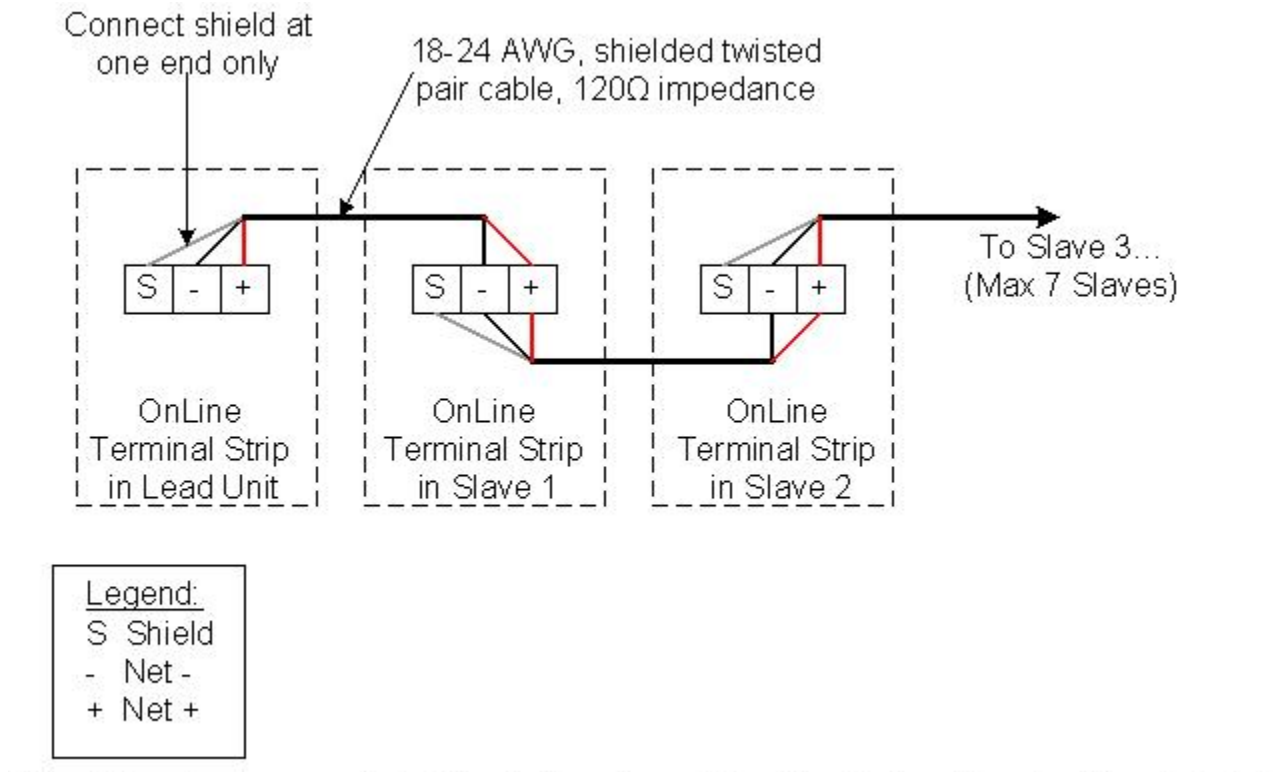


Figure 2: Networking for 2009 Models and Newer

The necessary internal wiring for the gateway is already present except for the network connection that can be made internally to the unit. To network multiple units to a single Gateway, the units may be daisy-chained to each other using the network link terminals at the OnLine terminal strip, see Figure 2 and 3.

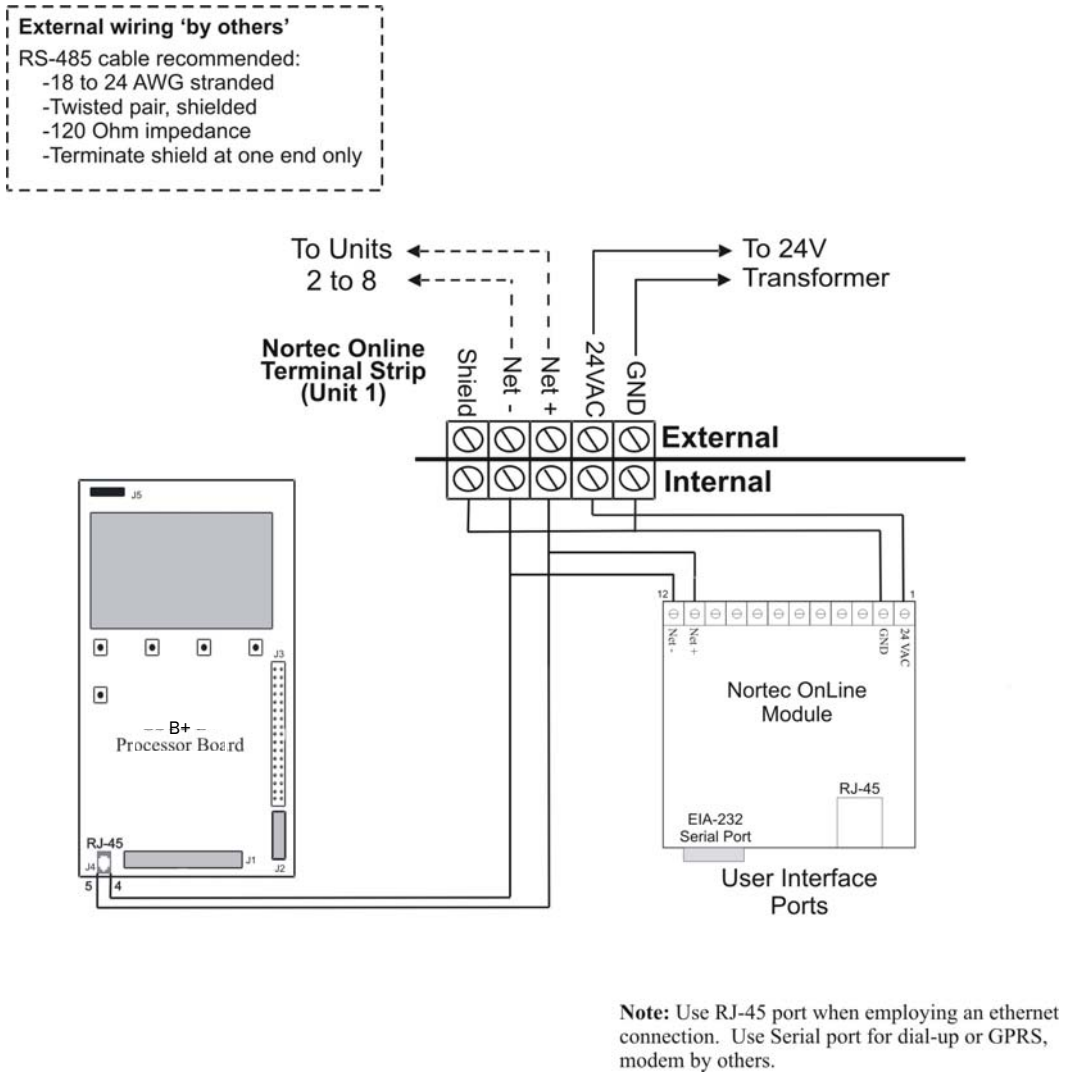


Figure 3: Connecting Multiple Humidifiers to a Lead Humidifier

Table 1 refers to the recommended wire types and maximum recommended lengths from the Nortec OnLine module in the lead unit. Since communication between the humidifiers and Nortec OnLine will always occur via a EIA-485 signal type, Nortec recommends using 18-24 AWG shielded (120 Ω impedance), twisted pair wire between the lead humidifier and each of the secondary humidifiers. Cable runs between the Nortec OnLine module and the furthest "slave" humidifier should not exceed 2,600 feet. Signal boosters or repeaters may be necessary for longer wire runs. The shield wire(s) should be connected at one end only.

The Nortec OnLine module has been designed and tested to operate with a variety of third-party manufacturers equipment that promote wireless connectivity. Should a user desire to connect the OnLine module to the internet via a wireless connection such as 802.11b or g class network, Nortec can provide recommendations on which equipment to use.

Ethernet Connections

To connect Nortec OnLine to the internet via a local area network, insert the ethernet cable into the port on the Nortec OnLine module inside the lead humidifier. The serial port is not used in this configuration. The option for Static IP or DHCP addressing is specified at time of order, the units should be visible on the network after being connected. In order to connuicate with the Nortec OnLine service Lan Port 5222 must be opened (”forwarded or triggered”) for TCP traffic.

GPRS or Dial-up Connections

The Nortec OnLine module is also able to connect with the Nortec Server via a dial-up connection to a local Internet Service Provider or even through a GPRS connection. Should such a connection be desirable Nortec can recommend a variety of third party manufacturers equipment that the Nortec OnLine module has been proven to work well with.

If a dial-up or GPRS connection is desired it will be necessary to contact Nortec at the time of order to provide information on the required settings.

These modems are connected to the serial port on the OnLine module. The ethernet port is not used in this case.

Table 1: Recommended Wire Types and Lengths

Signal Type	Polarity		Recommended Cable	Maximum Recommended Distance from NORTEC Module
	A	B		
EIA-485, 2-wire	Net +	Net -	18-24 AWG Shielded, Twisted Pair 120 Ω impedance	2,600 ft

User Webpage Interface

The Nortec OnLine web page can be accessed via the internet address www.Norteconline.com.

After initially logging into the Nortec OnLine server the user will be presented with a list of humidifiers currently registered with the Server program. Each serial number and an address descriptor.

By clicking on the humidifier name, the user will then be brought to a status screen with an image of the selected humidifier. Refer to Figure 5.

The status screen, refer to Figure 6 provides the user with a quick reference to the unit’s operation.

Several key status values can be gathered at a glance. Refer to Table 2 for a description of the variables displayed on the status screen.

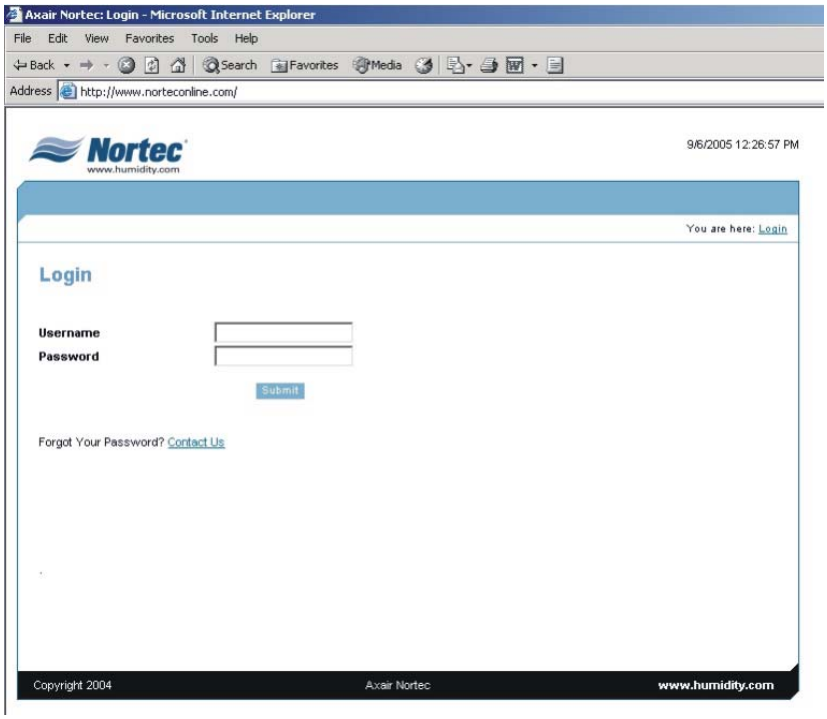


Figure 4: NORTEC OnLine Homepage

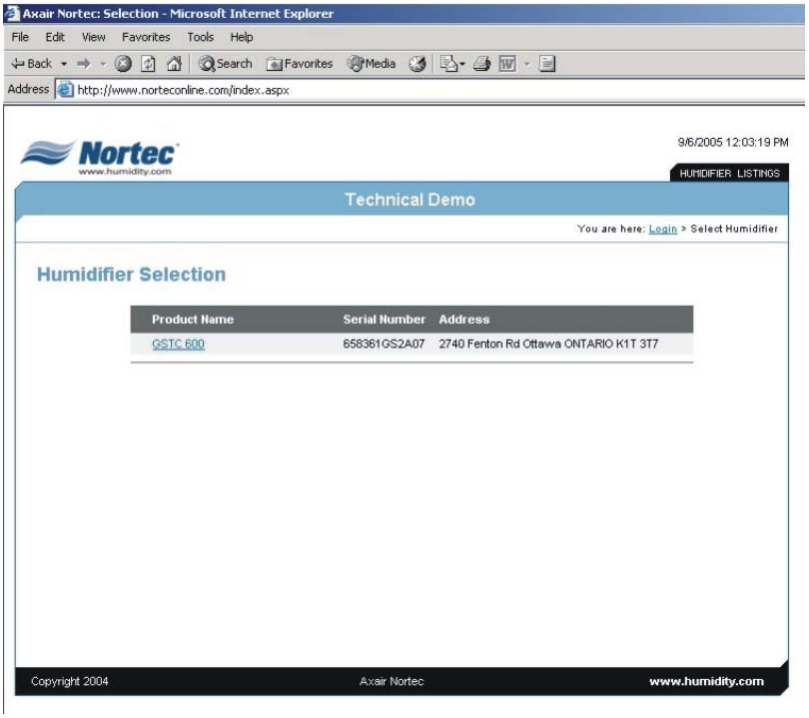


Figure 5: List of Humidifiers

Figure 6: Status Screen

Table 2: Status Screen Variables

Variable Name	Displayed Information	Description	Product Line	
			GSTC	SETC
3 Day Drain	On/Off Chart Item	Indicates if the three day tank drain feature is enabled. 0=disabled, 1=enabled.	X	X
Burner 1 Status	On/Off Animated	Indicates if Burner 1 is on.	X	
Burner 2 Status	On/Off Lamp Indicator	Indicates if Burner 2 is on (if equipped)	X	
Burner 3 Status	On/Off Lamp Indicator	Indicates if Burner 3 is on (if equipped)	X	
Burner 4 Status	On/Off Lamp Indicator	Indicates if Burner 4 is on (if equipped)	X	
Burner 5 Status	On/Off Lamp Indicator	Indicates if Burner 5 is on (if equipped)	X	
Burner 6 Status	On/Off Lamp Indicator	Indicates if Burner 6 is on (if equipped)	X	
Steam Exchanger Status	On/Off Animated	Indicates if steam is flowing through the heat exchanger.		X
Capacity Limit	0-100% Chart Item	Indicates the current value for the capacity limit set point (adjustment) on the humidifier.	X	X
Channel 1 Demand%RH	0-100% Chart Item	Indicates the current Demand or %RH signal being supplied to Channel 1 of the humidifier from a connected sensor.	X	X
Channel 1 Setpoint	0-100% Chart Item	Shows current value for the setpoint of channel 1. This value is only applicable when unit is set to respond to a %RH signal.	X	X
Channel 2 Demand/%RH	0-100% Chart Item	Indicates the current Demand or %RH signal supplied to Channel 2 of the humidifier from a connected sensor.	X	X
Channel 2 Setpoint	0-100% Chart Item	Shows current value for the setpoint of channel 2. This value is only applicable when unit is set to respond to a %RH signal and configured for dual channel.	X	X
Drain Valve Status	On/Off Animated	Indicates when the tank drain has been activated and the unit is draining water.	X	X
Fault Indicator	On/Off Lamp Indicator	Provides current fault status. The red fault light is lit when a fault is detected.	X	X
Fill Valve Status	On/Off Animated	Indicates if the humidifier is filling the water tank.	X	X
Full Tank Blowdown	On/Off Chart Item	Indicates if the full tank blowdown feature is enabled or disabled. Feature is toggled by dip-switch on mainboard.	X	X
Keep WarmKeep Warn used on status screen not Keep Warm.	On/Off Chart Item	Indicates if the water tank keepwarm feature is enabled or disabled. Feature is toggled by dip-switch on mainboard.	X	X
Operational Hours	Hours Chart Item	Displays the amount of the time the humidifier has been in operation.	X	X
Remaining Service Hours. Hours to next Service.	Hours Chart Item	Displays the number of operational hours left until the next suggested service period is due.	X	X
Serial Number	Alpha-Numeric String	Indicates the Humidifiers Serial Number for quick reference.	X	X

Table 2: Status Screen Variables - CONTINUED

Variable Name	Displayed Information	Description	Product LIne	
			GSTC	SETC
Service Indicator	On/Off Lamp Indicator	Provides current service status. The yellow service light is lit when service is due.	X	X
Software Version	Numerical Chart Item	Indicates the software version installed on the Humidifiers mainboard.	X	X
Steam Production	On/Off Animated	Indicates that the humidifier is producing steam in response to a demand signal.	X	X
System Demand Correct Output	0-100% Numerical Data	Displays the humidifier's current demand output	X	X
Unit Address	Mailing Address Chart Item	Provides details on the Humidifier's location.	X	X
Unit Model	Unit Identifier Chart Item	Indicates the model type & size of the selected humidifier.	X	X
Unit Status	On/Off Lamp Indicator	Indicates if unit has responded to a demand signal. The green LED is on when a demand signal is present.	X	X
Water Level High	On/Off Lamp Indicator	Yellow light is on if water is at a high level. Light combinations are possible for mid-state water levels.	X	X
Water Level Mid-Range	On/Off Lamp Indicator	Green light is on if water is at optimal level. Light combinations are possible for mid-state water levels	X	X
Water Level Low	On/Off Lamp Indicator	Red light is on if water is at a low level. Light combinations are possible for mid-state water levels.	X	X
Weighted Hours	Hours Chart Item	Equivalent operating hours convoluted to 100% steam production. Ex. Weighted hours = 2 hours at 50% demand.	X	X
Manual Drain	On/Off Chart Item	Drain unit when “on”.	X	X
Pre-Clean	On/Off Chart Item	Initiates a pre-clean cycle.	X	X
Power Reset	On/Off Chart Item	Performs a software reset similar to turning the unit off and then on again. 0: Standalone unit (default setting) 1: Unit is Master 2: Unit is Slave	X	X
Multimode	Status Item	Lists current signal type the unit is configured for 0: 0-5Vdc 1: 1-5Vdc 2: 0-10Vdc 3: 2-10Vdc 4: 0-16Vdc 5: 3.2-16Vdc 6: 0-10mA	X	X

Table 2: Status Screen Variables - CONTINUED

Variable Name	Displayed Information	Description	Product Line	
			GSTC	SETC
Limit Type	Status Item	7: 4-20mA	X	X
3 Day Drain Delay	Time Status Item	Displays idle time remaining before tank drains.	X	X
		Lists current signal type the unit is configured for 0: 0-5Vdc 1: 1-5Vdc 2: 0-10Vdc 3: 2-10Vdc 4: 0-16Vdc 5: 3.2-16Vdc 6: 0-10mA		
Limit Signal Type	Status Item	7: 4-20mA	X	X
Time Proportioning Active	On/Off Chart Item	Displays that unit has received demand such that time proportioning has activated.	X	X
Float Check Active	On/Off Chart Item	Active when unit is currently performing a 23 hour float check.	X	X

Configuration Screen

By selecting the configuration button, see Figure 7 & Figure 8, located near the top of the webpage, the user is able to adjust control parameters for the humidifier.

Table 3 provides a description of the control variables provided to the user.

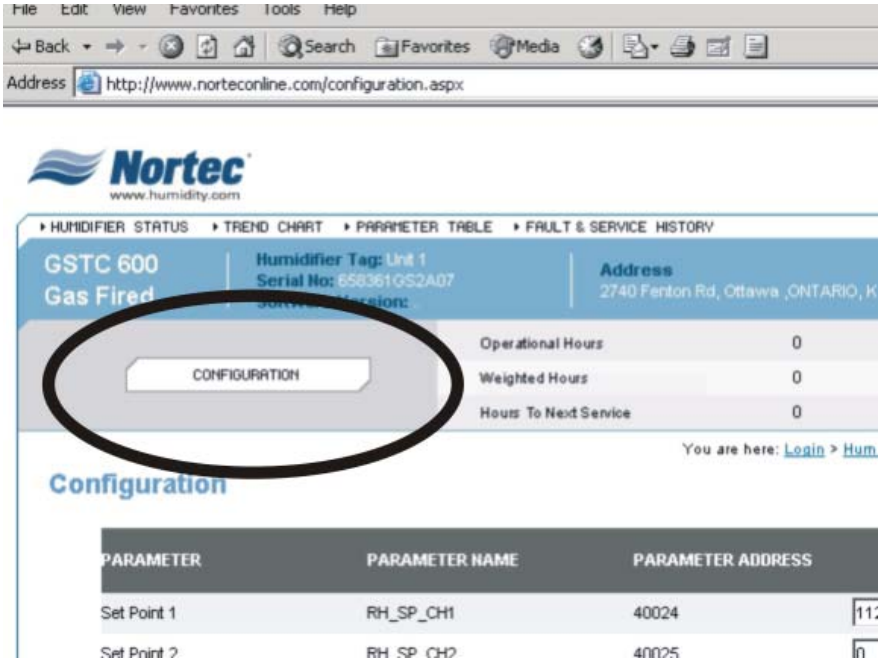


Figure 7: Configuration Button

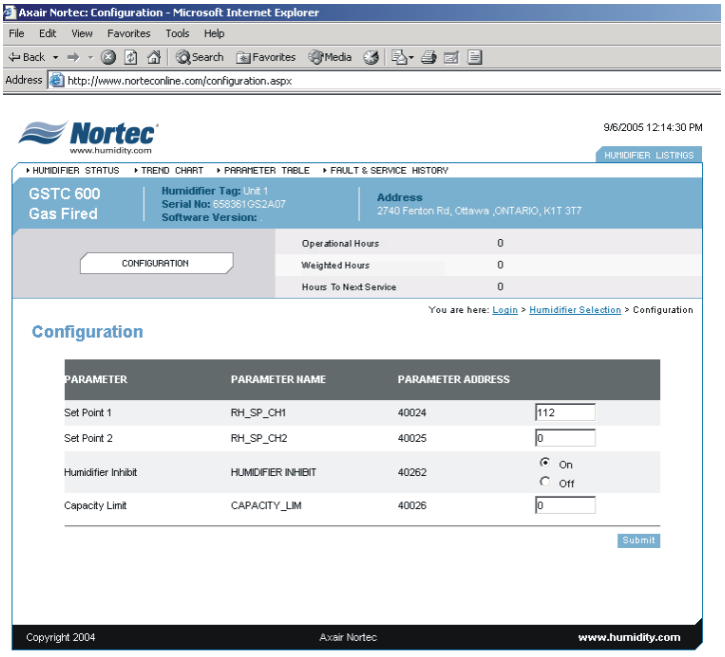


Figure 8: Configuration Screen

Table 3: Screen Status Variable

Variable Name	Setting Range	Description	Product Line	
			GSTC	SETC
Capacity Limit	0-100%	Allows the user to adjust the total steam output the unit will be able to produce at 100% demand.	X	X
Channel 1 Setpoint	10-95%	Sets the Channel 1 Setpoint. This feature is only enabled when the humidifier is set to operate with an RH signal.	X	X
Channel 2 Setpoint	10-95%	Sets the Channel 2 Setpoint. This feature is only enabled when the humidifier is set to operate with an RH signal.	X	X
Disable Humidifier	Enabled/Disabled	Forces the humidifier into a lockout state where steam production is halted and the unit will not respond to any demand input.	X	X

At the top of the screen the user is presented with options for three different screens, see Figure 9. One option will provide a trending graph, see Figure 10, that monitors points such as %RH/Demand and setpoint settings for channel 1 and channel 2 as well as the current humidifier's output. This trend graph is capable of keeping historical data for each particular unit.

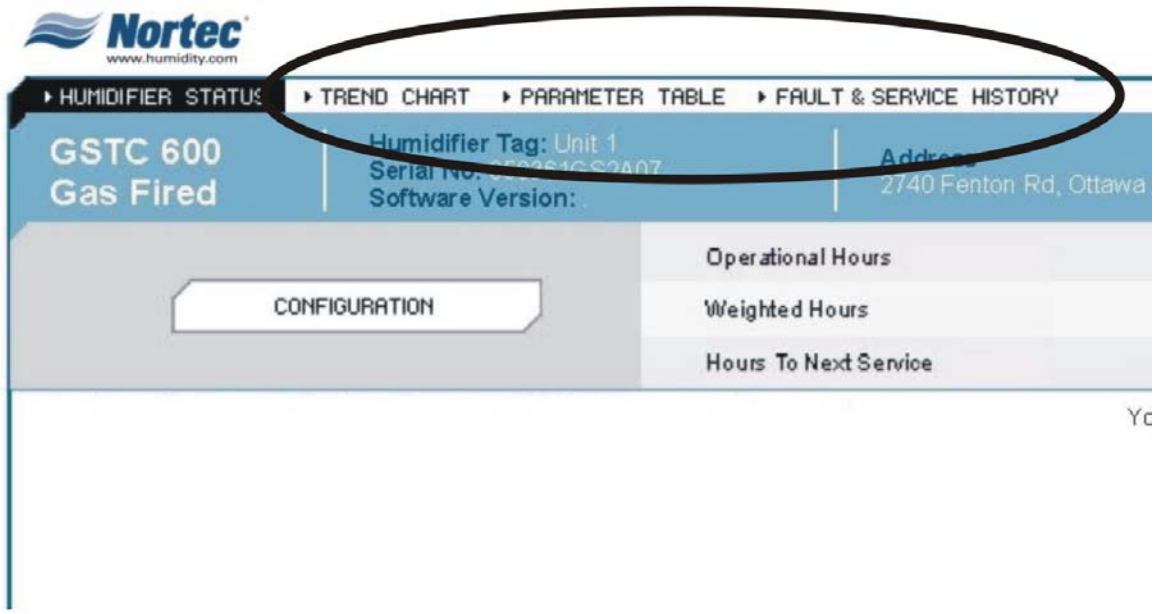


Figure 9: Three Screen Options

Figure 10: Trend Data

Figure 11: Fault and Service History Table, provides a list of up to 18 fault or service errors that the humidifier has experienced . This can provide valuable troubleshooting information when faced with a recurring problem.

Figure 12: Parameter Table, provides an in-depth view of all the variables available through Nortec OnLine. From the parameter listings a user can determine if a certain gas burner has been disabled, the proportional coefficient for the PI band on channel 1, or even what version of the GSTC software the unit is currently operating with.

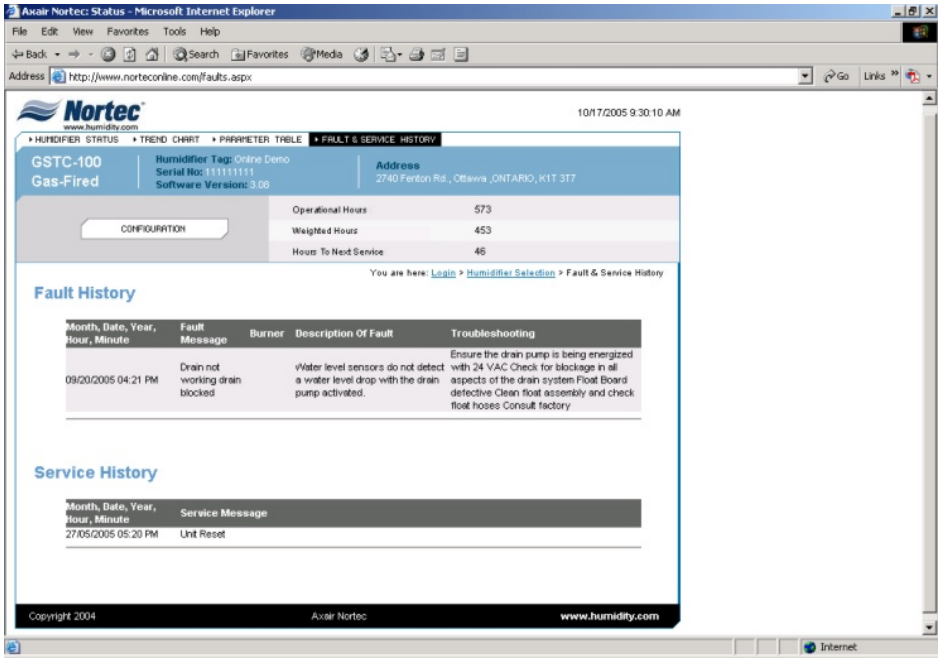


Figure 11: Fault and Service History Table

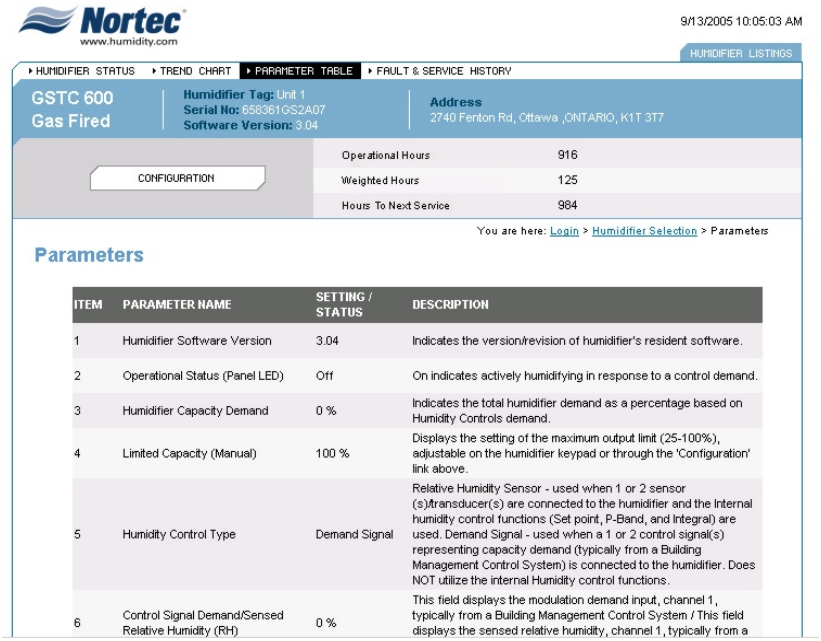


Figure 12: Parameter Table

Nortec OnLine Start-Up Checklist

Wiring

Humidifier-to-humidifier connection:

Each individual humidifier linked to lead unit. ❒

Connection can be direct or daisy-chained to other units. ❒

Shield connected to lead unit only (wire should not be connected at other end). ❒

Network Connection

Lead unit wired to local network (Ethernet, GPRS, Dial-up). ❒

Network activity verified. ❒

Port 5222 open to TCP traffic. ❒

Start-Up Procedure

Ensure power is being supplied to the humidifier and NORTEC OnLine module. ❒

Verify power to OnLine module (Power LED should be lit). ❒

After power-up, verify network communication. ❒

Verify variable operation after mapping is complete. ❒

Perform regular humidifier start-up check. ❒

Troubleshooting

Gateway Indicator Lights

The OnLine module has four status indicator LEDs that provide a quick-reference for troubleshooting communication faults with the Nortec OnLine option. Table 4 provides a description of each LEDs function.

Table 5 details common problems and solutions.

Table 4: OnLIne Module Status LED Description

LED Name	Color	Function
Module Status	Off	Indicates that the OnLine module is not receiving power.
	Green	Indicates the OnLine is operating normally.
	Orange	Indicates that the OnLine is loading the firmware installed on the module.
Serial Link Status	Flashing Green	Indicates that the OnLine is receiving a network packet from an serial connection.
	Flashing Red	Indicates that the OnLine is transmitting a network packet on a serial connection.
	Orange	Displayed when the OnLine is booting.
Ethernet Activity / Collision	Flashing Green	Indicates that the OnLine is receiving a network packet from an Ethernet connection.
	Flashing Red	Indicates that the OnLine is transmitting a network packet on a Ethernet connection.
Network Link	Off	No network connection is present.
	Green	The OnLine has detected the presence of a 10Mbps network.
	Orange	The OnLine has detected the presence of a 100Mbps network.

Table 5: Troubleshooting Communication Problems

Problem	Solution
The NORTEC server cannot read/write any information to any of the networked humidifiers.	Verify that the network connection is made and is connected properly. Verify that firewall port 5222 is open to TCP traffic. Verify that the correct network settings are being used. The OnLine module may need to be restarted to load the new settings. Check the ethernet link (if ethernet enabled) or serial link (if modem enabled) communication LED's to determine if there is any network traffic being sent or received by the OnLine module from the NORTEC server. Verify proper connections to networked humidifiers. Turn the OnLine module off for several seconds then switch it back on to reload the control program. Allow for some time for the network variables to be polled.
The NORTEC server network can see some of the networked humidifiers but not others.	Ensure proper connections to the humidifiers. Disconnect all of the humidifiers from the NORTEC OnLine module except for the unit that is not responding to the network. Disconnect power to the OnLine module, wait a moment, then reconnect power. Check Serial Link LED transmit/receive lights to see if the module can talk to the humidifier. Verify that each unit has a unique modbus address (no conflicts).

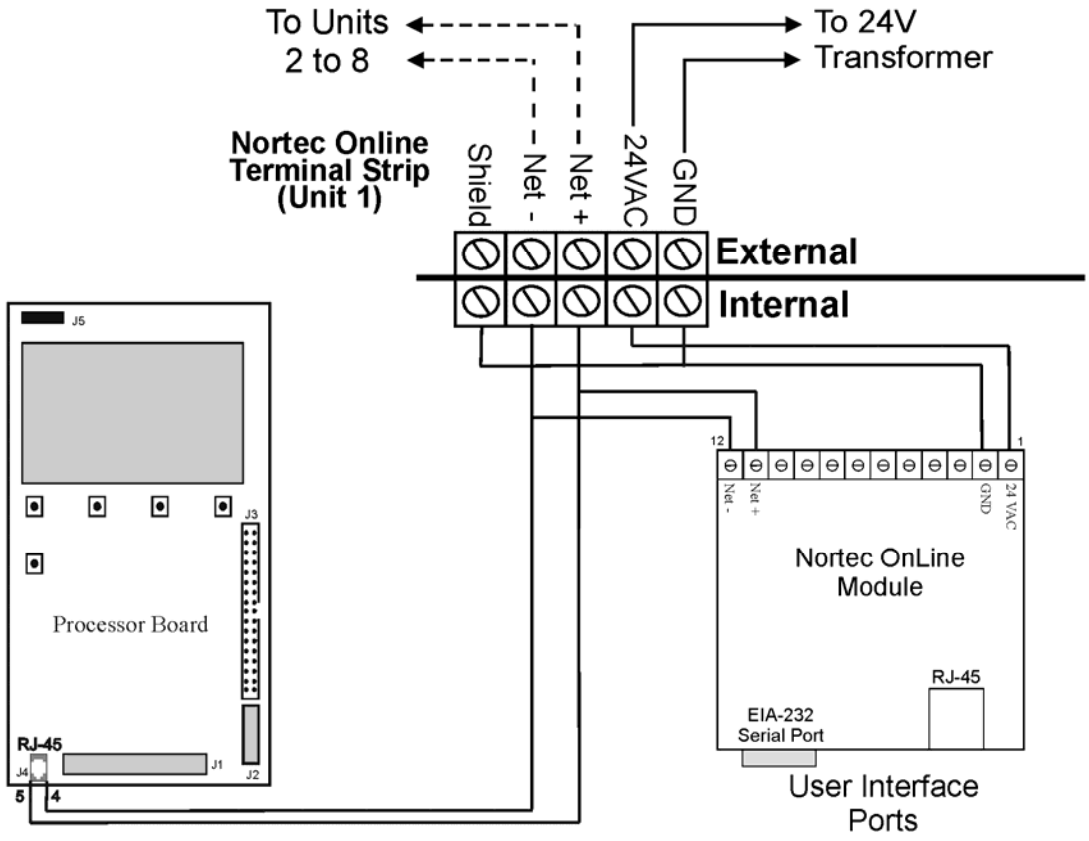
Spare Parts

Table 6: Spare Parts

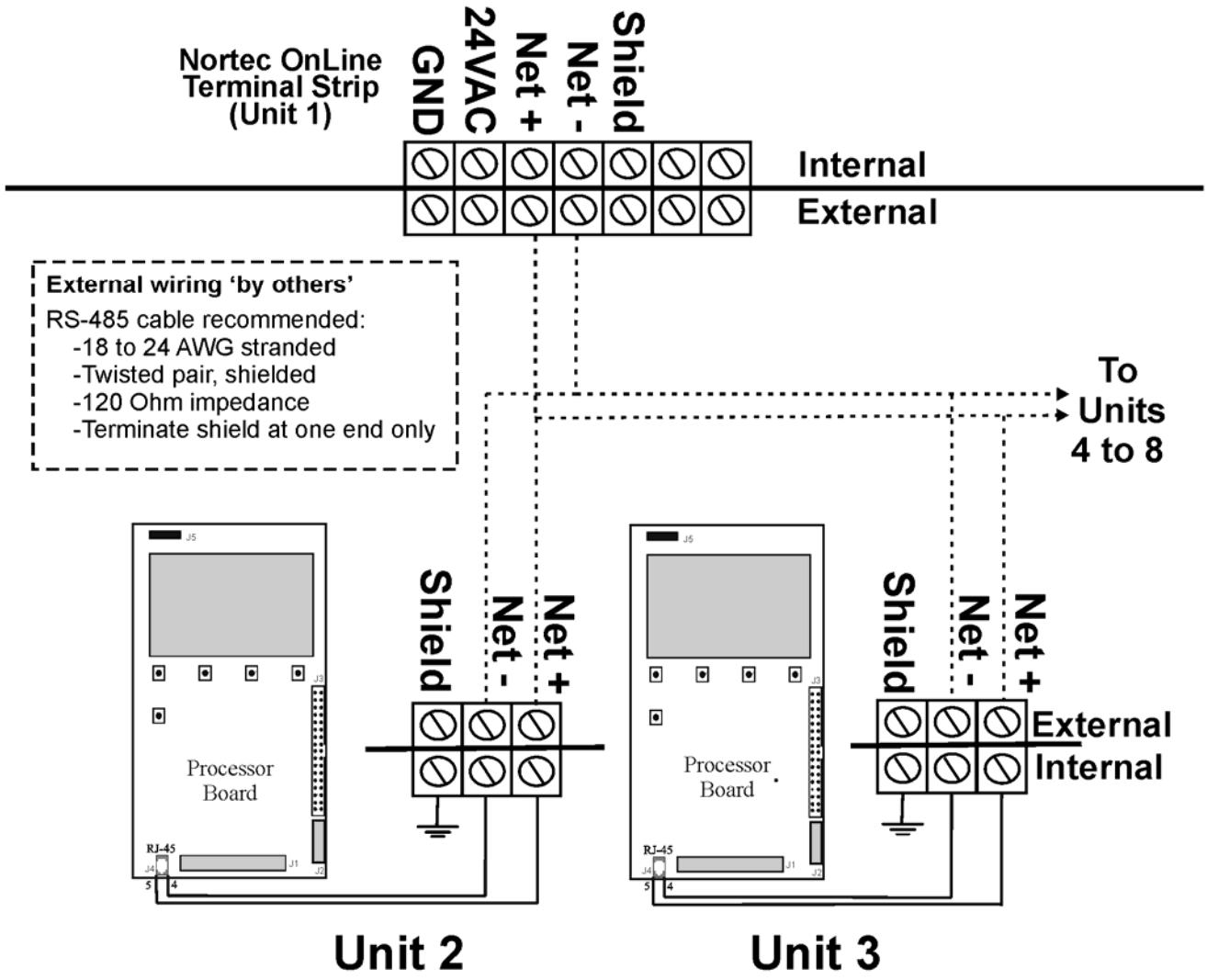
Part Number	Item	Description
1509602	NORTEC Online Module - Dial-up Configuration.	Spare part for On-Line module with dial-up settings.
1509603	NORTEC Online Module - GPRS Configuration.	Spare part for On-Line module with dial-up settings.
1509604	NORTEC Online Module - Static IP Configuration.	Spare part for On-Line module with wired ethernet and static IP settings.
1509605	NORTEC Online Module - DHCP Configuration.	Spare part for On-Line module with wired ethernet and dynamic IP settings.
1509349	Communication Cable for OnLine module.	Cable with RS-12 plug for On-Line module.

External wiring 'by others'

RS-485 cable recommended:
- -18 to 24 AWG stranded
- -Twisted pair, shielded
- -120 Ohm impedance
- -Terminate shield at one end only



Note: Use RJ-45 port when employing an ethernet connection. Use Serial port for dial-up or GPRS, modem by others.



To network up to eight (8) units using a single Nortec OnLine module, the units must be connected in parallel (daisy-chained) to each other using the network link terminals supplied with Nortec OnLine equipped humidifiers.

Communication between the humidifiers and the Nortec OnLine module will always occur via a EIA-485 signal type. Nortec recommends using 18 to 24 AWG shielded, twisted pair wire between the lead humidifier (Unit 1) and each of the slave humidifiers (Units 2 to 8). The cable should have a characteristic impedance of 120 ohms. Cable runs between the Nortec OnLine module and the furthest slave humidifier should not exceed 2,000 feet. Signal boosters or repeaters may be necessary for long wire runs.

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Nortec OnLine GS/SE B+ Slave
Supplemental Wiring Diagram
Diagram No. 2544224 Rev. C May10, 2010

Warranty

Walter Meier Inc. and/or Walter Meier Ltd. (hereinafter collectively referred to as THE COMPANY), warrant for a period of two years after installation or 30 months from manufacturer's ship date, whichever date is earlier, that THE COMPANY's manufactured and assembled products, not otherwise expressly warranted (with the exception of the cylinder), are free from defects in material and workmanship. No warranty is made against corrosion, deterioration, or suitability of substituted materials used as a result of compliance with government regulations.

THE COMPANY's obligations and liabilities under this warranty are limited to furnishing replacement parts to the customer, F.O.B. THE COMPANY's factory, providing the defective part(s) is returned freight prepaid by the customer. Parts used for repairs are warranted for the balance of the term of the warranty on the original humidifier or 90 days, whichever is longer.

The warranties set forth herein are in lieu of all other warranties expressed or implied by law. No liability whatsoever shall be attached to THE COMPANY until said products have been paid for in full and then said liability shall be limited to the original purchase price for the product. Any further warranty must be in writing, signed by an officer of THE COMPANY.

THE COMPANY's limited warranty on accessories, not of the companies manufacture, such as controls, humidistats, pumps, etc. is limited to the warranty of the original equipment manufacturer from date of original shipment of humidifier.

THE COMPANY makes no warranty and assumes no liability unless the equipment is installed in strict accordance with a copy of the catalog and installation manual in effect at the date of purchase and by a contractor approved by THE COMPANY to install such equipment.

THE COMPANY makes no warranty and assumes no liability whatsoever for consequential damage or damage resulting directly from misapplication, incorrect sizing or lack of proper maintenance of the equipment.

THE COMPANY makes no warranty and assumes no liability whatsoever for damage resulting from freezing of the humidifier, supply lines, drain lines, or steam distribution systems.

THE COMPANY makes no warranty and assumes no liability whatsoever for equipment that has failed due to ambient conditions when installed in locations having climates below 14°F (-10°C) during January or above 104°F (40°C) during July.

THE COMPANY retains the right to change the design, specification and performance criteria of its products without notice or obligation.

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