



## ControlLogix HART Analog I/O Modules

Catalog Numbers 1756-IF8H, 1756-IF8HK, 1756-IF8IH, 1756-IF8IHK, 1756-IF16H, 1756-IF16HK, 1756-IF16IH, 1756-IF16IHK, 1756-OF8H, 1756-OF8HK, 1756-OF8IH, 1756-OF8IHK

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ControlLogix® HART analog I/O modules connect a Logix 5000™ controller to your process.

HART input modules (1756-IF8H, 1756-IF8IH, 1756-IF16H, and 1756-IF16IH) receive signals from process value transmitters and convert them to corresponding measurement values for use in the Logix controller (for example, temperature, flow, pressure, or pH).

HART output modules (1756-OF8H, 1756-OF8IH) provide current or voltage output signals that adjust the settings of valves and other devices in accord with desired process behavior.

## Summary of Changes

This publication contains the following changes.

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Added Special Considerations for Safe Use information	4
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**ATTENTION:** Read this document and the documents listed in the Additional Resources section about installation, configuration and operation of this equipment before you install, configure, operate or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.

Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice.

If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

**注意:** 在安装、配置、操作和维护本产品前，请阅读本文档以及“其他资源”部分列出的有关设备安装、配置和操作的相应文档。除了所有适用规范、法律和标准的相关要求之外，用户还必须熟悉安装和接线说明。

安装、调整、投运、使用、组装、拆卸和维护等各项操作必须由经过适当训练的专业人员按照适用的操作规范实施。

如果未按照制造商指定的方式使用该设备，则可能会损害设备提供的保护。

**ATENCIÓN:** Antes de instalar, configurar, poner en funcionamiento o realizar el mantenimiento de este producto, lea este documento y los documentos listados en la sección Recursos adicionales acerca de la instalación, configuración y operación de este equipo. Los usuarios deben familiarizarse con las instrucciones de instalación y cableado y con los requisitos de todos los códigos, leyes y estándares vigentes.

El personal debidamente capacitado debe realizar las actividades relacionadas a la instalación, ajustes, puesta en servicio, uso, ensamblaje, desensamblaje y mantenimiento de conformidad con el código de práctica aplicable.

Si este equipo se usa de una manera no especificada por el fabricante, la protección provista por el equipo puede resultar afectada.

**ATENÇÃO:** Leia este e os demais documentos sobre instalação, configuração e operação do equipamento que estão na seção Recursos adicionais antes de instalar, configurar, operar ou manter este produto. Os usuários devem se familiarizar com as instruções de instalação e fiação além das especificações para todos os códigos, leis e normas aplicáveis.

É necessário que as atividades, incluindo instalação, ajustes, colocação em serviço, utilização, montagem, desmontagem e manutenção sejam realizadas por pessoal qualificado e especializado, de acordo com o código de prática aplicável.

Caso este equipamento seja utilizado de maneira não estabelecida pelo fabricante, a proteção fornecida pelo equipamento pode ficar prejudicada.

**ВНИМАНИЕ:** Перед тем как устанавливать, настраивать, эксплуатировать или обслуживать данное оборудование, прочитайте этот документ и документы, перечисленные в разделе «Дополнительные ресурсы». В этих документах изложены сведения об установке, настройке и эксплуатации данного оборудования. Пользователи обязаны ознакомиться с инструкциями по установке и прокладке соединений, а также с требованиями всех применимых норм, законов и стандартов.

Все действия, включая установку, наладку, ввод в эксплуатацию, использование, сборку, разборку и техническое обслуживание, должны выполняться обученным персоналом в соответствии с применимыми нормами и правилами.

Если оборудование используется не предусмотренным производителем образом, защита оборудования может быть нарушена.

**注意:** 本製品を設置、構成、稼働または保守する前に、本書および本機器の設置、設定、操作についての参考資料の該当箇所に記載されている文書に目を通してください。ユーザは、すべての該当する条例、法律、規格の要件に加えて、設置および配線の手順に習熟している必要があります。

設置調整、運転の開始、使用、組立て、解体、保守を含む諸作業は、該当する実施規則に従って訓練を受けた適切な作業員が実行する必要があります。

本機器が製造メーカーにより指定されていない方法で使用されている場合、機器により提供されている保護が損なわれる恐れがあります。

**ACHTUNG:** Lesen Sie dieses Dokument und die im Abschnitt „Weitere Informationen“ aufgeführten Dokumente, die Informationen zu Installation, Konfiguration und Bedienung dieses Produkts enthalten, bevor Sie dieses Produkt installieren, konfigurieren, bedienen oder warten. Anwender müssen sich neben den Bestimmungen aller anwendbaren Vorschriften, Gesetze und Normen zusätzlich mit den Installations- und Verdrahtungsanweisungen vertraut machen.

Arbeiten im Rahmen der Installation, Anpassung, Inbetriebnahme, Verwendung, Montage, Demontage oder Instandhaltung dürfen nur durch ausreichend geschulte Mitarbeiter und in Übereinstimmung mit den anwendbaren Ausführungsvorschriften vorgenommen werden.

Wenn das Gerät in einer Weise verwendet wird, die vom Hersteller nicht vorgesehen ist, kann die Schutzfunktion beeinträchtigt sein.

**ATTENTION:** Lisez ce document et les documents listés dans la section Ressources complémentaires relatifs à l'installation, la configuration et le fonctionnement de cet équipement avant d'installer, configurer, utiliser ou entretenir ce produit. Les utilisateurs doivent se familiariser avec les instructions d'installation et de câblage en plus des exigences relatives aux codes, lois et normes en vigueur.

Les activités relatives à l'installation, le réglage, la mise en service, l'utilisation, l'assemblage, le démontage et l'entretien doivent être réalisées par des personnes formées selon le code de pratique en vigueur.

Si cet équipement est utilisé d'une façon qui n'a pas été définie par le fabricant, la protection fournie par l'équipement peut être compromise.

**주의:** 본 제품 설치, 설정, 작동 또는 유지 보수하기 전에 본 문서를 포함하여 설치, 설정 및 작동에 관한 참고 자료 섹션의 문서들을 반드시 읽고 숙지하십시오. 사용자들은 모든 관련 규정, 법규 및 표준에서 요구하는 사항에 대해 반드시 설치 및 배선 지침을 숙지해야 합니다.

설치, 조정, 가동, 사용, 조립, 분해, 유지보수 등 모든 작업은 관련 규정에 따라 적절한 교육을 받은 사용자를 통해서만 수행해야 합니다.

본 장비를 제조사가 명시하지 않은 방법으로 사용하면 장비의 보호 기능이 손상될 수 있습니다.

**ATTENZIONE** Prima di installare, configurare ed utilizzare il prodotto, o effettuare interventi di manutenzione su di esso, leggere il presente documento ed i documenti elencati nella sezione "Altre risorse", riguardanti l'installazione, la configurazione ed il funzionamento dell'apparecchiatura. Gli utenti devono leggere e comprendere le istruzioni di installazione e cablaggio, oltre ai requisiti previsti dalle leggi, codici e standard applicabili.

Le attività come installazione, regolazioni, utilizzo, assemblaggio, disassemblaggio e manutenzione devono essere svolte da personale adeguatamente addestrato, nel rispetto delle procedure previste.

Qualora l'apparecchio venga utilizzato con modalità diverse da quanto previsto dal produttore, la sua funzione di protezione potrebbe venire compromessa.

**DİKKAT:** Bu ürünün kurulumu, yapılandırılması, işletilmesi veya bakımı öncesinde bu dokümanı ve bu ekipmanın kurulumu, yapılandırılması ve işletimi ile ilgili ilave Kaynaklar bölümünde yer listelenmiş dokümanları okuyun. Kullanıcılar yürürlükteki tüm yönetmelikler, yasalar ve standartların gereksinimlerine ek olarak kurulum ve kablolama talimatlarını da öğrenmek zorundadır.

Kurulum, ayarlar, hizmete alma, kullanma, parçaları birleştirme, parçaları sökme ve bakım gibi aktiviteler sadece uygun eğitimleri almış kişiler tarafından yürürlükteki uygulama yönetmeliklerine uygun şekilde yapılabilir.

Bu ekipman üretici tarafından belirlenmiş amacın dışında kullanılırsa, ekipman tarafından sağlanan koruma bozulabilir.

**注意事項:** 在安装、設定、操作或維護本產品前，請先閱讀此文件以及列於「其他資源」章節中有關安裝、設定與操作此設備的文件。使用者必須熟悉安裝和配線指示，並符合所有法規、法律和標準要求。

包括安裝、調整、交付使用、使用、組裝、拆卸和維護等動作都必須交由已經過適當訓練的人員進行，以符合適用的實作法規。

如果將設備用於非製造商指定的用途時，可能會造成設備所提供的保護功能受損。

**POZOR:** Než začnete instalovat, konfigurovat či provozovat tento výrobek nebo provádět jeho údržbu, přečtěte si tento dokument a dokumenty uvedené v části Dodatečné zdroje ohledně instalace, konfigurace a provozu tohoto zařízení. Uživatelé se musejí vedle požadavků všech relevantních vyhlášek, zákonů a norem nutně seznámit také s pokyny pro instalaci a elektrické zapojení.

Činnosti zahrnující instalaci, nastavení, uvedení do provozu, užívání, montáž, demontáž a údržbu musí vykonávat vhodné proškolený personál v souladu s příslušnými prováděcími předpisy.

Pokud se toto zařízení používá způsobem neodpovídajícím specifikaci výrobce, může být narušena ochrana, kterou toto zařízení poskytuje.

**UWAGA:** Przed instalacją, konfiguracją, użytkowaniem lub konserwacją tego produktu należy przeczytać niniejszy dokument oraz wszystkie dokumenty wymienione w sekcji Dodatkowe źródła omawiające instalację, konfigurację i procedury użytkowania tego urządzenia. Użytkownicy mają obowiązek zapoznać się z instrukcjami dotyczącymi instalacji oraz oprzewodowania, jak również z obowiązującymi kodeksami, prawem i normami.

Działania obejmujące instalację, regulację, przekazanie do użytkowania, użytkowanie, montaż, demontaż oraz konserwację muszą być wykonywane przez odpowiednio przeszkolony personel zgodnie z obowiązującym kodeksem postępowania.

Jeśli urządzenie jest użytkowane w sposób inny niż określony przez producenta, zabezpieczenie zapewniane przez urządzenie może zostać ograniczone.

**OB!** Läs detta dokument samt dokumentet, som står listat i avsnittet Övriga resurser, om installation, konfigurering och drift av denna utrustning innan du installerar, konfigurerar eller börjar använda eller utföra underhållsarbete på produkten. Användaren måste bekanta sig med instruktioner för installation och kabeldragning, förutom krav enligt gällande koder, lagar och standarder.

Åtgärder som installation, justering, service, användning, montering, demontering och underhållsarbete måste utföras av personal med lämplig utbildning enligt lämpligt bruk.

Om denna utrustning används på ett sätt som inte anges av tillverkaren kan det hända att utrustningens skyddsanordningar försätts ur funktion.

**LET OP:** Lees dit document en de documenten die genoemd worden in de paragraaf Aanvullende informatie over de installatie, configuratie en bediening van deze apparatuur voordat u dit product installeert, configureert, bedient of onderhoudt. Gebruikers moeten zich vertrouwd maken met de installatie en de bedragsinstructies, naast de vereisten van alle toepasselijke regels, wetten en normen.

Activiteiten zoals het installeren, afstellen, in gebruik stellen, gebruiken, monteren, demonteren en het uitvoeren van onderhoud mogen uitsluitend worden uitgevoerd door hiervoor opgeleid personeel en in

overeenstemming met de geldende praktijkregels.

Indien de apparatuur wordt gebruikt op een wijze die niet is gespecificeerd door de fabrikant, dan bestaat het gevaar dat de beveiliging van de apparatuur niet goed werkt.

**ATTENTION:**

- If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
- Before installing, configuring, operating, or maintaining this product, read this document and the documents listed in the [Additional Resources](#) section for installing, configuring, or operating equipment. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.
- Installation, adjustments, putting into service, use, assembly, disassembly, and maintenance shall be carried out by suitably trained personnel in accordance with applicable code of practice. In case of malfunction or damage, no attempts at repair should be made. The module should be returned to the manufacturer for repair. Do not dismantle the module.
- This equipment is certified for use only within the surrounding air temperature range of 0...60 °C (32...140 °F). The equipment must not be used outside of this range.
- Use only a soft dry anti-static cloth to wipe down equipment. Do not use any cleaning agents.

## Prevent Electrostatic Discharge

**ATTENTION:**

This equipment is sensitive to electrostatic discharge, which can cause internal damage and affect normal operation. Follow these guidelines when you handle this equipment:

- Touch a grounded object to discharge potential static.
- Wear an approved grounding wriststrap.
- Do not touch connectors or pins on component boards.
- Do not touch circuit components inside the equipment.
- Use a static-safe workstation, if available.
- Store the equipment in appropriate static-safe packaging when not in use.

## Environment and Enclosure

**ATTENTION:**

- This equipment is intended for use in a Pollution Degree 2 industrial environment, in overvoltage Category II applications (as defined in EN/IEC 60664-1), at altitudes up to 2000 m (6562 ft) without derating.
- This equipment is not intended for use in residential environments and may not provide adequate protection to radio communication services in such environments.
- This equipment is supplied as open-type equipment for indoor use. It must be mounted within an enclosure that is suitably designed for those specific environmental conditions that will be present and appropriately designed to prevent personal injury resulting from accessibility to live parts. The enclosure must have suitable flame-retardant properties to prevent or minimize the spread of flame, complying with a flame spread rating of 5VA or be approved for the application if nonmetallic. The interior of the enclosure must be accessible only by the use of a tool. Subsequent sections of this publication may contain additional information regarding specific enclosure type ratings that are required to comply with certain product safety certifications. In addition to this publication, see the following:
  - Industrial Automation Wiring and Grounding Guidelines, publication [1770-4.1](#), for additional installation requirements.
  - NEMA Standard 250 and EN/IEC 60529, as applicable, for explanations of the degrees of protection provided by enclosures.

## Electrical Safety Considerations

**ATTENTION:**

To comply with the CE Low Voltage Directive (LVD), all connected I/O must be powered from a source compliant with the following:

- Safety Extra Low Voltage (SELV) Supply
- Protected Extra Low Voltage (PELV) Supply

**ATTENTION:**

When using the 1756-TBNH, do not wire more than two 0.33...1.3 mm<sup>2</sup> (22...16 AWG) conductors on any single terminal. Use only the same size wires with no intermixing of solid and stranded wire types.

When using the 1756-TBCH, 1756-TBS6H, or 1756-TBSH, do not wire more than 1 conductor on any single terminal.

**Special Considerations for Safe Use**



- This equipment is not resistant to sunlight or other sources of UV radiation.
- This equipment shall be mounted in an ATEX/IECEx Zone 2 certified enclosure with a minimum ingress protection rating of at least IP54 (in accordance with EN/IEC 60079-0) and used in an environment of not more than Pollution Degree 2 (as defined in EN/IEC 60664-1) when applied in Zone 2 environments. The enclosure must be accessible only by the use of a tool.
- This equipment shall be used within its specified ratings defined by Rockwell Automation.
- Provision shall be made to prevent the rated voltage from being exceeded by transient disturbances of more than 140% of the peak rated voltage when applied in Zone 2 environments.
- The instructions in the user manual shall be observed.
- This equipment must be used only with ATEX/IECEx certified Rockwell Automation backplanes.
- Secure any external connections that mate to this equipment by using screws, sliding latches, threaded connectors, or other means provided with this product.
- Do not disconnect equipment unless power has been removed or the area is known to be nonhazardous.

CCC	<p>CNCA-C23-01:2019 强制性产品认证实施规则 防爆电气, 符合                  GB 3836.1-2010 爆炸性环境 第1部分: 设备 通用要求                  GB 3836.8-2014 爆炸性环境 第8部分: 由“n”型保护的 设备                  CNCA-C23-01:2019 CCC Implementation Rule Explosion-Proof Electrical Products, compliant with:                  GB 3836.1-2010 Explosive atmospheres - Part 1: Equipment-General requirements                  GB 3836.8-2014 Explosive atmospheres - Part 8: Equipment protection by type of protection “n”                  关于重要安装说明和警告的中文翻译, 请查看我们的网站 <a href="http://rok.auto/certifications/CCC">rok.auto/certifications/CCC</a></p>
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When marked. See the Product Certifications website at [rok.auto/certifications](http://rok.auto/certifications) for declarations of conformity, certificates, and other certification details.

**North American Hazardous Location Approval**

The following information applies when operating this equipment in hazardous locations.	Informations sur l'utilisation de cet équipement en environnements dangereux.
<p>Products marked “CL I, DIV 2, GP A, B, C, D” are suitable for use in Class I Division 2 Groups A, B, C, D, Hazardous Locations and nonhazardous locations only. Each product is supplied with markings on the rating nameplate indicating the hazardous location temperature code. When combining products within a system, the most adverse temperature code (lowest “T” number) may be used to help determine the overall temperature code of the system. Combinations of equipment in your system are subject to investigation by the local Authority Having Jurisdiction at the time of installation.</p>	<p>Les produits marqués “CL I, DIV 2, GP A, B, C, D” ne conviennent qu'à une utilisation en environnements de Classe I Division 2 Groupes A, B, C, D dangereux et non dangereux. Chaque produit est livré avec des marquages sur sa plaque d'identification qui indiquent le code de température pour les environnements dangereux. Lorsque plusieurs produits sont combinés dans un système, le code de température le plus défavorable (code de température le plus faible) peut être utilisé pour déterminer le code de température global du système. Les combinaisons d'équipements dans le système sont sujettes à inspection par les autorités locales qualifiées au moment de l'installation.</p>
<div style="display: flex; align-items: center;"> <div> <p><b>WARNING:</b> Explosion Hazard</p> <ul style="list-style-type: none"> <li>• Do not disconnect equipment unless power has been removed or the area is known to be nonhazardous.</li> <li>• Do not disconnect connections to this equipment unless power has been removed or the area is known to be nonhazardous. Secure any external connections that mate to this equipment by using screws, sliding latches, threaded connectors, or other means provided with this product.</li> <li>• Substitution of components may impair suitability for Class I, Division 2.</li> <li>• If this product contains batteries, they must be changed only in an area known to be nonhazardous.</li> </ul> </div> </div>	<div style="display: flex; align-items: center;"> <div> <p><b>AVERTISSEMENT:</b> <b>Risque d'Explosion -</b></p> <ul style="list-style-type: none"> <li>• Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de débrancher l'équipement.</li> <li>• Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de débrancher les connecteurs. Fixer tous les connecteurs externes reliés à cet équipement à l'aide de vis, loquets coulissants, connecteurs filetés ou autres moyens fournis avec ce produit.</li> <li>• La substitution de composants peut rendre cet équipement inadapté à une utilisation en environnement de Classe I, Division 2.</li> <li>• S'assurer que l'environnement est classé non dangereux avant de changer les piles.</li> </ul> </div> </div>

**European Hazardous Location Approval**

- The following applies to products marked , II 3 G.
- Such modules are Equipment Group II, Equipment Category 3, and comply with the Essential Health and Safety Requirements relating to the design and construction of such equipment given in Annex II to Directive 2014/34/EU. See the EC Declaration of Conformity at <http://www.rockwellautomation.com/products/certification> for details.
  - The type of protection is “Ex ec IIC T4 Gc” according to EN 60079-7
  - Such modules as the 1756-IF8H, 1756-IF8HK, 1756-IF16H, 1756-IF16HK, 1756-OF8H, and 1756-OF8HK comply to Standards: EN 60079-0:2018 and EN 60079-7:2015+A1:2018, reference certificate number UL 20 ATEX 2408X.
  - Such modules as the 1756-IF8IH, 1756-IF8IHK, 1756-IF16IH, 1756-IF16IHK, 1756-OF8IH, and 1756-OF8IHK comply to Standards: EN 60079-0:2018 and EN 60079-7:2015+A1:2018, reference certificate number UL 20 ATEX 2408X.
  - Such modules are intended for use in areas in which explosive atmospheres caused by gases, vapors, mists, or air are unlikely to occur, or are likely to occur only infrequently and for short periods. Such locations correspond to Zone 2 classification according to ATEX directive 2014/34/EU.
  - Such modules may have catalog numbers followed by a “K” to indicate a conformal coating option.

## IEC Hazardous Location Approval

The following applies to products with IECEx certification:

- Such modules are intended for use in areas in which explosive atmospheres caused by gases, vapors, mists, or air are unlikely to occur, or are likely to occur only infrequently and for short periods. Such locations correspond to Zone 2 classification to IEC 60079-0.
- The type of protection is "Ex ec IIC T4 Gc" according to IEC 60079-7.
- Such modules as the 1756-IF8H, 1756-IF8HK, 1756-IF16H, 1756-IF16HK, 1756-OF8H, and 1756-OF8HK comply to Standards: EN 60079-0:2018 and EN 60079-7:2015+A1:2018, reference IECEx certificate number UL 20.0084X.
- Such modules as the 1756-IF8IH, 1756-IF8IHK, 1756-IF16IH, 1756-IF16IHK, 1756-OF8IH, and 1756-OF8IHK comply to Standards: EN 60079-0:2018 and EN 60079-7:2015+A1:2018, reference IECEx certificate number UL 20.0084X.
- Such modules may have catalog numbers followed by a "K" to indicate a conformal coating option.

### ATEX and IECEx Hazardous Location Conformity

Catalog Number	Protection Type	ATEX Certificate	IECEx Certificate
1756-IF8H	Ex ec T4 Gc	UL 20 ATEX 2408X	IECEx UL 20.0084X
1756-IF8HK	Ex ec T4 Gc	UL 20 ATEX 2408X	IECEx UL 20.0084X
1756-IF8IH	Ex ec T4 Gc	UL 20 ATEX 2408X	IECEx UL 20.0084X
1756-IF8IHK	Ex ec T4 Gc	UL 20 ATEX 2408X	IECEx UL 20.0084X
1756-IF16H	Ex ec T4 Gc	UL 20 ATEX 2408X	IECEx UL 20.0084X
1756-IF16HK	Ex ec T4 Gc	UL 20 ATEX 2408X	IECEx UL 20.0084X
1756-IF16IH	Ex ec T4 Gc	UL 20 ATEX 2408X	IECEx UL 20.0084X
1756-IF16IHK	Ex ec T4 Gc	UL 20 ATEX 2408X	IECEx UL 20.0084X
1756-OF8H	Ex ec T4 Gc	UL 20 ATEX 2408X	IECEx UL 20.0084X
1756-OF8HK	Ex ec T4 Gc	UL 20 ATEX 2408X	IECEx UL 20.0084X
1756-OF8IH	Ex ec T4 Gc	UL 20 ATEX 2408X	IECEx UL 20.0084X
1756-OF8IHK	Ex ec T4 Gc	UL 20 ATEX 2408X	IECEx UL 20.0084X

## Install the Modules

- IMPORTANT** Before you install a module, verify that you have already done the following:
- Installed and grounded a 1756 ControlLogix® chassis and power supply
  - Ordered and received a removable terminal block (RTB) or 1492 interface module (IFM) and its components for your application



**ATTENTION:** The ControlLogix system has been agency certified with only the ControlLogix RTBs (catalog numbers 1756-TBCH, 1756-TBS6H, 1756-TBNH, 1756-TBSH). Any application that requires agency certification of the ControlLogix system with other wiring termination methods can require application-specific approval by the certifying agency.

- IMPORTANT** The 1756-OF8H, 1756-OF8IH, 1756-OF8HK, and 1756-OF8IHK modules require more power than the standard 1756-OF8 module. You can have a maximum of twelve 1756-OF8H or seven 1756-OF8IH modules per chassis.

## Removal and Insertion Under Power (RIUP)

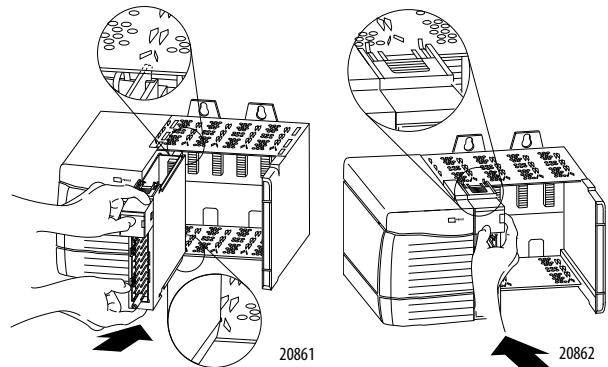


**WARNING:** When you insert or remove the module while backplane power is on, an electric arc can occur. This could cause an explosion in hazardous location installations.

Be sure that power is removed or the area is nonhazardous before proceeding. Repeated electric arcing causes excessive wear to contacts on both the module and its mating connector. Worn contacts can create electrical resistance that can affect module operation.

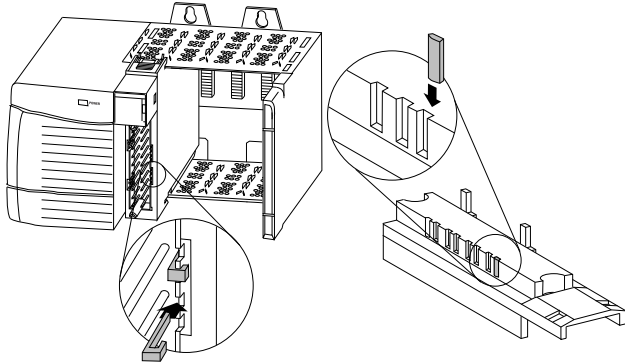
When you connect or disconnect the removable terminal block (RTB) with field-side power applied, an electric arc can occur. This could cause an explosion in hazardous location installations.

- Align the circuit board with the top and bottom chassis guides.
- Slide the module into the chassis until the module locking tabs click.



## Key the Module and Removable Terminal Block

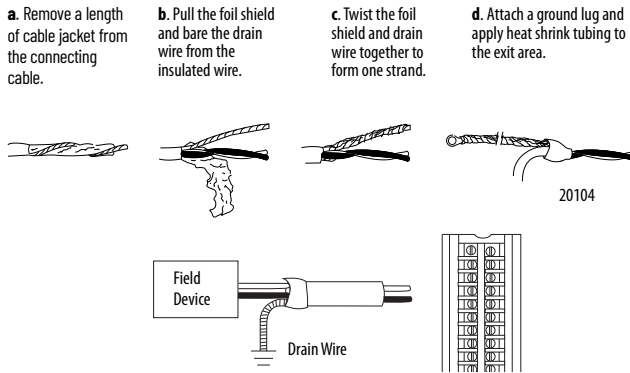
1. To key the module, insert the U-shaped band and push the band until it snaps into place.
2. To key the RTB/IFM, insert the wedge-shaped tab with the rounded edge first and push the tab until it stops.



## Connect Wiring

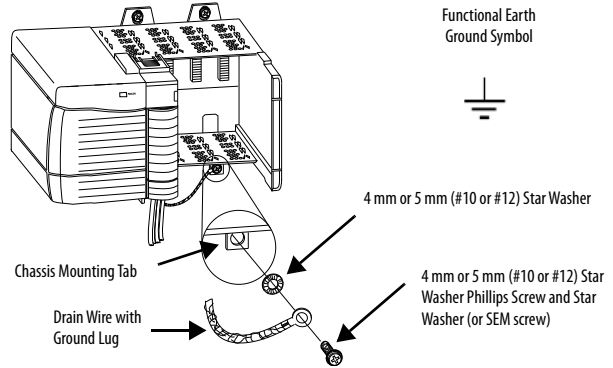
Use shielded cable to connect the module to field devices.

1. Ground the drain wire at the field end of the cable.
2. When the drain wire is grounded, connect the insulated wires to the field device.



**IMPORTANT** We recommend that you ground the drain wire at the field-side. If you cannot ground at the field-side, ground at an earth ground on the chassis as shown in the following steps.

3. To ground the drain wire at the chassis, connect the drain wire to a chassis mounting tab that is designated as a functional signal ground.
4. When the drain wire is grounded, connect the insulated wires to the field device.



## Wire the Removable Terminal Block



**WARNING:** If you connect or disconnect wiring while the field-side power is on, an electric arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.

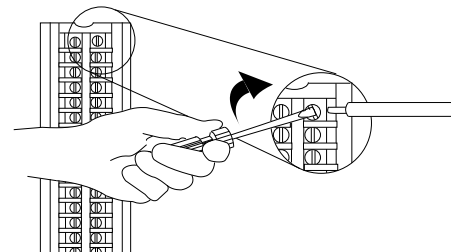
Wire the RTB with a 3.3 mm (0.13 in.) screwdriver before installing it onto the module. Shielded cable is required when you use these modules. We recommend that you use Belden 8761 cable to wire the RTB.



**WARNING:** For the 1756-IF16H module, use supply wires suitable for 30 °C (86 °F) above surrounding ambient temperature.

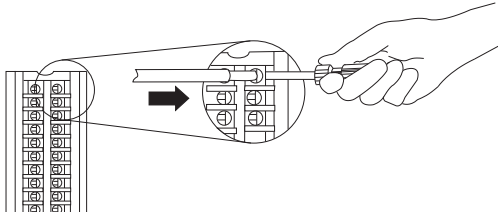
## Cage Clamp RTB

1. Cut the foil shield and drain wire back to the cable casing and apply shrink wrap.
2. Connect the insulated wires to the RTB.



### Spring Clamp RTB

1. Cut the foil shield and drain wire back to the cable casing and apply shrink wrap.
2. Insert a screwdriver into the outer hole of the RTB.
3. Insert the wire into the open terminal and remove the screwdriver.



### Recommendations for Wiring the RTB

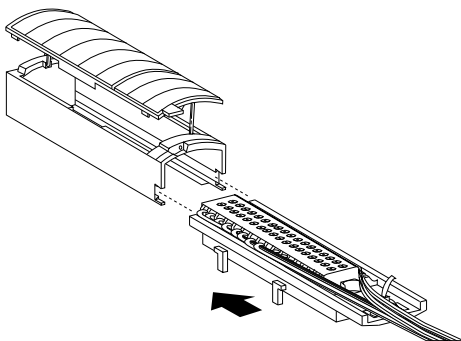
We recommend that you follow these guidelines when wiring the RTB:

- Begin wiring the RTB at the bottom terminals and move up.
- Use a tie to secure the wires in the strain relief (bottom) area of the RTB.
- Order and use an extended-depth housing (catalog number 1756-TBE) for applications that require heavy gauge wiring.

### Assemble the RTB and Housing

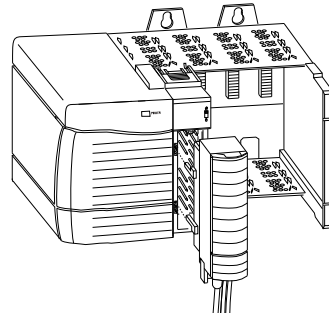
A removable housing covers the wired RTB to help protect wiring connections when the RTB is seated on the module.

1. Align the grooves at the bottom of each side of the housing with the side edges of the RTB.
2. Slide the RTB into the housing until it snaps into place.

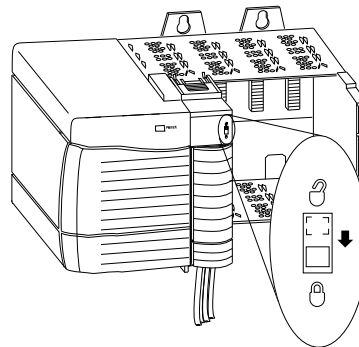


Before installing the RTB, verify the following:

- Field-side wiring of the RTB is complete.
  - The RTB housing is snapped into place on the RTB.
  - The RTB housing door is closed.
  - The locking tab at the top of the module is unlocked.
1. Align the top, bottom, and left side guides of the RTB with the guides on the module.



2. Press quickly and evenly to seat the RTB on the module until the latches snap into place.
3. Slide the locking tab down to lock the RTB onto the module.



**IMPORTANT** If additional wire routing space is required for your application, use the extended-depth housing, catalog number 1756-TBE.



## Removable Terminal Block Ratings

Module Cat. No.	RTB Cat. No.	RTB Type	Torque and Wire Size (Where Applicable)
1756-OF8H, 1756-OF8HK	1756-TBNH	NEMA screw-clamp removable block 20 pin	1.36 N-m (12 lb-in) Single wire connection: 0.33...2.1 mm <sup>2</sup> (22...14 AWG) solid or stranded copper wire rated at 105 °C (221 °F), or greater, 1.2 mm (3/64 in.) insulation max Double wire connection: 0.33...1.3 mm <sup>2</sup> (22...16 AWG) solid or stranded copper wire rated at 105 °C (221 °F), or greater, 1.2 mm (3/64 in.) insulation max Do not wire more than two conductors on any terminal.
	1756-TBSH	Spring-clamp removable terminal block with standard housing 20 pin	Single wire connection: 0.33...2.1 mm <sup>2</sup> (22...14 AWG) solid or stranded copper wire rated at 105 °C (221 °F), or greater, 1.2 mm (3/64 in.) insulation max Do not wire multiple conductors on any terminal.
1756-IF8H, 1756-IF8HK, 1756-IF8IH, 1756-IF8IHK, 1756-IF16H, 1756-IF16HK, 1756-IF16IH, 1756-IF16IHK, 1756-OF8IH, 1756-OF8IHK	1756-TBCH	Cage-clamp removable terminal block with standard housing 36 pin	0.5 N-m (4.4 lb-in) Single wire connection: 0.33...2.1 mm <sup>2</sup> (22...14 AWG) solid or stranded copper wire rated at 105 °C (221 °F), or greater, 1.2 mm (3/64 in.) insulation max Do not wire multiple conductors on any terminal.
	1756-TBS6H	Spring-clamp removable terminal block with standard housing 36 pin	Single wire connection: 0.33...2.1 mm <sup>2</sup> (22...14 AWG) solid or stranded copper wire rated at 105 °C (221 °F), or greater, 1.2 mm (3/64 in.) insulation max Do not wire multiple conductors on any terminal.
-	1756-TBE	Extended-depth terminal block housing	-

## Specifications

Attribute	1756-IF8H, 1756-IF8HK	1756-IF8IH, 1756-IF8IHK	1756-IF16H, 1756-IF16HK	1756-IF16IH, 1756-IF16IHK	1756-OF8H, 1756-OF8HK	1756-OF8IH, 1756-OF8IHK
Voltage and current ratings	Backplane: 5.1V DC, 300 mA, 24V DC, 135 mA Input Voltage Range: -10...+10V Input Current Range: 0...20 mA, 4...20 mA	Backplane: 5.1V DC, 210 mA, 24V DC, 110 mA Input Current Range: 0...20 mA, 4...20 mA	Backplane: 5.1V DC, 200 mA, 24V DC, 125 mA Input Current Range: 0...20 mA, 4...20 mA	Backplane: 5.1V DC, 225 mA, 24V DC, 200 mA Input Current Range: 0...20 mA, 4...20 mA	Backplane: 5.1V DC, 230 mA, 24V DC, 230 mA Output Voltage Range: -10...+10.4V Output Current Range: 0...20 mA, 4...20 mA	Backplane: 5.1V DC, 220 mA, 24V DC, 360 mA Output Voltage Range: -10...+10V Output Current Range: 0...20 mA, 4...20 mA
Temperature, operating IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock)	0 °C < Ta < 60 °C (32 °F < Ta < 140 °F)					
Surrounding air temperature, max	60 °C (140 °F)					
User-selectable input/output ranges	0...20 mA, 4...20 mA -10...+10V, 0...5V 1...5V, 0...10V	0...20 mA, 4...20 mA			0...20 mA, 4...20 mA -10...+10V	0...20 mA, 4...20 mA
Enclosure type rating	None (open-style)					
Isolation voltage	50V (continuous) Basic insulation type, Input Channels to Backplane No isolation between individual Input Channels	250V (continuous) Reinforced Insulation Type, inputs to backplane. Basic Insulation Type, input to input, and inputs to ground.	50V (continuous) Basic insulation type, Input Channels to Backplane No isolation between individual Input Channels	250V (continuous) Reinforced Insulation Type, inputs to backplane. Basic Insulation Type, input to input, and inputs to ground.	50V (continuous) Basic insulation type, Output Channels to Backplane No isolation between individual Output Channels	250V (continuous) Reinforced Insulation Type, outputs to backplane. Basic Insulation Type, output to output, and outputs to ground.
North American temperature code	T5				T4	T4A
ATEX temperature code	T4					
IECEx temperature code	T4					



## Additional Resources

These documents contain additional information concerning related products from Rockwell Automation.

Resource	Description
1756 ControlLogix I/O Specifications Technical Data, publication <a href="#">1756-TD002</a>	Provides specification information for the isolated analog I/O modules.
ControlLogix HART Analog I/O Modules User Manual, <a href="#">1756-UM533</a>	Provides detailed information on installing and using the isolated analog I/O modules.
Industrial Automation Wiring and Grounding Guidelines, publication <a href="#">1770-4.1</a>	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website <a href="https://rok.auto/certifications">https://rok.auto/certifications</a>	Provides declarations of conformity, certificates, and other certification details.

You can view or download publications at <https://www.rockwellautomation.com/en-us/support/documentation/literature-library.html>.

# Rockwell Automation Support

Use these resources to access support information.

<b>Technical Support Center</b>	Find help with how-to videos, FAQs, chat, user forums, and product notification updates.	<a href="http://rok.auto/support">rok.auto/support</a>
<b>Knowledgebase</b>	Access Knowledgebase articles.	<a href="http://rok.auto/knowledgebase">rok.auto/knowledgebase</a>
<b>Local Technical Support Phone Numbers</b>	Locate the telephone number for your country.	<a href="http://rok.auto/phonesupport">rok.auto/phonesupport</a>
<b>Literature Library</b>	Find installation instructions, manuals, brochures, and technical data publications.	<a href="http://rok.auto/literature">rok.auto/literature</a>
<b>Product Compatibility and Download Center (PCDC)</b>	Download firmware, associated files (such as AOP, EDS, and DTM), and access product release notes.	<a href="http://rok.auto/pcdc">rok.auto/pcdc</a>

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## Waste Electrical and Electronic Equipment (WEEE)



At the end of life, this equipment should be collected separately from any unsorted municipal waste.

Rockwell Automation maintains current product environmental compliance information on its website at [rok.auto/pec](http://rok.auto/pec).

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