PW-5000 One Reader Interface Installation Manual

Part Number: PW5K1R1

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Warnings and Cautions

WARNING

Before installation, **TURN OFF** the external circuit breaker which supplies power to the system.

Before connecting the device to the power supply, verify that the output voltage is within specifications of the power supply.

Do not apply power to the system until **after** the installation has been completed. Personal injury or death could occur, and the equipment could be damaged beyond repair, if this precaution is not observed!

WARNING

Fire Safety and Liability Notice

Never connect card readers to any critical entry, exit door, barrier, elevator or gate without providing **an alternative exit** in accordance with all fire and life safety codes pertinent to the installation. These fire and safety codes vary from city to city and you must get approval from local fire officials whenever using an electronic product to control a door or other barrier. Use of egress buttons, for example, may be illegal in some cities. In most applications, single action exit without prior knowledge of what to do is a life safety requirement. Always make certain that any required approvals are obtained in writing. DO NOT ACCEPT VERBAL APPROVALS, AS THEY ARE NOT VALID.

Northern never recommends using the N-1000, N-800, N-500, PW-2000, EV-2000 or related products for use as a primary warning or monitoring system. Primary warning or monitoring systems should always meet local fire and safety code requirements. The installer must also test the system on a regular basis by instructing the end user in appropriate daily testing procedures. Failure to test a system regularly could make installer liable for damages to the end user if a problem occurs.

WARNING

EARTH ground all enclosures, for proper installation.

WARNING

Use suppressors on all door strikes. Use S-4 suppressors for installation. Northern Computers recommends only DC strikes.

CAUTION

IF ANY DAMAGE TO THE SHIPMENT IS NOTICED, A CLAIM MUST BE FILED WITH THE COMMERCIAL CARRIER RESPONSIBLE.

CAUTION

Electro-static discharge can damage CMOS integrated circuits and modules.

To prevent damage always follow these procedures:

Use static shield packaging and containers to transport all electronic components, including completed reader assemblies.

Handle all ESD sensitive components at an approved static controlled workstation. These workstations consist of a desk mat, floor mat and an ESD wrist strap. Workstations are available from various vendors.

NOTICE

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS A DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES WHEN WIRED USING METAL CONDUIT FOR THE CABLING EXTERNAL TO THE ENCLOSURE. THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS. OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

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In the event that a Customer receives a claim that a Product or any component thereof has caused personal injury or damage to property of others, Customer shall immediately notify Northern in writing of all such claims. Northern shall defend or settle such claims and shall indemnify and hold Customer harmless for any costs or damages including reasonable attorneys' fees which Customer may be required to pay as a result of the defective Product or the negligence of Northern, its agents, or its employees.

Customer shall hold harmless and indemnify Northern from and against all claims, demands, losses and liability arising out of damage to property or injury to persons occasioned by or in connection with the acts or omissions of Customer and its agents and employees, and from and against all claims, demands, losses and liability for costs of fees, including reasonable attorneys' fees, in connection therewith.

Unpacking Procedure
CAUTION

If any damage to the shipment is noticed before unpacking, a claim must be filed with the commercial carrier.

All containers should be opened and unpacked carefully in order to prevent damage to the contents.

The following steps are used to unpack equipment in preparation for installation:

1. Open the container and remove the unit(s) and all packing material. Retain the container and all packing materials. They may be used again for reshipment of the equipment, if needed.

2. Inspect the contents for shortage. If items are missing items, contact the order entry department.

3. Visually check contents. If damage is discovered, perform the following:

   • If shipping caused damage to the unit, a claim must be filed with the commercial carrier.

   • If any other defect is apparent, call for a return authorization.

Shipping Instructions

To ship equipment back to Northern Computers, Inc.:

1. Contact the customer service department before returning equipment.

   When you call please have available:

   - A description of the problem or reason you are returning the equipment.

   - Your original purchase order number, invoice number and if the unit is still under warranty.

   - A new purchase order number is the unit is not under warranty.

2. Obtain the Return Authorization Number (RMA) from the customer service department.

3. Show the RMA number on all packages shipped. Packages, which are not marked with an RMA number will be refused at the factory and returned to you COD.

4. Carefully pack the equipment for shipment. Use the original packing material whenever possible.

Limited Warranty

All Products sold or licensed by Northern include a warranty registration card which must be completed and returned to Northern by or on behalf of the end user in order for Northern to provide warranty service, repair, credit or exchange. All warranty work shall be handled through Customer which shall notify Northern and apply for a Return Merchandise Authorization (RMA) number prior to returning any Product for service, repair, credit or exchange. Northern warrants that its Products shall be free from defects in materials and workmanship for a period of two years from date of shipment of the Product to Customer. The warranty on Terminals, Printers, Communications Products and Upgrade kits is 90 days from date of shipment. Satisfaction of this warranty shall be limited to repair or replacement of Products which are defective or defective under normal use. Northern's warranty shall not extend to any Product which, upon examination, is determined to be defective as a result of misuse, improper storage, incorrect installation, operation or maintenance, alteration, modification, accident or unusual deterioration of the Product due to physical environments in excess of the limits set forth in Product manuals.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THIS PROVISION. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY OR
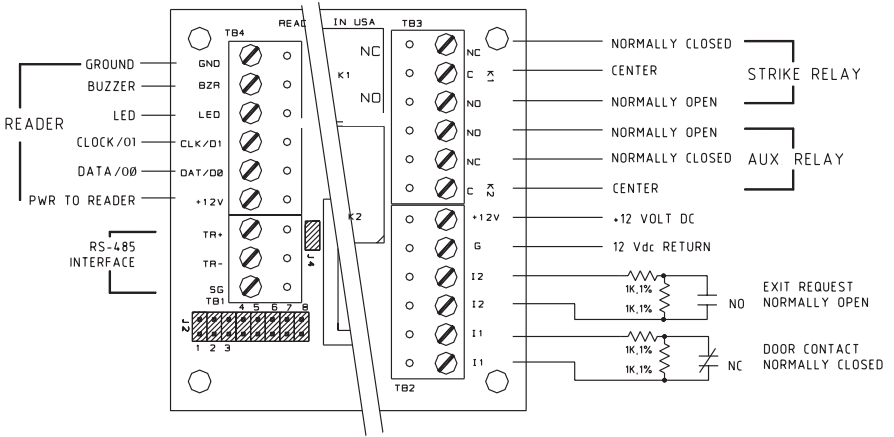
FITNESS FOR ANY PARTICULAR PURPOSE. NO REPRESENTATION OR WARRANTY OF THE DISTRIBUTOR SHALL EXTEND THE LIABILITY OR RESPONSIBILITY OF THE MANUFACTURER BEYOND THE TERMS OF THIS PROVISION. IN NO EVENT SHALL NORTHERN BE LIABLE FOR ANY RE-PROCUREMENT COSTS, LOSS OF PROFITS, LOSS OF USE, INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES TO ANY PERSON RESULTING FROM THE USE OF NORTHERN'S PRODUCTS.

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Reader Interface (PW5K1R1)

The PW5K1R1 provides interfacing to a TTL/Wiegand type reader and door hardware as needed, for a single door. The Reader Interface can accept data from a reader with clock/data or Wiegand interface and provides a tri-stated LED control and buzzer control. Two form-C relay outputs may be used for strike control or alarm signaling. Two supervised inputs are provided for monitoring the door contact and exit push button and one input (J3) for enclosure tamper. Communication to the interface is accomplished via an RS-485 interface.

Power, Reader and Door Hardware Wiring

All interconnection to the Interface are via quick-disconnect terminal blocks. The Interface requires 12 VDC ±15% for power. The 12 VDC is available for powering a reader.

Reader with TTL (clock/data or wd1/wd0) interface is supported by the Interface.

Two supervised inputs are typically used for door contact and exit push button monitoring. End of line resistors are required for line supervision.

Two form-C relay contacts are provided for controlling door strike or other devices. The contact ratings are different on these outputs. Load switching can cause contact abnormal wear and premature contact failure. Switching of inductive loads (strike) also causes EMI (electromagnetic interference) which may interfere with normal operation of other equipment. To minimize contact premature failure and to increase system reliability, contact protection circuit must be used.
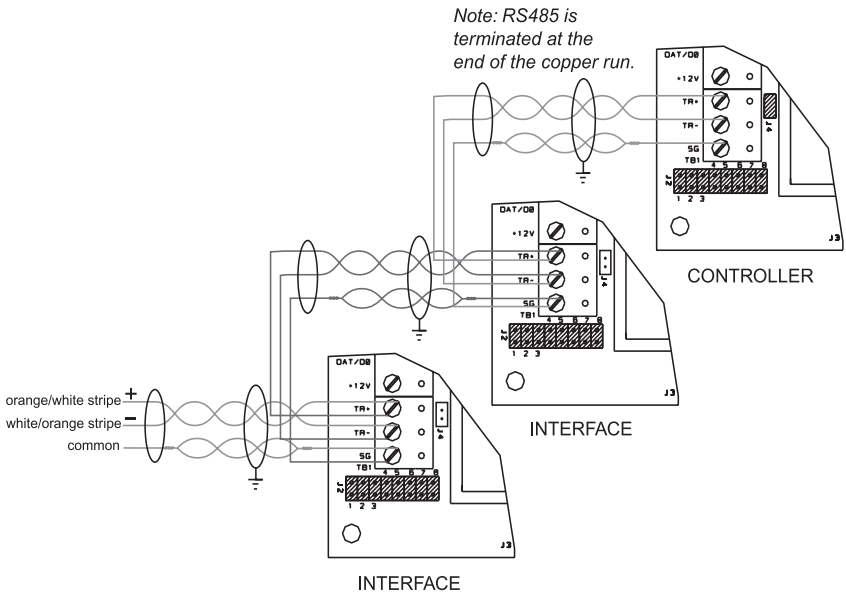
The following circuit is recommended. Locate the protection circuit that is close to the load and one at the PW5K1R1 (within 12 inches [30cm]), as the effectiveness of the circuit will decrease if it is located far away.


DC STRIKE

S-4
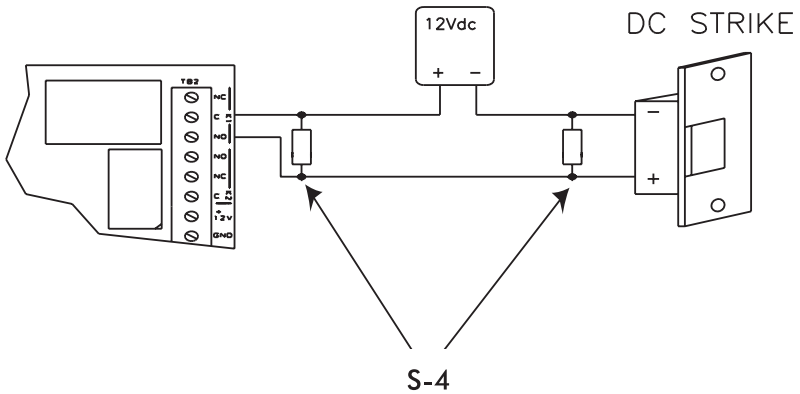
Communication to Controller

The Interface communicates to a controller via a half duplex multi-drop RS-485 interface. The total cable length is limited to 4,000 feet (1,200 meters). Shielded cable of 24AWG with characteristic imped-ance of 120 ohm and <13pf/ft capacitance is specified for the RS-485 interface. The last devices on both end of the cable should have the termination installed (set jumper J4 on).

Note: RS485 is terminated at the end of the copper run.

CONTROLLER

INTERFACE

orange/white stripe +
white/orange stripe −
common

INTERFACE

 Represents that the shield must be grounded on one end.

Each Interface must be configured to have a unique address and correct baud rate. The address and baud rate are selected by installing the specified jumpers. Use 38400 as the standard Baud rate setting. See the following diagram.
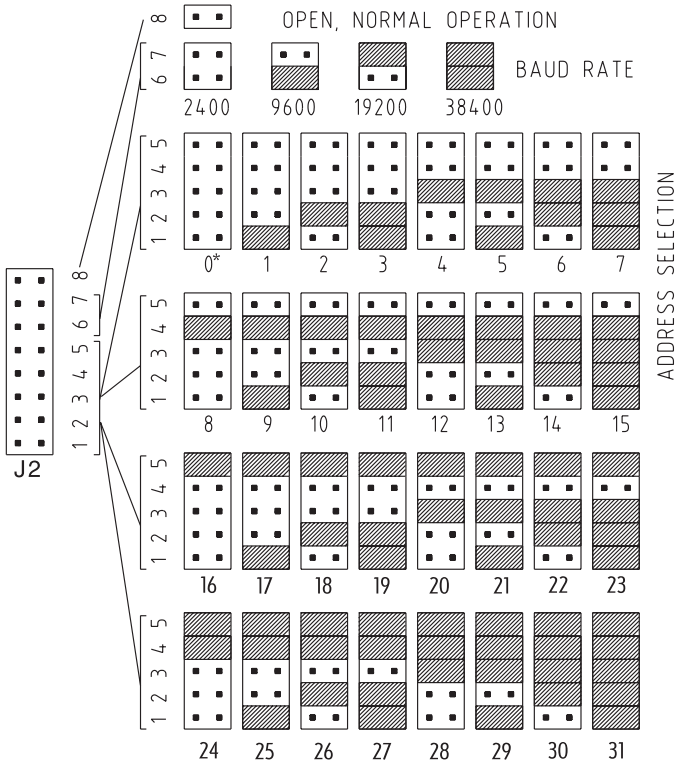
*WIN-PAK PRO uses the panel address Ø to equal the
software setting of 32.

Specifications

The Interface is for use in low voltage, class 2 circuits only.

Electrical

Voltage	12 VDC ±10%
Current	125mA max. (plus reader current 300 total max)
Relay Contacts	K1, 5A at 28 VDC; K2, 1A at 28 VDC
Monitor Inputs	2 supervised, End of Line resistors, 1k 1% ¼ watt standard
RS-485 Comm Cable	4,000' (1,219 m) max. 24 AWG, 2 twistedpairs shield with drain, 120 Ω impedance <13pf capacitance
LED Output	TTL compatible, high > 3V, low < 0.5V, 5mA source/sink max.
Buzzer Output	Open collector, 5 VDC open circuit max. 10mA sink max.
Reader Data Inputs	TTL compatible inputs
Reader Power	12 VDC, 175mA max.

Mechanical

Dimensions	4.25" W x 2.75" L x 1.4" H (108 mm W x 70 mm L x 36 mm H)
Weight	4 oz. (120 g) nominal

Environment

Temperature	-67° F to +185° F (-55° C to +85° C), storage 2° F to 50° F (0° C to 40° C), operating
Humidity	10% to 95% RHNC