



Manual Supplement

Model Number: 8636-N2

Product/System Title: Room Pressure Controller with Reheat Control and N2 Communications Protocol

Contents of this manual supplement include:

- 1) Sequence of Operation
- 2) Menu configuration
- 3) Software items deleted
- 4) Variable Map
- 5) Description of variables
- 6) Wiring Diagram

N2 communications are installed on the Model 8636-N2 room pressure controllers. This document provides the technical information needed for the host DDC system to communicate with 8636 units. This document assumes the programmer is familiar with the N2 protocol. Further technical assistance is available from TSI if your question is related to TSI interfacing to a DDC system. If you need further information regarding N2 programming in general, please contact Johnson Controls.

Project:
Date:
Page 1 of 9 Released 10/03/01



Manual Supplement

Sequence of Operation

The Model 8636-N2 measures the room pressure differential and receives temperature information from the temperature sensor. The 8636-N2 control algorithm modulates the supply and general exhaust air to provide adequate supply air while maintaining the room pressure differential and temperature control.

In occupied mode, the Model 8636-N2 has two supply flow set points: ventilation and temperature. The ventilation setpoint is the minimum supply flow for the space, used when the heating and cooling loads are met. The temperature supply set point is a higher flow, required to meet an increased cooling load in the lab.

Laboratory temperature is continuously transmitted to the Model 8636-N2. When the laboratory temperature is satisfied, the ventilation set point is maintained, unless additional supply air is required for the room pressure balance. When the space temperature is more than 1°F above the temperature setpoint, the 8636-N2 slowly will increase the supply air volume, to a maximum of the temperature minimum supply flow, until the space temperature returns to setpoint. When the space temperature is more than 1°F below the temperature setpoint, the 8636-N2 slowly will decrease the supply air volume, to a minimum of the ventilation minimum supply flow, until the space temperature returns to setpoint. If the supply volume is at the ventilation minimum supply flow, the Model 8636-N2 will modulate the reheat valve to provide the necessary heating.

In unoccupied mode, the supply flow will remain at the unoccupied supply flow rate.

Supply air volumes will rise above the minimum setpoints, under all conditions, as required to maintain space pressurization. Temperature control and occupied/unoccupied modes will only affect the minimum supply flows, which are used, for example, when fume hood sashes are lowered.

NOTE: The 8636-N2 will not allow the temperature minimum supply volume to be less than the ventilation minimum supply volume.

Project:
Date:
Page 2 of 9 Released 10/03/01



Manual Supplement

Menu Configuration

SETPOINTS

SETPOINT
 REM SETPOINT
 UNOCC SETP
 VENT MIN SET
 TEMP MIN SET
 TEMP SETP

ALARM

LOW ALARM
 HIGH ALARM
 REM LOW ALM
 REM HIGH ALM
 MIN SUP ALM
 ALARM RESET
 AUDIBLE ALM
 ALARM DELAY
 DOOR DELAY
 MUTE TIMEOUT

CONFIGURE

UNITS
 NET ADDRESS
 ACCESS CODES

CALIBRATION

SENSOR SPAN
 ELEVATION
 TEMP CAL

CONTROL

SPEED
 SENSITIVITY
 CONTROL SIG
 Kc VALUE
 Ti VALUE
 TEMP OUTPUT
 TEMP CONTROL
 TEMP Kc VAL

SUPPLY FLOW

SP1 DCT REA
 SP2 DCT REA
 SP1 FLO ZERO
 SP2 FLO ZERO
 FLO STA TYPE
 TOP VELOCITY
 SP LOW SETP
 SP HIGH SETP
 SP1 LOW CAL
 SP1 HIGH CAL
 SP2 LOW CAL
 SP2 HIGH CAL
 RESET CAL

DIAGNOSTICS

CONTROL SUP
 CONTROL EXH
 CONTROL TEMP
 SENSOR INPUT
 SENSOR STAT
 DOOR SWITCH
 UNOCC SWITCH
 SUP1 FLOW IN
 SUP2 FLOW IN
 TEMP INPUT
 ALARM RELAY

Software Item Deleted

The following software item has been deleted from the 8636-N2:

Menu

SETPOINTS

Item

MIN SUP DAMP
 MAX SUP DAMP
 MIN EXH DAMP
 MAX EXH DAMP
 NET PROTOCOL

CONFIGURE

Project:
Date:
Page 3 of 9 Released 10/03/01



Manual Supplement

Variable Map

NPT	NPA	UNITS ¹	DESCRIPTION
AI	1	ft/min, m/s, in. H ₂ O, Pa, mm H ₂ O	Room Pressure Value
AI	2	CFM, l/s	Total Supply Flow Rate
AI	3	°F, °C	Temperature
AI	4	ft/min, m/s, in. H ₂ O, Pa, mm H ₂ O	Control Setpoint
AI	5	CFM, l/s	Minimum Supply Setpoint
AI	6	#	Supply Control Output
AI	7	#	Exhaust Control Output
AI	8	#	Temperature Control Output
BI	1		Low Room Pressure Alarm 0=Normal 1=Low Alarm
BI	2		High Room Pressure Alarm 0=Normal 1=High Alarm
BI	3		Min. Flow Alarm 0=Normal 1=Low Flow Alarm
BI	4		Emergency Mode 0=Normal 1=Emergency Mode
BI	5		Room Mode 0=Main 1=Remote
BI	6		Occupied/Unoccupied Mode 0=Occupied 1=Unoccupied
BI	7		Data Error 0=Normal 1=Data Error
AO	1	ft/min, m/s, in. H ₂ O, Pa, mm H ₂ O	Low Alarm Setpoint
AO	2	ft/min, m/s, in. H ₂ O, Pa, mm H ₂ O	High Alarm Setpoint
AO	3	ft/min, m/s, in. H ₂ O, Pa, mm H ₂ O	Remote Low Alarm Setpoint
AO	4	ft/min, m/s, in. H ₂ O, Pa, mm H ₂ O	Remote High Alarm Setpoint
AO	5	CFM, l/s	Min. Supply Flow Alarm Setpoint

Project:
Date:
Page 4 of 9 Released 10/03/01



Manual Supplement

NPT	NPA	UNITS ¹	DESCRIPTION
AO	6	ft/min, m/s, in. H ₂ O, Pa, mm H ₂ O	Main Pressure Setpoint
AO	7	CFM, l/s	Remote Pressure Setpoint
AO	8	CFM, l/s	Minimum Ventilation Rate Supply Flow Setpoint
AO	9	CFM, l/s	Minimum Temperature Supply Flow Setpoint
AO	10	CFM, l/s	Unoccupied Mode Minimum Supply Flow Setpoint
AO	11	°F, °C	Temperature Setpoint
AO	12	#	Units 0=Feet per minute 1=Meters per second 2=Inches of H ₂ O 3=Pascals

¹ Units will correspond with choice in UNITS variable (AO #12). Flow rates will either be CFM or l/s, based on whether UNITS variable is set for an english or metric unit type.

Description of Variables

NPT - Network Point Type

Variables are defined as analog inputs, binary inputs, and analog outputs. Analog inputs are current control parameters and items that the controller is measuring. Binary inputs represent controller states. Analog outputs are the programmable setpoints for the isolation room pressure controller and monitor. These setpoints can be changed through the keypad or by overriding the current setpoint.

NPA - Network Point Address

Address of the desired point.

Change of Status (COS) - Room Pressure Analog Input

The 8636-N2 has the ability to change control setpoints locally. The alarm setpoints need to be based on the controller's control setpoint (AI #4). For example the setpoint could go from -0.002 "H₂O to +0.001 "H₂O. If the COS alarm setpoints are not changed to accommodate you could get low alarm or low warning messages when the unit is working correctly. If these alarm points are set outside of the negative and positive setpoint values, incorrect alarm messages can be prevented.

Override Analog Input Command

Analog Input values can be set using the override command. These values will be reset to the correct items when the Override is released. There is not a time-out on the override command.

Override Binary Input Command

Overriding a 1 to Emergency binary inputs enables that mode. To release the controller from emergency state, override a 0 to the Emergency input or press either the emergency or reset key. Releasing the override will return the controller to the Normal state. If the 8636-N2 had been put into Emergency mode from the keypad, then it cannot be cleared remotely.

Overriding a 1 to Room Mode binary inputs enables Remote mode. To release the controller from remote state, override a 0 to the Room Mode. Releasing the override will return the controller to the Normal state.

Overriding a 1 to the Occupied/Unoccupied Mode binary inputs enables the unoccupied mode. To release the controller from the unoccupied state, override a 0 to the Occupied/Unoccupied Mode. The Occupied/Unoccupied Mode can only be accessed through N2 communications.

The alarm and data error variables can be overridden, but this will not affect the controller. Overriding the low alarm variable will result in a change of status, but will not put the controller into low alarm mode. The local alarm modes can only be controlled locally. Only override these variables for diagnostic purposes, and release them for normal operation.



Manual Supplement

Binary Input Data Error

Data Error binary inputs are used to indicate if something has gone wrong with the controller. Data Error indicates when some of the data stored on the device has been corrupted. The calibration and setpoint values should be checked on the controller.

Override Analog Output Command

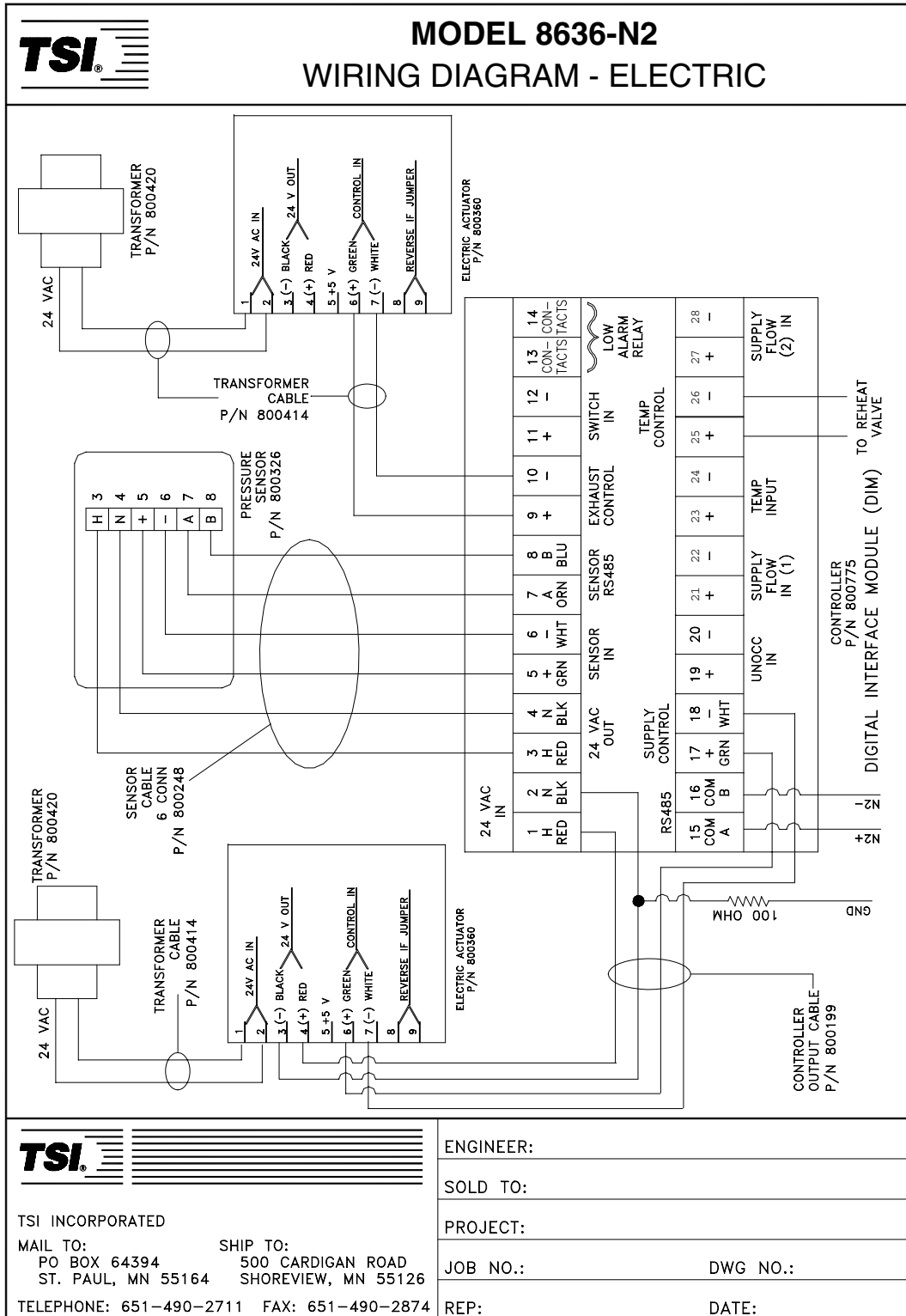
The analog output variables can be overridden to change their values. The overridden value will be checked for validity. If invalid, the override command will be ignored, and the value will not change. The override flag will not be set when the value is ignored. The override command will be cleared when the variable is reset in the menus. The variable will not reset with the release command.

Supported Commands

Command	Response
Request Device ID	Returns 0x10
Synchronize Time Command	Acknowledged. There Is No Internal Clock To Synchronize.
Poll Without/With Ack Message	Any Change Of Status Is Returned
Read Analog Input Command	Variable Value
Read Binary Input Command	Variable Value
Read Analog Output Command	Variable Value
Write Analog Input	Acknowledge
Write Binary Input	Acknowledge
Write Analog Output	Acknowledge
Override Analog Input Command	Acknowledge
Override Binary Input Command	Acknowledge
Override Analog Output Command	Acknowledge
Override Release Request	Acknowledge
Identify Device Type Command	Returns 0x10h

Note: Poll Without/With Ack Message will need to be sent twice in order to receive all of the possible change of status variables.

Wiring Diagrams



TSI INCORPORATED
 MAIL TO: PO BOX 64394 ST. PAUL, MN 55164
 SHIP TO: 500 CARDIGAN ROAD SHOREVIEW, MN 55126
 TELEPHONE: 651-490-2711 FAX: 651-490-2874

ENGINEER:

SOLD TO:

PROJECT:

JOB NO.: DWG NO.:

REP: DATE:

Project:
Date:
Page 8 of 9 Released 10/03/01

