

По вопросам продаж и поддержки обращайтесь:

**Алматы** (7273)495-231  
**Ангарск** (3955)60-70-56  
**Архангельск** (8182)63-90-72  
**Астрахань** (8512)99-46-04  
**Барнаул** (3852)73-04-60  
**Белгород** (4722)40-23-64  
**Благовещенск** (4162)22-76-07  
**Брянск** (4832)59-03-52  
**Владивосток** (423)249-28-31  
**Владикавказ** (8672)28-90-48  
**Владимир** (4922)49-43-18  
**Волгоград** (844)278-03-48  
**Вологда** (8172)26-41-59  
**Воронеж** (473)204-51-73  
**Екатеринбург** (343)384-55-89  
**Иваново** (4932)77-34-06  
**Ижевск** (3412)26-03-58  
**Иркутск** (395)279-98-46  
**Казань** (843)206-01-48

**Калининград** (4012)72-03-81  
**Калуга** (4842)92-23-67  
**Кемерово** (3842)65-04-62  
**Киров** (8332)68-02-04  
**Коломна** (4966)23-41-49  
**Кострома** (4942)77-07-48  
**Краснодар** (861)203-40-90  
**Красноярск** (391)204-63-61  
**Курган** (3522)50-90-47  
**Курск** (4712)77-13-04  
**Липецк** (4742)52-20-81  
**Магнитогорск** (3519)55-03-13  
**Москва** (495)268-04-70  
**Мурманск** (8152)59-64-93  
**Набережные Челны** (8552)20-53-41  
**Нижний Новгород** (831)429-08-12  
**Новокузнецк** (3843)20-46-81  
**Новосибирск** (383)227-86-73  
**Ноябрьск** (3496)41-32-12

**Омск** (3812)21-46-40  
**Орел** (4862)44-53-42  
**Оренбург** (3532)37-68-04  
**Пенза** (8412)22-31-16  
**Пермь** (342)205-81-47  
**Петрозаводск** (8142)55-98-37  
**Псков** (8112)59-10-37  
**Ростов-на-Дону** (863)308-18-15  
**Рязань** (4912)46-61-64  
**Самара** (846)206-03-16  
**Санкт-Петербург** (812)309-46-40  
**Саранск** (8342)22-96-24  
**Саратов** (845)249-38-78  
**Севастополь** (8692)22-31-93  
**Симферополь** (3652)67-13-56  
**Смоленск** (4812)29-41-54  
**Сочи** (862)225-72-31  
**Ставрополь** (8652)20-65-13  
**Сургут** (3462)77-98-35

**Сыктывкар** (8212)25-95-17  
**Тамбов** (4752)50-40-97  
**Тверь** (4822)63-31-35  
**Тольятти** (8482)63-91-07  
**Томск** (3822)98-41-53  
**Тула** (4872)33-79-87  
**Тюмень** (3452)66-21-18  
**Улан-Удэ** (3012)59-97-51  
**Ульяновск** (8422)24-23-59  
**Уфа** (347)229-48-12  
**Хабаровск** (4212)92-98-04  
**Чебоксары** (8352)28-53-07  
**Челябинск** (351)202-03-61  
**Череповец** (8202)49-02-64  
**Чита** (3022)38-34-83  
**Якутск** (4112)23-90-97  
**Ярославль** (4852)69-52-93

**Россия** +7(495)268-04-70

**Казахстан** +7(7172)727-132

**Киргизия** +996(312)96-26-47

сайт: [www.honeywell.nt-rt.ru](http://www.honeywell.nt-rt.ru) || эл. почта: [hwn@nt-rt.ru](mailto:hwn@nt-rt.ru)

# ТЕРМОПРЕОБРАЗОВАТЕЛИ

## Технические характеристики

### на SmartLine STT85A



# SmartLine Temperature Probe Assemblies Specifications

## Model: STT85A

34-TT-03-21, June 2020

### Introduction

Honeywell SmartLine Temperature probe assemblies are a perfect complement to SmartLine Temperature transmitters to provide factory tested, calibrated and certified assembly for accurate, reliable and safe measurement in process applications. STT85A is an integrated probe assembly based on SmartLine Temperature transmitter STT850, caters to tough industrial applications and includes variety of temperature elements, thermowells, and extension types.

### Choose the unit to meet your application needs:

- Rigid probe assembly without thermowell (Figure 1)
- Threaded and socket weld assembly with thermowell and extension (Figure 2)
- Drilled Flanged assembly with thermowell and extension (Figure 3)
- RTD and Thermocouple options available for all variants.

### Leading Performance

- Class A accuracy for RTDs as per IEC751
- Class 1 accuracy for thermocouples as per IEC584-2
- Option of direct entry of Callender-Van Dusen coefficients for increased RTD accuracy.
- Wired to Best in class Honeywell SmartLine transmitter STT850
- SIL2/3 capable transmitter



Figure 1: Transmitter with Rigid Probe

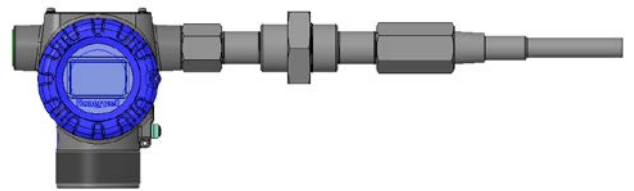


Figure 2: Transmitter with Threaded Thermowell

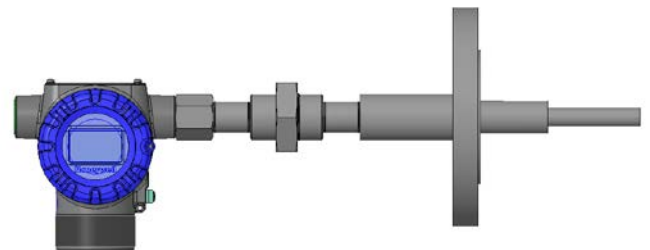


Figure 3: Transmitter with Flanged Thermowell

**Features**

- Out of box, ready to install temperature point resulting in lower engineering, procurement, installation and commissioning cost
- Factory calibrated transmitter with probe assembly
- Agency approved integrated temperature probe assembly, approved for HAZLOC installations
- Communication protocol options - analog, HART, DE, FF
- Integrated assembly testing and certification.
- Tapered and Straight thermowell designs
- Duplex sensor for Differential/ Averaging/ Redundant measurements.
- Sensor break detection
- Optional multipoint calibration with certificate
- Best in class accuracy over wide temperature range

|                        | Temperature Range |                  |                      |
|------------------------|-------------------|------------------|----------------------|
|                        | Wire Wound        |                  |                      |
| <b>Tolerance Class</b> | Per IEC-751       | SmartLine STT85A | Tolerance values     |
| <b>Class A</b>         | -100 to 450 °C    | -180 to 500 °C   | +/- (0.15 + 002  t ) |

**Model Selection Guide code key**

Refer to [Model Selection Guide](#)

**Standard Temperature (MSG code R)**

Standard temperature is recommended for uses up to -50 to +260 °C

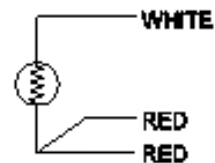
The Standard RTD is a ceramic wire-wound resistor. It provides high accuracy along the entire temperature range.

**High Temperature (MSG code H)**

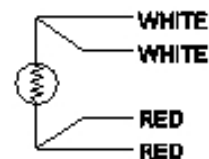
Extended temperature is recommended for uses up to -180 to 500 °C

It is made utilizing MgO insulated, metal sheathed cable. Internal lead wires are made from nickel-plated copper wires. This provides the minimum lead wire resistance change with temperature. H type RTD's employ a Ceramic wire wound element ensuring high accuracy across extended temperature measurement range.

- **PT100, 3-wire (MSG option R2 or H2)**
  - Construction: Single, 3-wire
  - Resistance @ 0°C: 100 OHMS
  - Temperature Coefficient of Resistance: .00385
  - Sheath Material: 316 Stainless Steel
  - Sheath Diameter: ¼"

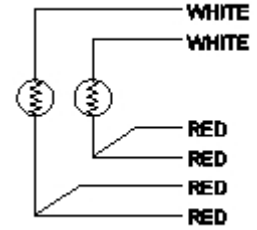


- **PT100, 4-wire (MSG option R3 or H3)**
  - Construction: Single, 4-wire
  - Resistance @ 0°C: 100 OHMS
  - Temperature Coefficient of Resistance: .00385
  - Sheath Material: 316 Stainless Steel
  - Sheath Diameter: ¼"



• **PT100 Duplex, 3-wire (MSG option R4 or H4)**

- Construction: Duplex, 3-wire
- Resistance @ 0°C: 100 OHMS
- Temperature Coefficient of Resistance: .00385
- Sheath Material: 316 Stainless Steel
- Sheath Diameter: ¼"



Lead Wire provides for termination from the sheath solid wire to flexible lead wire with Teflon insulation. Lead wires are attached by soldering and the area is sealed with epoxy to provide a durable moisture seal. Lead wires terminate to bare ends for connection to terminal block or transmitters.

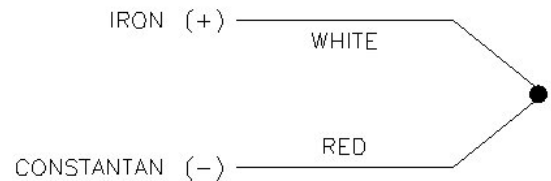
**Thermocouples**

SmartLine Temperature probe assemblies offer Class 1 sensor accuracy as standard and Class 2 sensor accuracy for higher temperature ranges.

| Tolerance Class      | Temperature Range |                | Tolerance values           |
|----------------------|-------------------|----------------|----------------------------|
| <b>Per IEC 584-2</b> | Type J            | Type K         |                            |
| <b>Class 1</b>       | -40 to 760 °C     | -40 to 1000 °C | +/- 0.004(t) or +/- 1.5 °C |

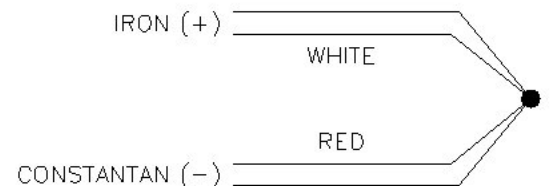
• **Type J (MSG option T1)**

- Construction: Single
- Calibration: Type J, Iron - Constantan
- Conductor Size: 18 Ga.
- Insulation: Hard Packed MgO
- Sheath Material: 316 Stainless Steel
- Sheath Diameter: ¼" (6mm)
- Recommended Temperature Range: -32 to +1400° F (-35 to 760 °C)



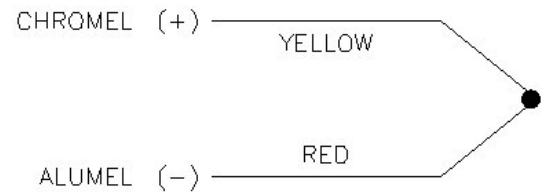
• **Type J, Duplex (MSG option T2)**

- Construction: Duplex
- Calibration: Type J, Iron - Constantan
- Conductor Size: 18 Ga.
- Insulation: Hard Packed MgO
- Sheath Material: 316 Stainless Steel
- Sheath Diameter: ¼" (6mm)
- Recommended Temperature Range: -32 to +1400° F (-35 to 760 °C)



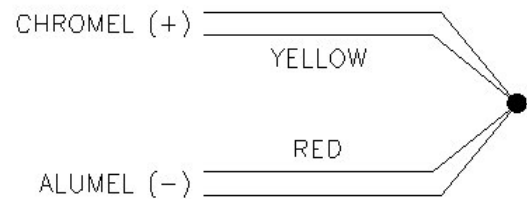
- **Type K (MSG option T3)**

- Construction: Single
- Calibration: Type K, Chromel - Alumel
- Conductor Size: 18 Ga.
- Insulation: Hard Packed MgO
- Sheath Material: 316 Stainless Steel
- Sheath Diameter: ¼" (6mm)
- Recommended Temperature Range: -40 to +2192° F (-40 to 1200 °C)



- **Type K, Duplex (MSG option T4)**

- Construction: Duplex
- Calibration: Type K, Chromel - Alumel
- Conductor Size: 18 Ga.
- Insulation: Hard Packed MgO
- Sheath Material: 316 Stainless Steel
- Sheath Diameter: ¼" (6mm)
- Recommended Temperature Range: -40 to +2192° F (-40 to 1200 °C)



**Type J:** Iron (+) vs Constantan (-), is the most commonly used Thermocouple. It is suitable for use in a vacuum, inert, oxidizing (with the iron leg protected) or reducing atmosphere. If unprotected the iron wire may be attacked by ammonia, nitrogen and hydrogen atmospheres. In sub-zero temperatures, the iron wire may rust or become brittle. Type J should not be used in sulfurous atmospheres above 540°C.

**Type K:** Chromel (+) vs Alumel (-) is generally used to measure high temperatures up to 2300°F. It should not be used for accurate temperature measurement below 900°F or after prolonged exposure above 1400°F. If unprotected, it can be used only in inert or oxidizing atmospheres. It has a short life in alternately oxidizing and reducing atmospheres and in reducing atmospheres, particularly in the 1500 to 1850°F range.

### **Grounded Measuring Junction – G (Not permitted with ATEX and IECEx Intrinsically Safe certification)**

In this construction, the measuring junction is completely sealed from contaminants and becomes an integral part of sheath at the tip of the thermocouple. Response time approaches that of an exposed loop thermocouple and in addition, the junction conductors are completely protected in a pressure tight seal protecting it from harsh environmental conditions and mechanical damage. Grounded junctions should not be used when ground loops or other electrical interference is likely.

Dual grounded junction thermocouples furnish two measuring circuits for simultaneous control and indication (or recording) of a single point with two instruments. This prevents the signal loading effect common to instrumentation of low or combination low and high impedance.



### **Ungrounded Measuring Junction - U**

In this construction, the thermocouple conductors are welded together to form the junction, which is insulated from the external sheath with magnesium oxide. The response time for an insulated junction is slightly longer than for a grounded junction thermocouple of the same outside diameter. This feature is advantageous in applications where thermocouples are used in conductive solutions, or when used for differential, averaging (parallel) or additive (series) applications, or wherever isolation of the measuring circuitry is required. The strain due to differential expansion between wires and sheath may reduce.



Same as the single ungrounded junction the dual ungrounded junction thermocouples furnish two measuring circuits for simultaneous control and indication (or recording) of a single point with two instruments. This prevents the signal loading effect which is common to instrumentation of low or combination low and high impedance.

Lead Wire provides for termination from the sheath solid wire to flexible lead wire with PVC insulation. Lead wires are attached by welding or soldering and the area is then sealed with epoxy to provide a durable moisture seal. Thermocouple lead wires utilize the same alloys as the thermocouple calibration. Lead wires terminate to bare ends for connection to terminal block or transmitters.

### **Extension**

To complete the connection between the thermowell and the transmitter a nipple or nipple / union / nipple combination is used.

The most economical would be a pipe nipple. A nipple / union / nipple combination allows for rotating the connection head 360°. Hex nipples provide for wrench adjustment. Extensions are available mainly in stainless steel for corrosion protection. Standard Extension lengths ('A') are 1, 2 or 5" with options of " longer lengths available as specials to extend the head beyond insulation or firebrick.

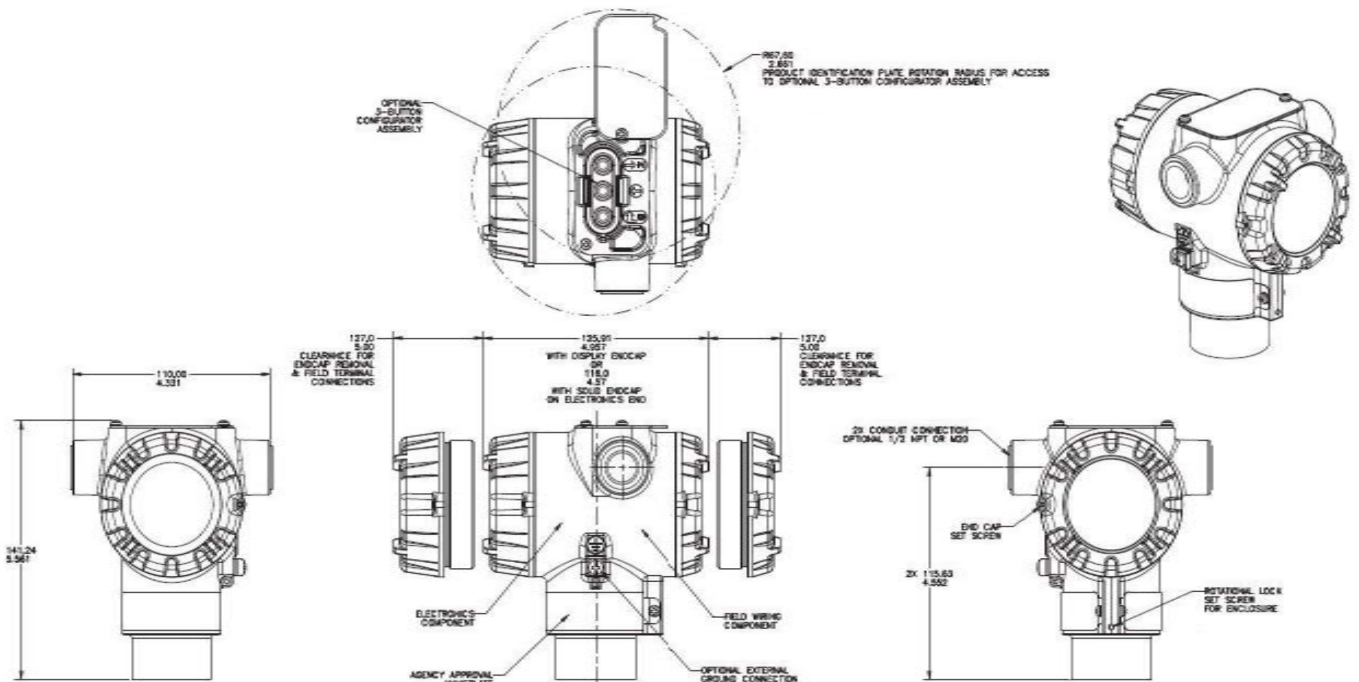
**Transmitter & Housing details:**

**Transmitter Model: STT850**

- Digital accuracy upto +/-0.10 Deg C for RTD
- Stability upto +/- 0.01% of URL per year for ten years
- External Zero, span and configuration capability
- Digital output option (Available with HART)
- Multiple local display capabilities
- Dual compartment housing
- Direct entry of Callandar-Van Dusen(CVD) coefficients for RTD sensors
- Full compliance to SIL2/SIL3 requirements
- High galvanic isolation
- Protection grade: **IP66/67 (NEMA 4X)**
- Max. ambient temperature: **85° C (185°F)**
- Material: **Low copper Aluminum / 316 Stainless Steel**
- Conduit Entry: **1/2" NPT / M20**
- Thermowell Entry: **1/2" NPT / M20**
- Aluminum Body Finish: **Pure Polyester Powder Coated**



**Figure 17: STT850 Temperature Transmitter**

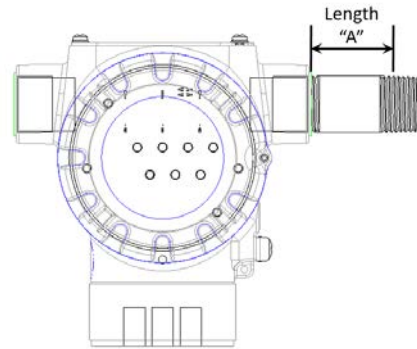


**Figure 18: STT850 Temperature Transmitter Dimensions**

**Extension Specifications:**

**Straight Nipple Extension Only  
(MSG option N03S or N06S)**

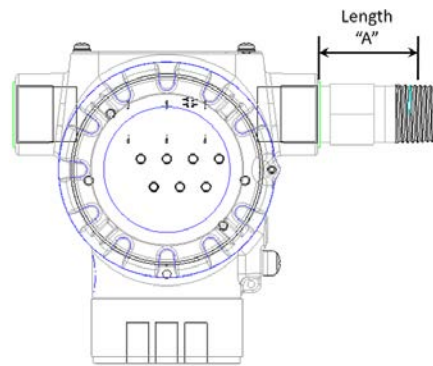
- Most economical
- Provides for minimal space between head and thermowell
- Nipple size: ½" NPT
- Available materials: 316 Grade Stainless Steel
- Standard "A" Length: 2" and 5"



**Figure 4: Nipple Extension Only**

**Hex Nipple Extension (MSG option H02S)**

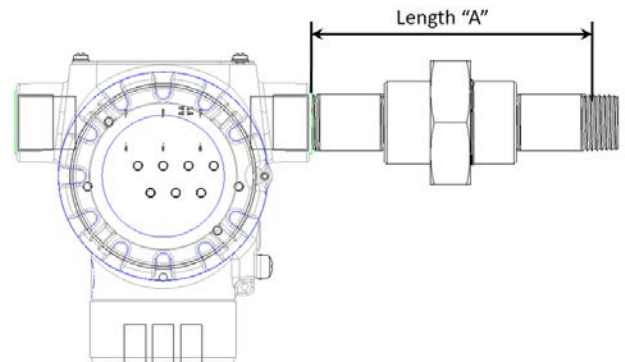
- Machined from solid bar stock
- Best suited for wiring the transmitter
- Hex allows for easy dis-assembly
- Standard "A" length of 1"
- Standard 316 Grade Stainless Steel



**Figure 5: Hex Nipple Extension**

**Nipple/Union/Nipple Extension  
(MSG option U06C or U06S)**

- Union provides the means for positioning for conduit cable connection
- Nipple size: ½" NPT
- Union size: ½" NPT, Pressure Class 150
- Available nipple materials: Carbon Steel or 316 Grade Stainless Steel
- Available union materials: Carbon Steel or 316 Grade Stainless Steel
- Standard "A" Length: 5", Available in other lengths.

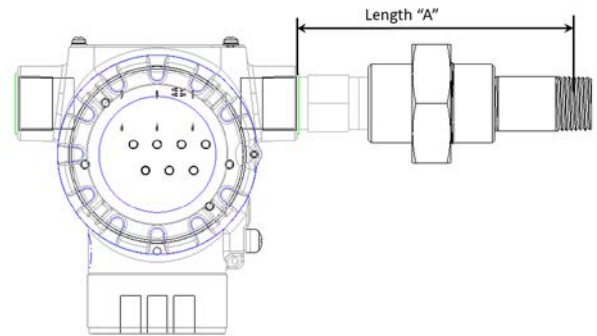


**Figure 6: Nipple/Union/Nipple Extension**



### Hex Nipple/Union/Nipple Extension (MSG option H06S)

- Union provides the means for positioning for conduit cable connection
- Best suited for wiring the transmitter
- Hex nipple provides for additional wrench tightening
- Union provides the means for positioning for conduit cable connection
- Nipple size: ½" NPT
- Union size: ½" NPT, Pressure Class 150
- Hex nipple: 316 Grade Stainless Steel
- Standard "A" Length: 5".  
Available in other lengths,

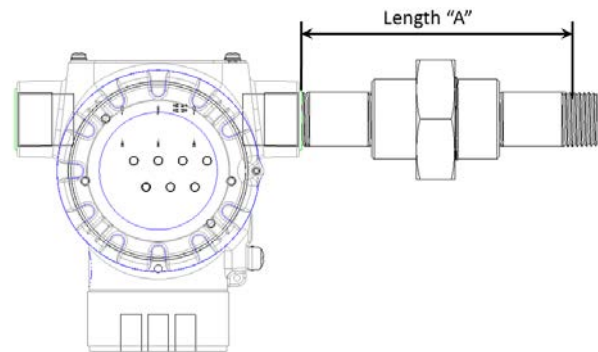


**Figure 7: Hex Nipple/Union/Nipple Extension**

### Nipple/Explosion Proof Union/Nipple Extension (MSG option E06S)

Same benefits as the standard Nipple/Union/Nipple extension except with explosion proof union rated:

- Ex Union: ½" NPT, Pressure Class 3000
- Recommended when supplied with explosion proof connection heads.

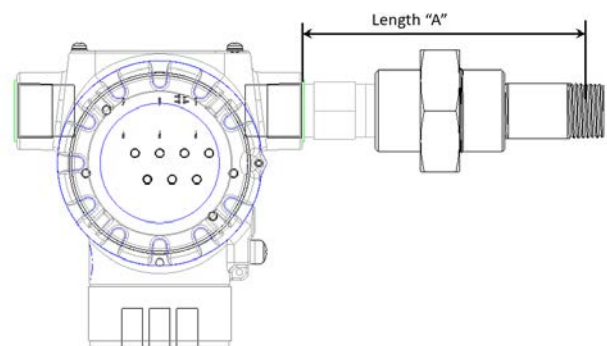


**Figure 8: Nipple/Explosion Proof Union/Nipple Extension**

### Hex Nipple/Explosion Proof Union/Nipple Extension (MSG option X06S)

Same benefits as the standard Hex Nipple/Union/Nipple extension except with explosion proof union rated:

- Ex Union: ½" NPT, Pressure Class 3000
- Recommended when supplied with explosion proof connection heads.



**Figure 9: Hex Nipple/Explosion Proof Union/Nipple Extension**

По вопросам продаж и поддержки обращайтесь:

**Алматы** (7273)495-231  
**Ангарск** (3955)60-70-56  
**Архангельск** (8182)63-90-72  
**Астрахань** (8512)99-46-04  
**Барнаул** (3852)73-04-60  
**Белгород** (4722)40-23-64  
**Благовещенск** (4162)22-76-07  
**Брянск** (4832)59-03-52  
**Владивосток** (423)249-28-31  
**Владикавказ** (8672)28-90-48  
**Владимир** (4922)49-43-18  
**Волгоград** (844)278-03-48  
**Вологда** (8172)26-41-59  
**Воронеж** (473)204-51-73  
**Екатеринбург** (343)384-55-89  
**Иваново** (4932)77-34-06  
**Ижевск** (3412)26-03-58  
**Иркутск** (395)279-98-46  
**Казань** (843)206-01-48

**Калининград** (4012)72-03-81  
**Калуга** (4842)92-23-67  
**Кемерово** (3842)65-04-62  
**Киров** (8332)68-02-04  
**Коломна** (4966)23-41-49  
**Кострома** (4942)77-07-48  
**Краснодар** (861)203-40-90  
**Красноярск** (391)204-63-61  
**Курган** (3522)50-90-47  
**Курск** (4712)77-13-04  
**Липецк** (4742)52-20-81  
**Магнитогорск** (3519)55-03-13  
**Москва** (495)268-04-70  
**Мурманск** (8152)59-64-93  
**Набережные Челны** (8552)20-53-41  
**Нижний Новгород** (831)429-08-12  
**Новокузнецк** (3843)20-46-81  
**Новосибирск** (383)227-86-73  
**Ноябрьск**(3496)41-32-12

**Омск** (3812)21-46-40  
**Орел** (4862)44-53-42  
**Оренбург** (3532)37-68-04  
**Пенза** (8412)22-31-16  
**Пермь** (342)205-81-47  
**Петрозаводск** (8142)55-98-37  
**Псков** (8112)59-10-37  
**Ростов-на-Дону** (863)308-18-15  
**Рязань** (4912)46-61-64  
**Самара** (846)206-03-16  
**Санкт-Петербург** (812)309-46-40  
**Саранск** (8342)22-96-24  
**Саратов** (845)249-38-78  
**Севастополь** (8692)22-31-93  
**Симферополь** (3652)67-13-56  
**Смоленск** (4812)29-41-54  
**Сочи** (862)225-72-31  
**Ставрополь** (8652)20-65-13  
**Сургут** (3462)77-98-35

**Сыктывкар** (8212)25-95-17  
**Тамбов** (4752)50-40-97  
**Тверь** (4822)63-31-35  
**Тольятти** (8482)63-91-07  
**Томск** (3822)98-41-53  
**Тула** (4872)33-79-87  
**Тюмень** (3452)66-21-18  
**Улан-Удэ** (3012)59-97-51  
**Ульяновск** (8422)24-23-59  
**Уфа** (347)229-48-12  
**Хабаровск** (4212)92-98-04  
**Чебоксары** (8352)28-53-07  
**Челябинск** (351)202-03-61  
**Череповец** (8202)49-02-64  
**Чита** (3022)38-34-83  
**Якутск** (4112)23-90-97  
**Ярославль** (4852)69-52-93

**Россия** +7(495)268-04-70

**Казахстан** +7(7172)727-132

**Киргизия** +996(312)96-26-47

сайт: [www.honeywell.nt-rt.ru](http://www.honeywell.nt-rt.ru) || эл. почта: [hwn@nt-rt.ru](mailto:hwn@nt-rt.ru)