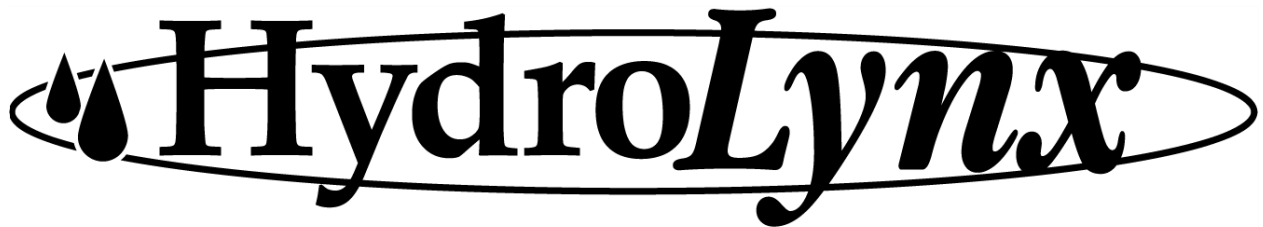


# HydroLynx Systems, Inc.

**Model 5096ES  
Emergency Status Switch**

**Instruction Manual**



Document No: A102706  
Document Revision Date: December, 2004

## Receiving and Unpacking

Carefully unpack all components and compare to the packing list. Notify HydroLynx Systems immediately concerning any discrepancy. Inspect equipment to detect any damage that may have occurred during shipment. In the event of damage, any claim for loss must be filed immediately with the carrier by the consignee. If the equipment was shipped via Parcel Post or UPS, contact HydroLynx Systems for instructions.

## Returns

If equipment is to be returned to the factory for any reason, call HydroLynx between 8:00 a.m. and 4:00 p.m. Pacific Time to request a Return Authorization Number (RA#). Include with the returned equipment a description of the problem and the name, address, and daytime phone number of the sender. Carefully pack the equipment to prevent damage during the return shipment. Call HydroLynx for packing instructions in the case of delicate or sensitive items. If packing facilities are not available, take the equipment to the nearest Post Office, UPS, or other freight service and obtain assistance with packaging. Please write the RA# on the outside of the box.

## Warranty

HydroLynx Systems warrants that its products are free from defects in material and workmanship under normal use and service for a period of one year from the date of shipment from the factory. HydroLynx Systems' obligations under this warranty are limited to, at HydroLynx's option: (i) replacing; or (ii) repairing; any product determined to be defective. In no case shall HydroLynx Systems' liability exceed product's original purchase price. This warranty does not apply to any equipment that has been repaired or altered, except by HydroLynx Systems, or that has been subjected to misuse, negligence, or accident. It is expressly agreed that this warranty will be in lieu of all warranties of fitness and in lieu of the warranty of merchantability.

## Address

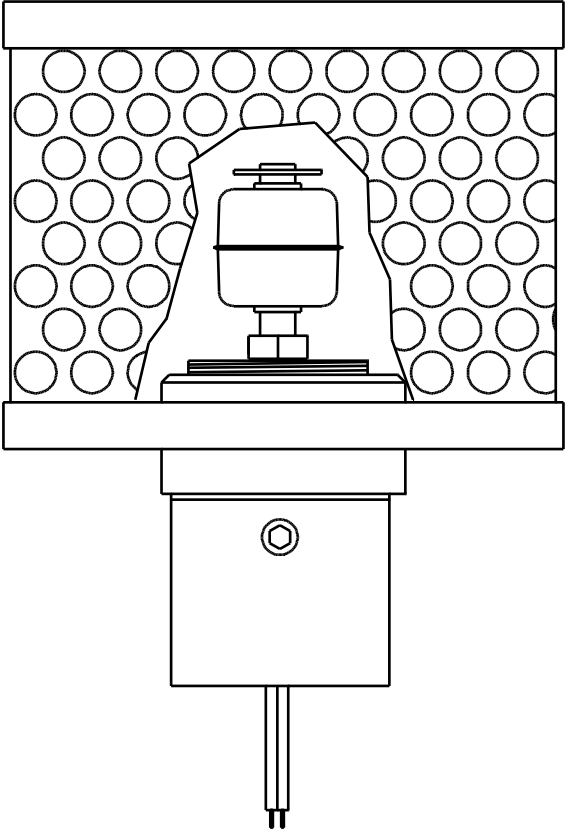
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Equipment Configuration and Parts Identification



Model 5096ES Emergency Status Switch

## 1.0 INTRODUCTION

### 1.1 General Description

The Model 5096ES Emergency Status Switch is used with the Model 5096 ALERT Data Transmitter to provide an emergency warning of a catastrophic dam failure or severe flooding of a stream or river. The 5096ES consists of a normally closed (NC) float switch sensor mounted inside a protective shield. The 5096ES is designed to be mounted onto a 1" pipe. The sensor's protective shield is perforated to allow water to flow unobstructed around the sensor float. As the water level rises above the float sensor, the movement of the float opens the internal switch. It is the internal switch status that triggers the data transmitter alarm.

Unlike the previous emergency status sensor, the 5096ES is only a switch contact and requires no additional power or circuitry for its operation. The switch contact is wired into the 5096 Data Transmitter by a two wire cable.

### 1.2 Specifications

Signal input:	Normally Closed Switch Contact SPST
Contact rating:	70 VA
Materials:	Stainless steel
Mounting:	1-inch pipe

## 2.0 INSTALLATION

### 2.1 Electrical Connections

For use with the Model 5096 Data Transmitter, the 5096ES signal cable is equipped with a 10-pin, female MS connector at the transmitter end. Systems with more than one 5096ES have all of the switch signals wired into the 10-pin connector. The 5096N NEMA-4X box style data transmitter does not require the use of a connector and the cable is simply stripped and tinned for the input signal terminals. The 10-pin MS connector can be wired for use with any of the digital status channels S1 through S8 that terminate at the matching connector of the 5096 Data Transmitter. The digital signals are connected to connector pins A through H. Connector pins I and J are the digital signal ground connections. Refer to wiring diagrams AC107864 and AC107867..

Complete all wiring connections for the 5096 Data Transmitter, including the battery connections. As soon as the battery connection has been made, any external power source such as a solar panel battery charger may then be connected using the appropriate cable. Normally, the external power is attached through the 3-pin power connector labeled 12Vdc.

## 2.2 Sensor Assembly

The protective shield that houses the 5096ES float switch is normally installed along a stream, river, or levee bank near the transmitter standpipe. The location is selected to provide detection of excessive flooding in areas where there is a need to evacuate people from downstream locations.

A typical installation is depicted in the installation diagram. Notice that large pipe is used to protect the float switch unit. This is especially important if the site is adjacent to a road. If possible the cable should be buried in conduit between the switch and the transmitter to prevent tampering and damage.

The Model 5096ES is shipped assembled. Upon receipt of the unit, attach any additional cable to the sensor wires. Any cable splices must be water-proof or must be enclosed in a water-proof electrical junction box.

Test the operation of the sensor by monitoring the sensor wires with an ohm-meter while moving the float manually. The reading of the meter should change from zero to infinite resistance whenever the float is moved upward and away from the sensor base.

If for some reason the sensor assembly has been received disassembled, reassemble the pieces following the assembly diagram. Take care to avoid damaging the threads of the reducers and the sensor. Tighten the threaded parts so that they can not be loosened manually.

The float switch and its housing have been designed to mount onto any 1" pipe. For best results, the support pipe must be level in the vertical plane. The assembly is attached to the pipe by tightening the allen head set screws on the adapter sleeve.

Other installation configurations are possible and would be dependent upon local requirements and upon the user's application.

## 3.0 OPERATION

### 3.1 Emergency Status Sensor Set-up

The 5096ES Emergency Status Switch sensor set-up is enabled in the 5096 Data Transmitter by using the SET-ST command. Refer to the 5096 Data Transmitter manual for information concerning the sensor set-up.

The minimum programming requirement is the definition of the sample interval. For an interval of 60 seconds, the command given would be

**> SET-ST ,,60**

Proper operation requires that all unused status inputs must be shorted to ground. Using

this method and the example value, any open or ungrounded status input line will cause a transmission at every 60 second interval.

### 3.2 Emergency Status Data Value

The 5096 Data Transmitter will transmit an 8-bit data value that represents the open switch(s). For example, the 8<sup>th</sup> bit represents 128 and the 1<sup>st</sup> bit represents 1. If both of these switches become open, then a value of 129 will be transmitted indicating which switches have an alarm condition.

## 4.0 TROUBLESHOOTING

Always disconnect the sensor and data transmitter from the power source or troubleshoot immediately whenever any of the following conditions are observed:

- The instrument does not appear to operate normally or exhibits a marked change in performance,
- The instrument has been dropped or damaged, or
- If moisture damage has occurred to the circuits.

If the 5096ES does not operate correctly, first check the wiring connections; check the cable with an ohm-meter. Disconnect the wires from the 5096 Data Transmitter. Measuring across the two sensor wires, there should be zero ohms. Move the float on the switch upward. The resistance across the two wires should change to infinity (open circuit). If the sensor operation appears to be good, check the 5096 digital input channel and program parameters to insure that there are no mistakes or problems with the 5096 Data Transmitter operation.

If there is still a system problem, be sure that the 5096 Data Transmitter has been powered up and is operating correctly. For systems using batteries as the primary power source, check that the batteries have sufficient current to power the equipment and that there are no physical problems. Also check the battery terminals to ensure that they are clean and provide solid contact with the batteries.

For systems with a solar panel, check the panel to be sure that it is clean and not obstructed from the sunlight. Also test the charging regulator to insure that the battery is being charged during daylight hours.

Check all cable connections both at the sensor and at the transmitter. Cable shorts can cause loss of data and a lack of readings. If a connection is found to be loose, tighten the connection or replace the defective part and check to see if the problem has been corrected.

After inspecting the hardware to insure that everything is functioning properly, check both the computer and the 5096 set-up and software to detect any possible errors.

## 5.0 FORMS AND DRAWINGS

- AC107865 Assembly - 5096ES Emergency Status Switch
- AC107866 Installation - 5096ES Typical Emergency Status Switch
- AC107864 Wiring Diagram - Sensors to 5096N
- AC107867 Wiring Diagram - 5096N

ADAPTER SLEEVE  
PN A107862  
10-32 SET SCREW  
3 EACH

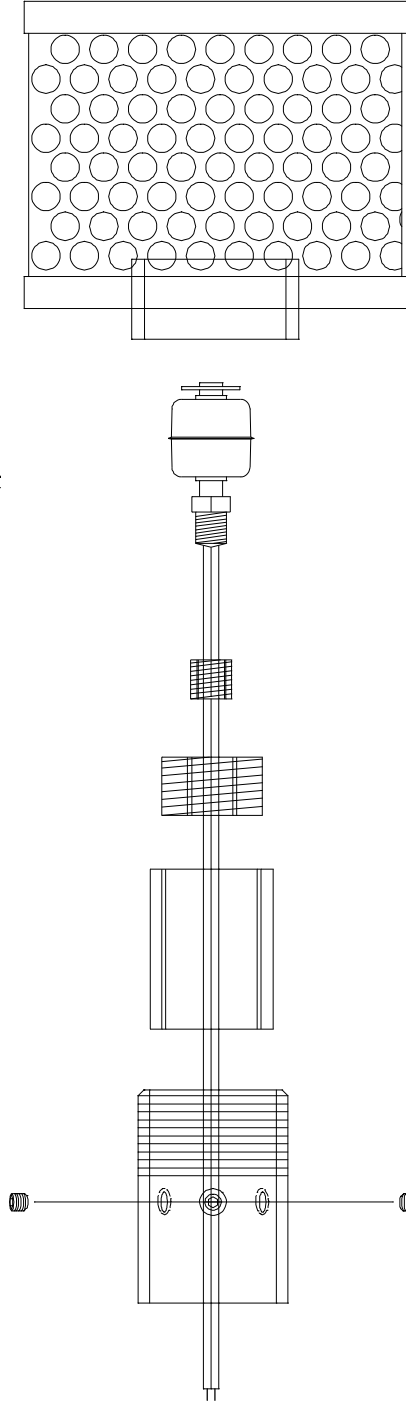
1" COUPLER

REDUCER

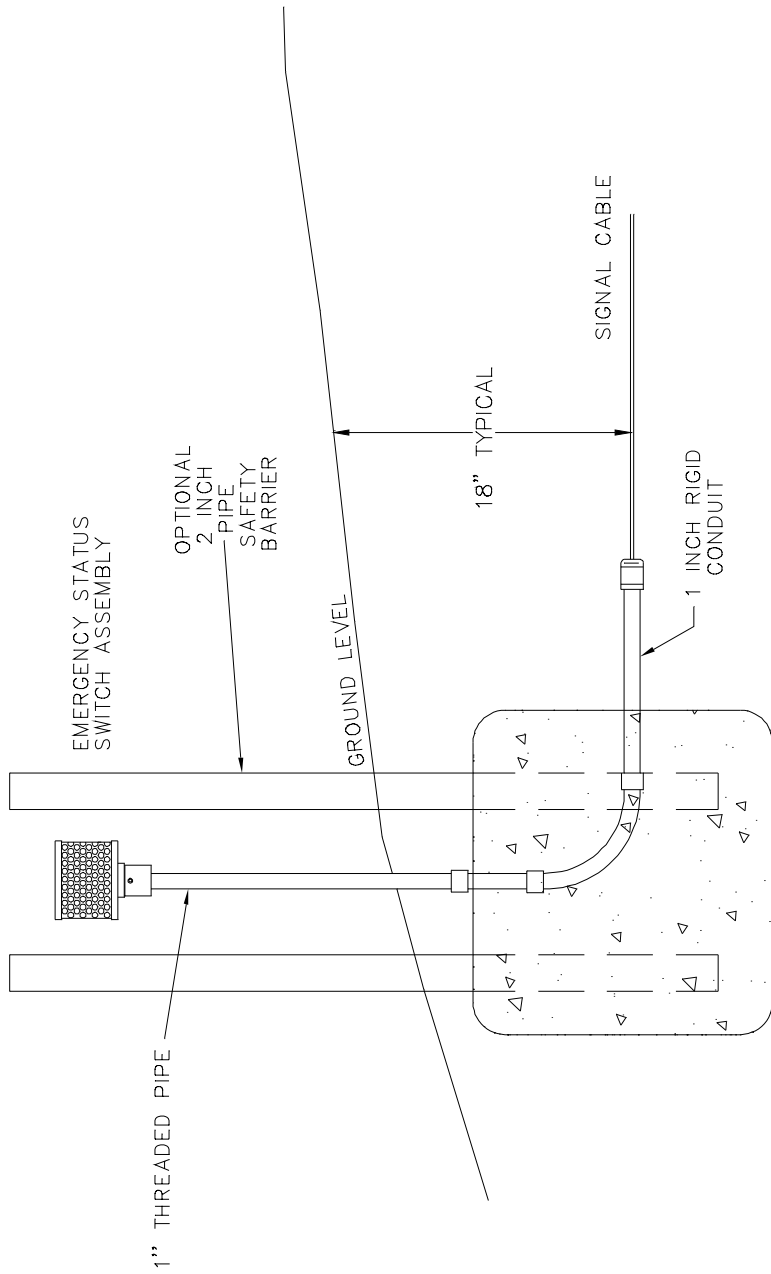
REDUCER

FLOAT SENSOR

COVER

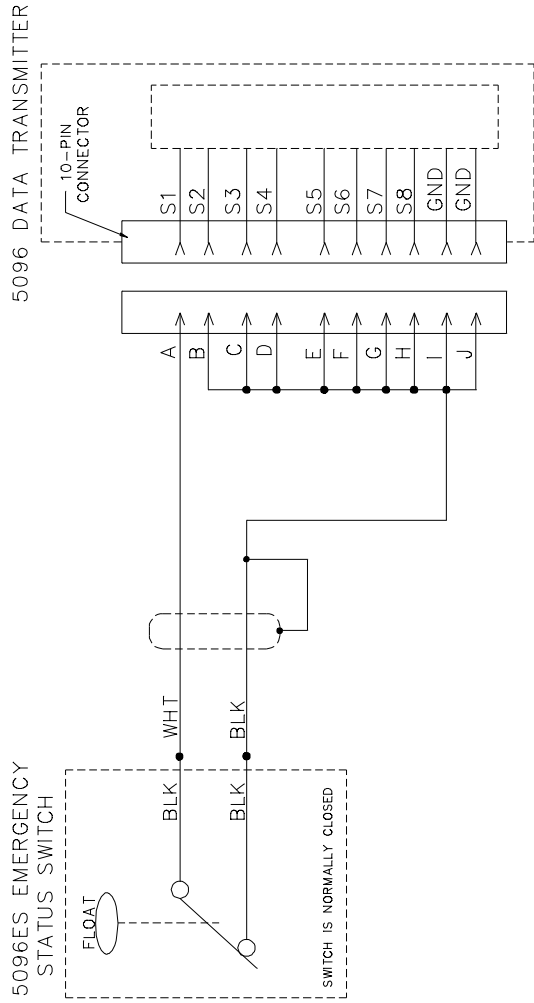


ECN #	DESCRIPTION	DATE
MODEL USAGE	<b>Hydrolynx</b>	
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES	MODEL NO. 5096ES	
FRACTIONS = € N.A.	TITLE EMERGENCY STATUS SWITCH	
.XX = € .01	DWG TYPE	
.XXX = € .005	SIZE A	
MAT'L N.A.	DWG NO. AC107865	REV
FINISH N.A.	DATE 1-22-04	
TREATMENT N.A.	DRAWN BY S.MALONEY	
	CHECKED BY	



CONCRETE FOUNDATION  
24 X 24 X 24 INCHES TYPICAL

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES	ECN #	DESCRIPTION	DATE
FRACTIONS = €	MODEL USAGE	<b>HydroLynx</b>	
.XX = €			
.XXX = €	MODEL NO. 5096ES		
MAT'L	TITLE	TYPICAL EMERGENCY STATUS SWITCH	
FINISH	DWG TYPE		
TREATMENT	DRAWN BY B. SCHWALL	INSTALLATION DIAGRAM	
	CHECKED BY	SIZE A	REV
		DWG NO. AC107866	



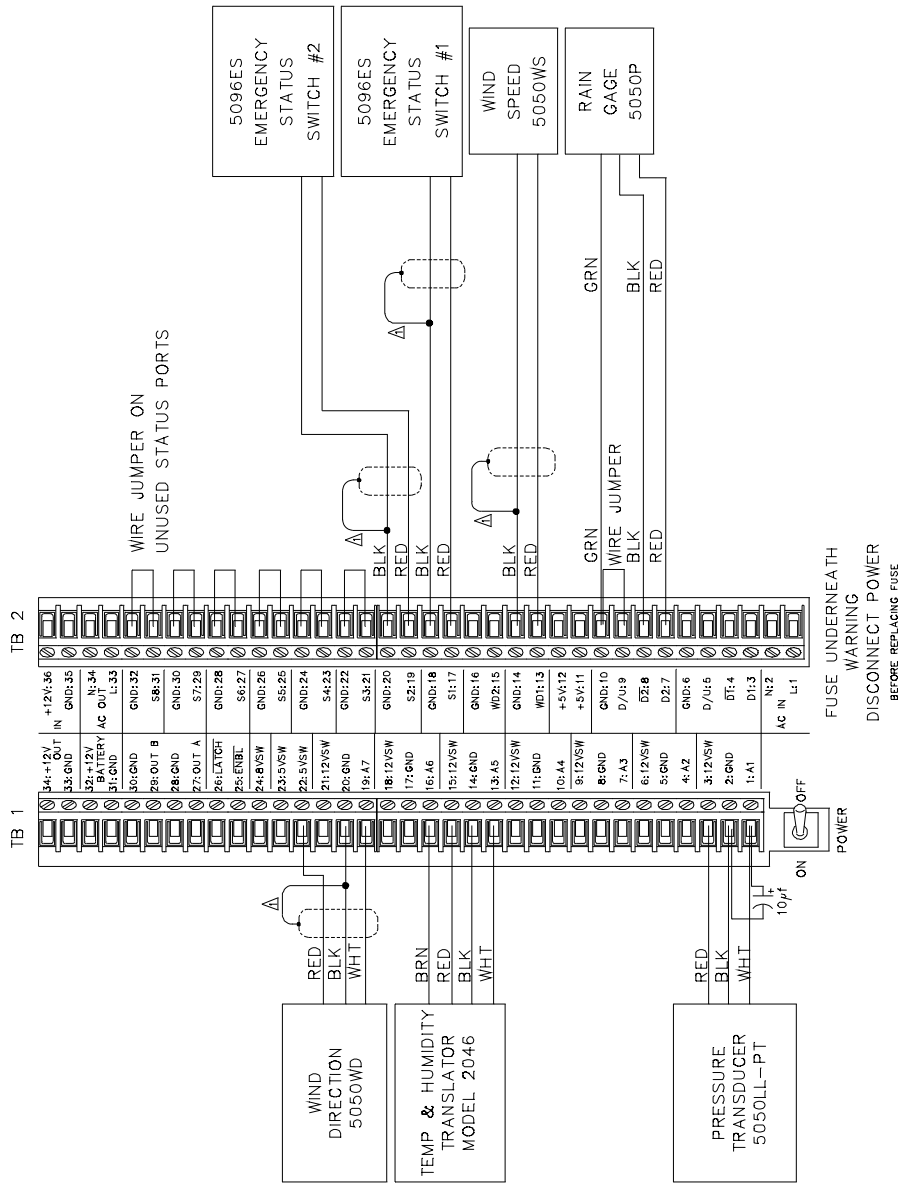
- NOTES:
1. CABLE LENGTH IS SITE DEPENDENT.
  2. CABLE MAY BE CUSTOMER FURNISHED.
  3. UNUSED STATUS INPUTS MUST BE GROUNDED.

NONE	REDRAWN ON NEW BORDER	11/17/04
ECN#	DESCRIPTION	DATE
MODEL USAGE		
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES		
FRACTIONS = $\epsilon$		
.XX = $\epsilon$		
.XXX = $\epsilon$		
MAT'L		
FINISH		
TREATMENT		
DRAWN BY M. MALONEY	DATE 11/17/04	DWG TYPE WIRING DIAGRAM
CHECKED BY	DATE	SIZE
B	BWG NO. AC107864	REV C



MODEL NO. 5096ES

TITLE CABLE, TO 5096 10-PIN



N/A	REDRAWN ON NEW BORDER	5/28/99
ECN#	DESCRIPTION	DATE
MODEL USAGE		
MODEL NO. 5096N		
TITLE SENSORS TO 5096N		
DATE C/3/99	DATE	DATE
DRWN BY R. BROWN	SIZE B	WIRING DIAGRAM
CHECKED BY	DWG NO. AC107867	REV A

- NOTES -
1. CABLE SHIELDS SHOULD BE CONNECTED TO GND TERMINALS.
  2. TERMINALS SHOWN WITHOUT PANEL.