Installation and Operating Instructions

Model 750C Series
Cage Style
Submersible Level Transmitter
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Model 750C Series
Cage Style
Submersible Level Transmitter

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24-Hour Service: 1-800-527-6297
International: +1 215-674-1234
Fax: +1 215-674-2731
E-mail: drexelbrook.info@ametek.com
Website: www.drexelbrook.com
Section 1: Introduction

1.1 System Description

The Model 750C is specifically designed for slurry and highly viscous applications where clogging of the sensor area is common. The Model 750C uses a 3.5” flush diaphragm to prevent unwanted clogging of the sensing area. This submersible level device is made of 316 SS which offers outstanding environmental protection and is available in depths up to 138 feet of water.

The non-fouling flush diaphragm is designed to eliminate unwanted buildup of debris, fats, oils, greases, and other bio-solids by removing any potential gaps on the measurement area. The high integrity seal’s heavy construction eliminates the effects of turbulence on the sensor.

The 750C Series Transmitters indicate the level of liquid by continuously measuring hydrostatic pressure via its sensing element, an ion implanted silicon semiconductor chip with integral Wheatstone Bridge circuit. Once the sensor measures the pressure, the data is transmitted by a 4 to 20 mA output signal. This design provides for excellent reliability in remote and inaccessible locations.

The Model 750C is approved for intrinsically safe operation in hazardous locations as designated by Class I, Div 1, Groups A, B, C & D and Class II, Groups E, F & G. when used with an approved barrier.

All Model 750C transmitters are equipped with a sealed cable termination area and moisture absorbing desiccant. The purpose is to restrict moisture from entering the transmitter through the cable vent.

Features
- Oversized 3.5” flush diaphragm to prevent clogging
- 0.25% Full Scale Accuracy
- Intrinsically Safe for Class 1 Division 1 Applications
- Custom Pressure Ranges and Cable Lengths
- Extremely rugged 316L SS construction
- Two-wire, 4-20 mA standard output
- Reverse polarity and surge protection

Applications
- Lift Stations
- Sewage Levels
- Slurries
- Storm Runoffs
- Pump Control
1.2 Model Number

**Technology**

- 750 Model 750 Submersible Level Transmitter

**Sensing Port**

- C Cage Style 3.5" Diameter Diaphragm

**Input/Output** (Approved Power Supply Required)

- B 12 to 28 VDC/4 to 20 mA (Standard)

**Pressure Range**

- 0006 0 to 6 psig /0 to 0.4 bar (0 to 14 ft./0 to 4.2 m water)
- 0015 0 to 15 psig /0 to 1 bar (0 to 34.6 ft./0 to 10.5 m water)
- 0030 0 to 30 psig /0 to 2 bar (0 to 69 ft./0 to 21.1 m water)
- 0060 0 to 60 psig /0 to 4 bar (0 to 138 ft./0 to 42.2 m water)
- xxxx Custom ranges available upon request

**Electrical Connection**

- M Polyurethane Vented Cable with Cable Support

**Diaphragm Material**

- L 316L Stainless Steel

**Fill Fluid**

- S Silicone Oil

**Cable Length**

- XXX (Specify length in feet)

* Decimal Points for Non-Unit Ranges May Be Used
  Decimal Point Requires One Model Code Position, i.e. 1.08 = 4 Positions
Section 2: Installation

2.1 Safety Information

The overall system is designed to prevent accidental shock to the operator when properly used. No design, however, can insure the safety of an instrument improperly installed or used negligently. Read this manual carefully and completely before operating the instrument. Failure to read this manual in its entirety could result in damage to the instrument or injury to the operator.

To avoid possible shock hazard install in a grounded enclosure, prevent live parts being touched and ground the sensor sheath and housing. Follow wiring diagrams and local regulations. Installations where failure of this equipment may cause personal injury, property loss, equipment damage or financial loss, backup failsafe protection must be used.

2.2 Unpacking & Inspection

Carefully remove the contents of the shipping carton and check each item against the packing list before destroying any packing material. If there is any shortage or damage, report it to the factory immediately.

When this transmitter is used with the AMETEK Drexelbrook CDM Controller, the transmitter Model Number is identified on the nameplate of the CDM in the section labeled “USED WITH.” This is because the CDM is calibrated with, and should be used only with a specific Submersible Transmitter. Look for a correlation between the two instruments.

2.3 Operational Checkout

Before installing the 750C Series Transmitter, make sure the system is operating by doing a bench check.

WARNING:
Do not connect any wires while Power is applied.

For temporary connections, refer to diagrams in Wiring Section 2.5 of this manual. Connect AC power to the controller and/or with which it is to be used. Apply power and allow a five-minute warm-up.

With no pressure applied to the transmitter, the meter should display zero (or for “drawdown” the reading corresponding to the depth below ground level that the transmitter will be when installed.)
2.3 Operational Checkout (continued)

**CAUTION:** Do not simulate an increase in pressure by applying mechanical force to the sensing diaphragm of the transmitter. Excessive force will result in damage to or destruction of the transmitter.

When pressure is applied to the transmitter, the display should increase, and then return to the original reading when pressure is removed. The Transmitter can be pressurized by lowering it into water or by applying air pressure from a calibration device.

2.4 Mounting

2.4.1 Dimensions

![Diagram of Mounting Dimensions]

**Figure 2-1**
Mounting Dimensions

2.4.2 Placement

**Caution:** The Model 750C Transmitter must be supported by a stainless steel relief cable that is attached to the tabs on the transmitter. The relief cable can be customer supplied. Figure 2-2 shows common installation recommendations. Ametek provides this relief cable as an option. Reference model number K554164 when ordering. Supporting the transmitter only by its attached electrical cable voids the warranty.

**Caution:** Do not allow transmitter to remain in liquid when it freezes solid. This will apply mechanical force to the sending diaphragm of the transmitter. Excessive force will result in transmitter damage or destruction.
2.4.3 Model 750C Series Transmitter

CAUTION: The cable grommet is specially installed by factory-trained personnel to assure that it remains watertight. Any adjustment or removal of the grommet may destroy the watertight feature thus exposing the transmitter to water seepage, causing an electrical short and transmitter failure. Any adjustment or removal of the cable grommet voids the warranty.

CAUTION: The diaphragm seal assembly is installed by factory-trained personnel and should not be modified in the field. Any adjustment or removal of the diaphragm seal assembly voids the warranty.

CAUTION: The waterproof cable should not be kinked or nicked, which will allow water to seep into the cable and short out the transmitter.

2.4.4 Provide Signal Noise Isolation

The transmitter should not be mounted close to high current switching relays or in an enclosure containing such relays. Low voltage wiring (transmitter signal wires and analog output wires) should be separated from high voltage wiring (115, 230 & 440 Vac) and should be shielded.
2.5 Wiring

WARNING:
Do not connect any wires while AC Power input is applied.

![Diagram of transmitter wiring identification]

2.5.1 Surge Protection

Surge protectors are available as an option item (see Parts & Accessories in Section 3 of this manual). It is strongly recommended to protect from secondary surges and lightning on outdoor installations. Install in accordance with the applicable drawing that is supplied with the surge protector and the following instructions:

1. Lightning protection devices should be placed as close to the meter or transmitter as possible and wired in accordance with Local Electrical Codes in an approved watertight enclosure.

2. If the distance between the meter and transmitter, or meter and recorder is less than 100 ft., only one protector per line is needed.

3. Use No. 8 AWG ground wire or better from protector.

4. Keep ground wire less than one foot long and tie to a suitable ground rod or metal frame ground. Surge capability is only as good as the grounding method. **All ground connections must be installed.**

5. Install protectors in weather-tight enclosures.

6. Run signal lines shielded and away from power lines.

7. Mount the fused switch panel as close to the meter as possible. Wire according to the Local Electrical Code.

8. Lead lines for 110 Vac and 220 Vdc protectors should be cut as short as practical.
2.5.1 Surge Protection (Continued)

**CAUTION:** This or any installation can not protect against a direct lightning strike, or secondary strikes of sufficient magnitude. AMETEK Drexelbrook cannot accept liability for damage due to lightning or secondary surges.

2.5.2 Lightning Protection Wiring

Here is a typical wiring arrangement to a typical controller/ meter. Shown here are connectors to the AMETEK Drexelbrook CDM Controller.

![Wiring Diagram](image)
2.5.3 Lightning Protection Installation Concept

1. Lightning protection devices should be placed as close to the instrument as possible.

2. If the distance between the meter and transmitter, or the meter and recorder is less than 100 ft., only 1 protector per line may be used.

3. This or any installation cannot protect against a direct lightning strike, or secondary strikes of sufficient magnitude. AMETEK Drexelbrook cannot accept responsibility for damage due to lightning or secondary surges.

4. Proper installation including grounding require detailed installation drawing. Consult factory.

2.6 Cable Termination

Instructions to installing the Ametek Submersible Transmitter using the supplied desiccant canister:

Remove Power Source During Installation.

This Ametek submersible transmitter is equipped with a sealed termination area and moisture absorbing desiccant canister. The purpose is to restrict moisture from entering the transmitter from the cable termination. **It is important that the cable termination not be altered.** Both potting and
2.6 Cable Termination (Continued)

solder blockers are used to restrict the moisture path. If a shorter length of cable is required, it is highly recommended that the cable be coiled instead of being cut.

The assembly is shipped complete to prevent moisture from entering during shipment and storage and to show the user how it will ultimately be connected.

To install the cable termination, it is recommended that a NEMA box (such as the AMETEK CDM Meter) be employed. The submersible cable enters the box through a included strain relief (cable is a 0.24” diameter). The red wire is the V+ lead and the black is the V- lead in a 4/20 mA loop. The green wire is a safety ground and should be tied to earth ground. The shield wire connection to earth ground is optional depending on EMI conditions in the area. The shield wire is terminated to the case internally.

The tubing should be connected to the desiccant though the use of the included fittings. There is one fitting at the cable end and another at the canister inlet. The tubing is removable from the fittings for ease of connection and replacement of the canister. Remove the yellow plug from the canister outlet prior to use.

The desiccant has a blue color when installed. Entering moisture becomes trapped within the desiccant. If moisture is absorbed inside in sufficient amounts, the color changed to pink. At that point the desiccant should be replaced. Use Ametek part #SJB-002. The fitting at the desiccant inlet can be removed using a small wrench and reused with the replacement part.

Figure 2-7
Desiccant #SJB-002
Section 3: Accessories

3.1 Parts & Accessories

K554164
Stainless Steel Support Cable

LMA912
30Vdc Lightning and surge protector for excitation and signal lines to the milliampere transmitter or meter analog output lines to other instruments

LMA918
Lightning & surge protector for 115Vac input line to a controller/meter

LMA919
Lightning & surge protector for 230Vac input line to a controller/meter

SJB-002
Moisture Absorbing Desiccant

CDM Meter
Controller and Housing

3.2 Ordering Parts & Accessories

When ordering replacement parts, supply the following information:
1. Part description and part number.
2. Quantity of each item required.
3. Shipping instructions and address.

Contact:

Contact your local AMETEK Drexelbrook representative, or Mail, Telephone or Fax Orders to:
AMETEK DrexelbrooK
205 Keith Valley Road
Horsham, PA 19044-1499
215-674-1234; FAX: (215) 674-2731
Section 4: Troubleshooting

WARNING:
If the Level Measurement System is located in a hazardous environment, do not open the enclosure cover or make/break any electrical connections without first disconnecting electrical power at the source. Ensure that the wiring, electrical fittings and conduit connections conform to the electrical codes for the specific location and hazard level.

4.1 Problem/Cause/Checks

Controller/meter Display Drifting:
May be water in cable causing short circuit; look for kink or damaged cable; check for broken wires, loose or corroded connections, or obvious short circuits;

With transmitter wires disconnected, resistance between red or black lead and shield should not exceed 15 megohms.

Controller/meter Display Incorrect:
May be wrong transmitter connections; check wiring.
May be defective transmitter; check as above, replace transmitter.
May also be controller/meter problems, such as calibration.

4.2 Factory Assistance

AMETEK Drexelbrook can answer any questions about this, or any Drexelbrook instrument. Call Customer Service at:
1-800-553-9092 (US and Canada) or
+1 215 674-1234 (International).

If you require assistance and attempts to locate the problem have failed:

Contact your local Drexelbrook representative,

Telephone the Service department toll-free:
• 1-800-527-6297 (US and Canada)
• +1 215 674-1234 (International)

FAX: Service Department + 215-443-5117
E-Mail: drexelbrook.service@ametek.com
4.2 Factory Assistance (Continued)

Please provide the following information:

- Instrument Model Number
- Sensing Element Model Number and Length
- Original Purchase Order Number
- Material being measured
- Temperature
- Pressure
- Agitation
- Brief description of the problem
- Checkout procedures that have failed

4.3 Field Service

Trained field servicemen are available on a time-plus-expense basis to assist in start-ups, diagnosing difficult application problems, or in-plant training of personnel. Contact the service department for further details.

1-800-527-6297 (US and Canada) or
+ 215-674-1234 (International)
4.4 Equipment Return

In order to provide the best service, any equipment being returned for repair or credit must be pre-approved by the factory.

In many applications, sensing elements are exposed to hazardous materials.

- **OSHA mandates** that our employees be informed and protected from hazardous chemicals.

- **Material Safety Data Sheets (MSDS)** listing the hazardous materials to which the sensing element has been exposed MUST accompany any repair.

- It is your responsibility to fully disclose all chemicals and **decontaminate** the sensing element.

To obtain a return authorization (RA#), contact the Service department at 1-800-527-6297 (US and Canada) or + 215-674-1234 (International).

- Please provide the following information:
  - Model Number of Return Equipment
  - Serial Number
  - Original Purchase Order Number
  - Process Materials to which the equipment has been exposed.
  - MSDS sheets for any hazardous materials
  - Billing Address
  - Shipping Address
  - Purchase Order Number for Repairs
  - Please include a purchase order even if the repair is under warranty. If repair is covered under warranty, you will not be charged.

Ship equipment freight prepaid to:

AMETEK-DREXELBROOK.
205 KEITH VALLEY ROAD
HORSHAM, PA 19044-1499
COD shipments will not be accepted
Section 5: Specifications

5.1 Model 750C Series Transmitter

Ranges:
- User customizable ranges between 0-6 psi (13.8 ft of water) and 0-60 psi (138 ft of water)

Output:
- 4 to 20 mA, 2 wire, current limited to 30 mA DC

Power Supply:
- 12 to 40 VDC with reverse polarity surge protection; Limited to 28 VDC for Intrinsic Safety with Approved Power Supply.

Loop Resistance:
1400 ohms maximum at 40 volts

Temperature Range: **
- Ambient Operating: -25° to 180°F (-32° to 82°C)
- Storage: -40° to 180°F (-40° to 82°C)
  ** If submerged in a liquid that has frozen, damage will result. Limit high temperature to 140°F (60°C) for intrinsically safe operation.

Overrange Effect:
- ±0.15% full scale at 200% of maximum range

Overrange Limit:
- 200% of maximum range

Burst Pressure:
- 3X Upper Range Limit

Accuracy:
- ±0.25% full scale, BFSL (including linearity, hysteresis and repeatability)

Zero Offset:
- ±1.00% full scale set at 77°F (25°C)

Span:
- ±0.50% full scale set at 77°F (25°C)

Temperature Effects:
- Compensated: 32° to 122°F (0°C to 50°C);
- Maximum: 2.5% URL output change for ±25°C temperature change within compensated range when calibrated at 25°C. Consult factory for lower or alternate pressure ranges.

Power Supply Effect:
- ±0.005% full scale per volt

Diaphragm Seal:
- 316L SS construction with 4.75” OD and 3.5” sensing area

Construction:
- Diaphragm: 316L stainless steel
- Housing Type: 316 stainless steel
- Nut/Washer Type: 316 stainless steel
- Cable Grommet: Viton standard. Please contact factory for other options.
- Housing O Ring: Viton standard. Please contact factory for other options.
- Cable Jacket: Polyurethane (Standard). See Model Code.

Media Compatibility:
- Reference materials of construction

Electrical Connection:
- Attached 22 gauge vented polyurethane shielded cable. Unspliced lengths available up to 5000 ft. (1662 m)

Weight:
- 7 lb. 3 oz (Without cable)

Approvals:
- Meets CSA requirements for intrinsically safe operation in hazardous locations as designated by Class I, Div 1, Groups A, B, C & D and Class II, Groups E, F & G. Temperature Code T3C (when used with approved barrier).

Options and Accessories:
- CDM Meter Controller and Housing
- Stainless Steel Support Cable (K554164)
- LMA912 - DC Lightning and Surge Protector
- LMA918 - 120 VAC Lightning and Surge Protector
- Dessicant (SJB-002)
- Stainless Steel Support Cable (K55416)
Section 6: Drawings

6.1 Intrinsic Safety

BASIC INSTALLATION CIRCUIT DIAGRAM

Hazardous Location

Non-Hazardous Location

Press Transmitter

I.S. Barrier

Load Resistor

Input Voltage

Optional Lighting Protector 39960X

Single Barrier Configuration

BARRIERS FOR CERTIFIED SYSTEM

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<tr>
<th>Manufacturer</th>
<th>Model No.</th>
<th>Publication No.</th>
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<tr>
<td>Stahl</td>
<td>9003/0/EN-800-950-10</td>
<td>RST-49</td>
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<td>728+</td>
<td>PS790-10</td>
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<tr>
<td>MTL</td>
<td>708</td>
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<tr>
<td>Pepperl &amp; Fuchs</td>
<td>2787</td>
<td>1996/7 Catalog</td>
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System or Loop Installation

1) Barriers must be CSA certified for installation in Canada or MTL approved for installation in U.S. and must be installed in accordance with the manufacturer's instructions.
2) Maximum non-hazardous area voltage must not exceed 125V.
3) Install in accordance with Canadian Electrical Code, Part I, for installation in Canada.
4) Install in accordance with NEC ANSI/NFPA 70 and ANSI/ISA SP75-1996 for installation in U.S.
5) Maximum cable length for the tabulated barriers is 3000 ft. When the lamp is used, the Lightning Protector is used, or 3750 ft without the Lightning Protector.

Entity Parameters Installation

6) Entity parameters: Vax 80V, Iax 0.5mA, I50Hz 0.5mA, I55Hz 0.5mA, when used with the lamp, the Lightning Protector is used.
7) Barriers must be CSA certified for installation in Canada, or MTL approved for installation in U.S., and must be installed in accordance with the manufacturer's instructions.
8) Maximum non-hazardous area voltage must not exceed 125V.
9) Install in accordance with the Canadian Electrical Code, Part I, for installation in Canada.
10) Install in accordance with the NEC ANSI/NFPA 70 and ANSI/ISA SP75-1996 for installation in U.S.
11) Barrier parameters must meet the following requirements:
   a) Vax 80V, Iax 0.5mA, I50Hz 0.5mA, I55Hz 0.5mA, when used with the lamp, the Lightning Protector is used.
   b) I 50Hz, I 55Hz, I 60Hz, I 75Hz, I 80Hz, I 90Hz, I 100Hz, I 110Hz, Load
12) The entity parameters must be met when the following conditions are satisfied:
   a) Vac 80V, Iac 0.5mA, I 55Hz 0.5mA, Load
   b) I 60Hz, I 75Hz, I 80Hz, I 90Hz, I 100Hz, I 110Hz, Load

REVISIONS TO THIS DOCUMENT REQUIRE AGENCY NOTIFICATION. REFER TO DOCUMENT EN501-17.

MODEL 575

INTRINSICALLY SAFE SYSTEM

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<th>Model</th>
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REV 1

Appr. R Gilhert 6/5/04

Supplied by Revision A

Model 575

575-004

RK7505535

RK 63048
GENERAL: ALL ORDERS ARE SUBJECT TO THE FOLLOWING CONDITIONS AND CONDITIONS. ANY ACCEPTANCE OF ANY OFFER FOR GOODS OR SERVICES IS SUBJECT TO THE CONSENT OF SELLER, ALL CHANGES AND MODIFICATIONS MUST BE IN WRITING AND ACCEPTED BY SELLER. ALL ORDERS FOR GOODS OR SERVICES ARE SUBJECT TO ACCEPTANCE ON THE TERMS AND CONDITIONS HEREIN. This agreement refers to all applicable patents, trademarks, copyrights and other intellectual property rights. Buyer will not use, copy, distribute or allow any other party to use, copy, distribute or otherwise make use of any such items in violation of Seller’s intellectual property rights or applicable law, or for any purposes other than that for which the items were furnished.

QUOTATIONS: Written quotations are valid for thirty (30) days unless otherwise stated. Verbal quotations expire the same day they are made.

PRICES: All prices and terms are subject to change without notice. Buyer requested changes to its order (“Orders”), including those affecting the identity, scope and delivery of the goods or services, shall be documented in writing and are subject to Seller’s prior approval and adjustment in price, schedule and other affected terms and conditions. Orders requiring certified test data in excess of commercial requirements, are subject to a special charge.

ORDER ACCEPTANCE: All Orders are subject to final approval and acceptance by Seller at its office located at 205 Keith Valley Road, Horsham, Pennsylvania 19044.

TERMS OF PAYMENT: Seller’s standard terms of payment for Buyers who qualify for credit are not thirty (30) days from date of invoice. All invoices must be paid in United States dollars.

CREDIT: Seller reserves the right at any time to revoke any credit extended to Buyer or otherwise modify terms of payment if Buyer fails to pay for any shipments when due or if Seller’s opinion there is a material adverse change in Buyer’s financial condition. Seller may, at its option, cancel any unshipped Order if Buyer does not make any invoices when due, or pay as follows:

DELIVERY: Shipments are F.O.B place of manufacture (“Shipping Point”) and the Buyer shall pay all freight, transportation, shipping, duties, fees, handling, insurance, storage, demurrage, or similar charges from Shipping Point. Delivery of goods to common carrier shall constitute delivery. If Seller consigns goods to Buyer, and all risk of loss or damage in transit shall be borne by Buyer. Any claims or losses for damage or destruction after such delivery shall be the responsibility of Buyer.

Seller reserves the right to make delivery in instalments which shall be separately invoiced and paid for when delivered. Failure to pay any such invoice without regard to subcontracts or delivery of any instalment shall not relieve Buyer of its obligation to accept remaining deliveries.

Acknowledged shipping dates are approximate only and based on prompt receipt of all necessary information from Buyer and Buyer’s compliance with terms of payment.

TAXES: All sales, excise and similar taxes which Seller may be required to pay or collect with respect to the goods and/or services covered by any Order, shall be for the account of Buyer except as otherwise provided by law or unless specifically stated otherwise by Seller in writing.

TERMINATION AND HOLD ORDERS: No Order may be terminated by Buyer except upon written request by Buyer and approval by Seller, and if said request is approved by Seller, under the following conditions: (1) Buyer agrees to accept delivery of all of the units completed by Seller through the workday on which Seller receives the written termination request, (2) Buyer agrees to pay to Seller all direct costs and expenses applicable to the portion of the Order that is incomplete.

WARRANTY: A. Hardware: Seller warrants its goods against defects in materials and workmanship under normal use and service for one (1) year from the date of invoice. B. Software and Firmware: Unless otherwise specified, Seller warrants for a period of one (1) year from date of invoice that standard software or firmware, when used with Seller specified hardware, shall perform in accordance with Seller’s published specifications. Seller makes no representation or warranty, expressed or implied, that the operation of the software or firmware shall be uninterrupted or error-free, or that the functions contained therein shall meet or satisfy the Buyer’s intended use or requirements. C. Services: Seller warrants that services, including engineering and custom application, whether provided on a fixed cost or time and material basis, shall be performed in accordance with generally accepted industry practices.

D. Remedies: Seller’s liability under this section is restricted to replacing, repairing, or issuing credit at Seller’s option for any returned goods and only under the following conditions: (1) Seller must be promptly notified, in writing, as soon as possible after the defects have been noted by the Buyer, but not later than (1) year from date of invoice from Seller; (2) The defective goods are to be returned to the place of manufacture, shipping charges prepaid by the Buyer; (3) Seller’s inspection shall disclose to its satisfaction that the goods were defective at the time of manufacture, not caused by normal wear and tear, or unreasonable use. (4) Seller makes no representation or warranty, expressed or implied, that the operation of the software or firmware shall be uninterrupted or error-free, or that the functions contained therein shall meet or satisfy the Buyer’s intended use or requirements. E. Repaired/Reconditioned Goods: As to out-of-warranty goods which Seller has repaired or reconditioned, Seller warrants for a period of sixty (60) days from date of invoice only new components replaced in the most recent repair, replacing them. F. Returns and Adjustments: No goods may be returned unless authorized in advance by Seller and then only upon such conditions to which Seller may agree. Buyer must obtain an RMA (Return Material Authorization) number from Seller prior to any return shipment and such RMA number must appear on the shipping label and packing slip. Buyer shall be responsible for the returned goods until such time as Seller receives the same at its plant and for all charges for packaging, inspection, shipping, transportation, or insurance associated with returned goods. In the event that credit on returned goods is granted, it shall be at Seller’s discretion against the then current prices or the original purchase price. Claims for shortage or incorrect material must be made within five (5) days after receipt of shipment.

ALL OTHER WARRANTIES, FOR ANY OF SELLER’S GOODS OR SERVICES, WHETHER WRITTEN, ORAL, STATUTORY, IMPLIED, OR OTHERWISE, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE ARE EXCLUDED.

INTELLECTUAL PROPERTY: Seller’s sale of goods or provision of related documentation or other materials to Buyer shall not transfer any intellectual property rights to Buyer unless specifically agreed to do so in writing. Seller shall retain ownership of all applicable patents, trademarks, copyrights and other intellectual property rights. Buyer shall not use, copy or transfer any such items in violation of Seller’s intellectual property rights or applicable law, or for any purposes other than that for which the items were furnished.

Seller shall defend any lawsuit brought against Buyer based on a claim that the design or construction of the goods sold hereunder by Seller infringe any United States Patent, Copyright or Mask Work Registration, provided that Buyer promptly notifies Seller of any such claim or lawsuit and, at Seller’s expense, shall defend, control the defense of the suit or proceeding, including settlement, and (ii) Seller provides all necessary information and assistance for that defense. In the event of a charge of infringement, Seller’s obligation under the agreement shall be fulfilled if Seller, at its option and expense, either (i) settles such claim; (ii) procures for Buyer the right to continue using said goods; (iii) replaces or modifies goods to avoid infringement; or (iv) accepts the return of any infringing goods and refunds their purchase price; or (v) defends against such claim.

If Buyer furnishes specifications or designs to Seller, the obligations of Seller set forth above in Section 5 shall not be made by Seller, except such specifications or designs, and Buyer shall defend, indemnify and hold Seller harmless against any third party claims for infringement which arise out of Seller’s use of specifications or designs furnished by Buyer.

SOFTWARE LICENSE: If goods purchased hereunder include software (“Software”), Buyer may use the Software only as part of the goods as purchased and may not sell, copy, distribute or otherwise make available any copies of the Software except as may be permitted under the applicable License Agreement provided with the goods. Buyer’s right to use, copy or transfer the Software shall terminate upon termination of Buyer’s right to use the goods.

PACKAGING/WEIGHTS AND DIMENSIONS: Buyer specified packing or marking may be subject to additional charges not otherwise included in the price of the goods. Published weights and dimensions are estimates or approximate only and are not warranted.

FORCE MAJEURE: Seller shall not be responsible for delays in delivery or any failure to perform its obligations under this Agreement if performance is rendered impossible by causes beyond Seller’s control, including but not limited to: acts of God, war, terrorism, mobilization, civil commotion, riots, embargoes, domestic or foreign governmental regulations or orders, governmental priorities, port congestion, acts of the Buyer, its agents or employees, fires, floods, strikes, lockouts and other labor difficulties, shortages of or inability to obtain shipping space or transportation, inability to secure fuel, skilled labor power at current prices or on account of shortages thereof due to limitations imposed by the extent of availability of Seller’s normal manufacturing facilities.

If a delay excused per the above extends for more than ninety (90) days and the parties have not agreed upon a revised basis for continuing providing the goods or services at the end of the delay, including adjustment of the price, then Buyer, upon thirty (30) days’ prior written notice to Seller may terminate the Order with respect to the unexecuted portion of the goods or services, whereinupon Buyer shall promptly pay Seller its reasonable termination charges upon submission of Seller’s invoices thereof.

LIMITATION OF LIABILITY: Seller’s liability for any claim of any kind, except infringement of intellectual property rights, shall not exceed the purchase price of any goods or services which give rise to the claim. Seller shall in no event be liable for Buyer’s MANUFACTURING COSTS, LOST PROFITS, LOSS OF USE OF THE GOODS OR SERVICES, COST OF CAPITAL, COST OF SUBSTITUTE GOODS, FACILITIES, SERVICES OR REPLACEMENT POWER, DOWNTIME COSTS, CLAIMS OF BUYER’S CUSTOMERS FOR DAMAGES, OR OTHER SPECIAL, PROXIMATE, INCIDENTAL, PUNITIVE, EXEMPLARY OR CONSEQUENTIAL DAMAGES. Buyer must be brought within eighteen (18) months after the cause of action accrues. These disclaimers and limitations of liability shall apply regardless of the form of action, whether in contract, tort or otherwise, and shall extend to the benefit of Seller’s vendors, suppliers or distributors and other authorized resellers as third-party beneficiaries.

PROHIBITION FOR HAZARDOUS USE: Goods sold hereunder generally are not intended for application in and shall not be used by Buyer in the construction or operation of a nuclear reactor, space vehicle, weapon system, or any other nuclear, hazardous or hazardous activity or critical application, where failure of a single component could cause substantial harm to persons or property, unless the goods have been specifically approved for such use or application. Seller disclaims all liability for any loss or damage resulting from such unauthorized use and Buyer shall defend, indemnify and hold harmless the Seller against any such liability, whether as a result of breach of contract, warranty, tort (regardless of the degree of fault or negligence), strict liability or otherwise.

EXPORT CONTROL: Buyer shall comply with all export control laws and regulations of the United States, and all sales hereunder are subject to those laws and regulations. Seller shall not be named as shipper or exporter of record for any goods sold hereunder unless specifically agreed to in writing by Seller. All Seller’s requests, Buyer shall furnish Seller with all required and relevant information required to comply with all export controls, in accordance with U.S. Export Law. That goods sold hereunder shall not be destined for facilities or activities involving nuclear, chemical or biological weapons, or related missile delivery systems in named prohibited regions or countries.

GOVERNING LAW: Seller intends to comply with all laws applicable to its performance under any order. All matters relating to interpretation and effect of these terms and any authorized franchisee or representative of Seller shall be governed by the laws of the Commonwealth of Pennsylvania. No government contract regulations or clauses shall apply to the goods, or services, this agreement, or act to bind Seller unless specifically agreed to by Seller.

NON-WAIVER BY SELLER: Waiver by Seller of a breach of any of these terms and conditions shall not be construed as a waiver of any other breach.

SEVERABILITY AND ENTIRE AGREEMENT: If any provision of these terms and conditions is unenforceable, the remaining terms shall nonetheless continue in full force and effect. This Agreement and any other matters and conditions Seller and Buyer agree to in writing, constitutes the entire terms and conditions of sale between Buyer and Seller and supersedes any and all prior discussions, negotiations or any representations on its subject.