



Installation Instructions

FLEX Ex 8 Input Analog, HART, and Noise Filter Analog Modules

(Cat. No. 1797-IE8, -IE8H, and -IE8NF)

Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. *Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls* (Publication SGI-1.1 available from your local Rockwell Automation sales office or online at <http://www.ab.com/manuals/gi>) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

No patent liability is assumed by Rockwell Automation, Inc. with respect to use of information, circuits, equipment, or software described in this manual.





Reproduction of the contents of this manual, in whole or in part, without written permission of Rockwell Automation, Inc. is prohibited.

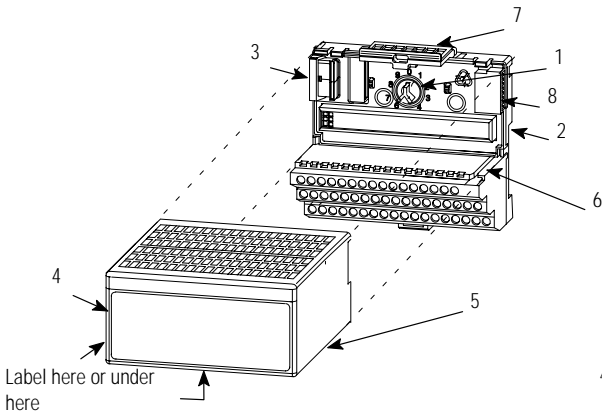
Throughout this manual we use notes to make you aware of safety considerations.

AB Drive

2 FLEX Ex 8 Input Analog, HART, and Noise Filter Analog Modules

Important User Information

WARNING 	Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.
ATTENTION 	Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you: <ul style="list-style-type: none">• identify a hazard• avoid a hazard• recognize the consequence
SHOCK HAZARD 	Labels may be located on or inside the drive to alert people that dangerous voltage may be present.
BURN HAZARD 	Labels may be located on or inside the drive to alert people that surfaces may be dangerous temperatures.



40231

Module Installation

The modules must be used with a 1797-TB3 or -TB3S intrinsically safe terminal base unit.

ATTENTION

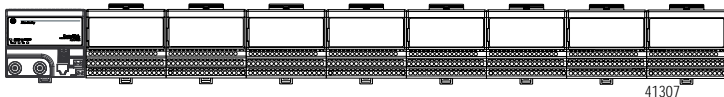
This equipment is considered Group 1, Class A industrial equipment according to IEC/CISPR Publication 11. Without appropriate precautions, there may be potential difficulties ensuring electromagnetic compatibility in other environments due to conducted as well as radiated disturbance.

This equipment is supplied as “open type” equipment. 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 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.

1. Rotate keyswitch (1) on terminal base unit (2) clockwise to position 3 as required for this type of module. **Do not change the position of the keyswitch after wiring the terminal base unit**
2. Make certain the flexbus connector (3) is pushed all the way to the left to connect with the neighboring terminal base/adapter. You cannot install the module unless the connector is fully extended.
3. Make sure the pins on the bottom of the module are straight so they will align properly with the connector in the terminal base unit.
4. Position the module (4) with its alignment bar (5) aligned with the groove (6) on the terminal base.
5. Press firmly and evenly to seat the module in the terminal base unit. The module is seated when the latching mechanism (7) is locked into the module.

4 FLEX Ex 8 Input Analog, HART, and Noise Filter Analog Modules

6. Make certain that you only connect terminal base units to other intrinsically safe system modules or adapters to maintain the integrity of the intrinsically-safe backplane.



7. Remove cap plug (8) and attach another intrinsically safe terminal base unit to the right of this terminal base unit if required.

Installation in Zone 1

These modules must not be exposed to the environment. Provide a suitable metal enclosure. This module has a protection factor of IP20.

WARNING


These modules cannot be used in an intrinsically safe environment after they have been exposed to non-intrinsically safe signals.

Installation in Zone 22

When the module is installed in Zone 22, the following cabinets must be used: IVK-ISRPI-V16LC; IVK-ISRPI-V8HYW; or IVK-ISRPI-V8LC. These cabinets can be purchased from:

Pepperl+Fuchs GmbH
Königsberger Allee 85-87, D-68307
Mannheim, Germany
Attn: PA Sales Dept.
Kirsten Becker
Telephone +49 776 1298
www.pepperl-fuchs.com

The IS-RPI cabinets (type IVK2-ISRPI-V8LC, IVK2-ISRPI-V8HYW, or IVK2-ISRPI-V16LC) ensures the basic protection for the intrinsically safe apparatus of the IS-RPI system for use in Zone 22. It corresponds with category 3D according to RL 94/9 EG and with the type label marked with the following information:

Pepperl+Fuchs GmbH
68301 Mannheim
IVK2-ISRPI-V8LC (or IVK2-ISRPI-V8HYW or
IVK2-ISRPI-V16LC)
 II 3D IP54 T 70°C
CE
Serial (manufacturing) number
Model

Electrostatic Charge

Protect the system against electrostatic charge. Post a sign near these modules: **Attention! Avoid electrostatic charge.** For your convenience, a sign which can be cut out and posted is included in this installation instruction.

Removal and Insertion Under Power

WARNING



These modules are designed so you can **remove and insert them under power**. However, take special care when removing or inserting modules in an active process. I/O attached to any module being removed or inserted can change states due to its input/output signal changing conditions.

If you insert or remove the terminal base while backplane power is on, an electrical 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.

AB Drive

European Communities (EC) Directive Compliance

If this product has the CE mark it is approved for installation within the European Union and EEA regions. It has been designed and tested to meet the following directives.

EMC Directive

These products are tested to meet the Council Directive 89/336/EEC Electromagnetic Compatibility (EMC) as amended by 92/31/EC and 93/68/EEC, by applying the following standards:

- EN 61000-6-4:2001, Electromagnetic Compatibility (EMC) - Part 6-4: Generic Standard for Industrial Environments (Class A)
- EN 61000-6-2:2001, Electromagnetic Compatibility (EMC) - Part 6-2: Generic Standards - Immunity for Industrial Environments
- EN61326-1997 + A1-A2, Electrical Equipment For Measurement, Control, and Laboratory Use - Industrial EMC Requirements

ATEX Directive

These products are tested in conjunction with associated I/O modules to meet the Council Directive 94/9/EC (ATEX) Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres by applying the following standards:

- EN50014:1997 + A1-A2, Electrical Apparatus for Potentially Explosive Atmospheres
- EN50020:1994, Electrical Apparatus for Potentially Explosive Atmospheres - Intrinsic Safety “i”
- EN50284:1999, Special Requirements for Construction, Test, and Marking of Electrical Apparatus of Equipment Group II, Category 1G
- EN50281-1-1:1998 + A1, Electrical Apparatus for Use in the Presence of Combustible Dust - Part 1-1: Protection by Enclosure

Inputs

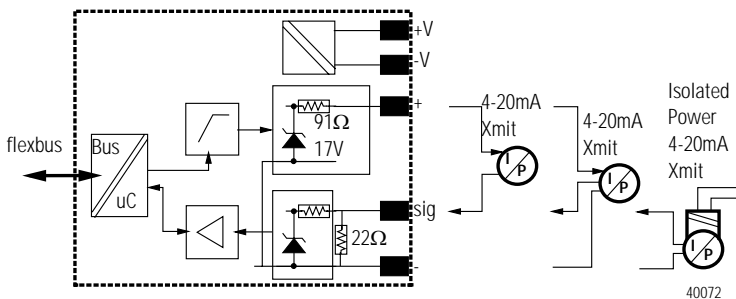
Each input can be operated from an analog field device signal. **Do not apply any non-intrinsically safe signals to these modules.**

When using an intrinsically safe electrical apparatus according to EN50020, the European Community directives and regulations must be followed.

The channels in these modules are electrically connected to each other and have a common plus-line.

IMPORTANT

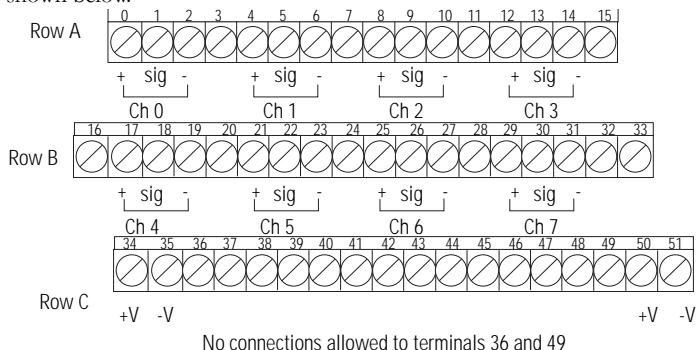
When interconnecting several lines, you must consider the total accumulated power and check for intrinsic safety.



AB Drive

Wiring to a 1797-TB3 or -TB3S Terminal Base Unit

Connect wiring for two-wire transmitter devices to the terminal base as shown below.



40071

For Two-Wire Transmitter Devices

1. Connect the individual input wiring to (+) terminals (0, 4, 8, 12) on the 0-15 row (A) and on the 16-33 row (B) (terminals 17, 21, 25, 29) as indicated in the table below.
2. Connect the associated input to the corresponding (sig) terminal (1, 5, 9, 13) on the 0-15 row (A), and on the 16-33 row (B) (terminals 18, 22, 26, 30) for each input as indicated in the table on page 9.
3. Refer to the illustration on page 7 for other configurations.
4. Connect +V dc power to terminal 34 on the 34-51 row (C).

- Connect -V to terminal 35 on the 34-51 row (C).

WARNING

Make certain that you power these modules with an intrinsically safe power supply. Do not exceed the values listed in the specifications for these modules.

If you connect or disconnect wiring while the field-side power is on, an electrical 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.

- If continuing power to the next terminal base unit, connect a jumper from terminal 50 (+V) on this base unit to terminal 34 on the next base unit.
- If continuing common to the next terminal base unit, connect a jumper from terminal 51 (-V) on this base unit to terminal 35 on the next base unit.

Wiring

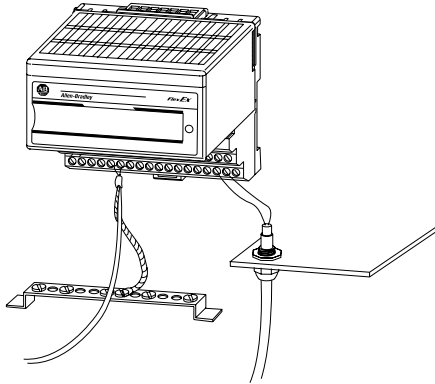
Input	Input Source	Input Signal	Input Return	Input	Input Source	Input Signal	Input Return
Input 0	A-0	A-1	A-2	Input 4	B-17	B-18	B-19
Input 1	A-4	A-5	A-6	Input 5	B-21	B-20	B-23
Input 2	A-8	A-9	A-10	Input 6	B-25	B-26	B-27
Input 3	A-12	A-13	A-14	Input 7	B-29	B-30	B-31
+V	Terminals 34 and 50						
-V	Terminals 35 and 51						
Terminals 16, 33, 40, 41, 42, 43, 44 and 45 are connected to chassis ground.							

ATTENTION

Do not use the unused terminals on this terminal base unit. Using these terminals as supporting terminals can result in damage to the module and/or unintended operation of your system.

Grounding

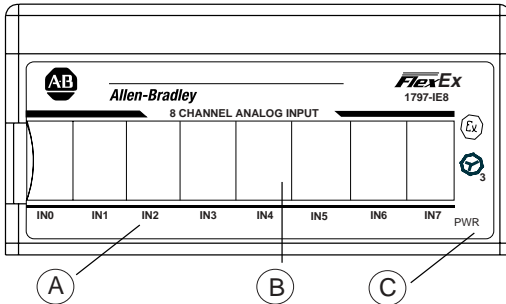
All I/O wiring must use shielded wire. Shields must be terminated external to the module, such as bus bars and shield-terminating feed throughs.



30820-M

Indicators

1797-IE8
shown



42054

A = Status Indicators - flashing red - channel fault - Channel 0 indicator will turn red while power-up check is running

B = Insertable labels for writing individual input designations

C = Power Indicator - green indicates power applied to module

Input Map (Read Words)

Bit⇒	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Word ↓	Read															
0	Channel 0 Input Data															
1	Channel 1 Input Data															
2	Channel 2 Input Data															
3	Channel 3 Input Data															
4	Channel 4 Input Data															
5	Channel 5 Input Data															
6	Channel 6 Input Data															
7	Channel 7 Input Data															
8	Ovr Alm ch7	Ovr Alm ch6	Ovr Alm ch5	Ovr Alm ch4	Ovr Alm ch3	Ovr Alm ch2	Ovr Alm ch1	Ovr Alm ch0	Und Alm ch7	Und Alm ch6	Und Alm ch5	Und Alm ch4	Und Alm ch3	Und Alm ch2	Und Alm ch1	Und Alm ch0
9	Rm Flt ch7	Rm Flt ch6	Rm Flt ch5	Rm Flt ch4	Rm Flt ch3	Rm Flt ch2	Rm Flt ch1	Rm Flt ch0	Lo Flt ch7	Lo Flt ch6	Lo Flt ch5	Lo Flt ch4	Lo Flt ch3	Lo Flt ch2	Lo Flt ch1	Lo Flt ch0
10													Diagnostic Status			
11	Res Flg	Module command response						Module response data								
	Where: ch = channel Ovr Alm = Over Alarm Und Alm = Under Alarm Rm Flt = Remote Fault Lo Flt = Local Fault Res Flg = Response Flag															

AB Drive

Output Map (Write Words)

Bit⇒	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00
Word ↓	Write															
0			High and Low Error Level				u/d 0-3		Filter Cutoff 0-3			Data Format		Fit Md		
1			High and Low Error Level				u/d 0-3		Filter Cutoff 0-3			Data Format		Fit Md		
2	cd flg	Module command						Module command data								
Where: u/d = up/down Fit Md = Fault Module Cd Flg = Command Flag																

Fault Mode - Write Words 0 and 1

Word 0	Bit 00	Fault enable for channels 0-3
Word 1	Bit 00	Fault enable for channels 4-7

Where: 0 = disabled

1 = enable with wire-off overload

"Add-On" Filter Selections - Write Words 0 and 1

Word	Bits			Description
0	07	06	05	Channels 0-3
1	07	06	05	Channels 4-7
	0	0	0	Hardware filtering only (default filtering)
	0	0	1	40Hz (25ms)
	0	1	0	20Hz (50ms)
	0	1	1	10Hz (100ms)
	1	0	0	4Hz (250ms)
	1	0	1	2Hz (500ms)
	1	1	0	1Hz (1s)
	1	1	1	0.5Hz (2s)

Remote Transmitter Error Up/Down - Write Words 0 and 1

Word 0	Bit 08	Up/down channels 0-3
Word 1	Bit 08	Up/down channels 4-7

Where: 0 = up

1 = down

Data Format - Write Words 0 and 1

Word	Bits				Description
	04	03	02	01	
Word 0	04	03	02	01	Data format for channels 0-3
Word 1	04	03	02	01	Data format for channels 4-7
	0	0	0	0	0-22mA, w/error steps (default)
	0	0	0	1	0-22mA = 0 to 110%, w/error steps
	0	0	1	0	0-22mA = 0 to 104.8%, square root, w/error steps
	0	0	1	1	0-22mA = 0 to 65,535, unsigned integer, w/error steps
	0	1	0	0	2-22mA, w/error steps
	0	1	0	1	2-22mA = -12.5% to 112.5%, w/error steps
	0	1	1	0	4-22mA = 0 to 106%, square root, w/error steps
	0	1	1	1	4-20mA = 0 to 65,535, unsigned integer, w/error steps
	1	0	0	0	Not assigned
	1	0	0	1	Not assigned
	1	0	1	0	Not assigned
	1	0	1	1	0-22mA = A/D count, w/fixed error
	1	1	0	0	3.6-21mA = NAMUR NE 43, w/fixed error
	1	1	0	1	3-21mA = -6.25 to 106.28% w/fixed error
	1	1	1	0	2-22mA = -12.5 to 112.5% w/fixed error
	1	1	1	1	Not assigned

AB Drive

Error Level 0.1mA Steps

	Bits					Description
Word 0	13	12	11	10	9	Error level channels 0-3
Word 1	13	12	11	10	9	Error level channels 4-7
	0	0	0	0	0	Disabled
						0.1mA * binary valve = remote fault alarm
						Examples
Data Format 2-22mA -12.5 to 112.5%	0	0	1	1	1	Binary value = 7, 0.1mA * 7 = 0.7mA Remote fault alarm at -4.38% or +104.38%
	0	1	1	1	1	Binary value = 15, 0.1mA * 15 = 1.5mA Remote fault alarm at -9.38% or + 109.38%




Repair

This module is not field-repairable. Any attempt to open this module will void the warranty and IS certification. If repair is necessary, return this module to the factory.

Specifications - 1797-IE8, -IE8H, and -IE8NF	
Number of Inputs	8 single-ended, non-isolated
IS Input Type	EEx ia IIB/IIC T4, AEx ia IIC T4, Class I, II, III Division 1 Groups A-G T4 (1797-IE8, -IE8H) Class I, II, III Division 1 & 2 Groups A-G T4 (1797-IE8NF)
IS Module Type	EEx ib IIB/IIC T4, AEx ib IIC T4, Class I Division 1 Groups A-D T4 (1797-IE8, -IE8H) Class I Division 1 & 2 Groups A-D T4 (1797-IE8NF)
Resolution	16 bits
Transfer Characteristics	
Accuracy at 20°C (68°F)	0.1% of output signal range
Temperature Drift	0.005%/C of output signal range
Functional Data Range	>15V @22mA >21.5V @ 0mA
Data Format	Configurable
Step Response to 99% of FS	4ms
Module from Adapter Best/Worst Update Time	50/1450μs
Indicators	8 red fault indicators 1 green power
Output (Intrinsically Safe) (16 position male/female flexbus connector)	$U_i \leq 5.8V$ dc $I_i \leq 400mA$ $L_i =$ Negligible $C_i \leq 1.35\mu F$
Isolation Path	Isolation Type
Input to Power Supply	Galvanic to DIN EN50020
Input to Flexbus	Galvanic to DIN EN50020
Input to Input	None
Power Supply to Flexbus	Galvanic to DIN EN50020
Power Supply (+V, -V intrinsically safe)	$U_i \leq 9.5V$ dc $I_i \leq 1A$ $L_i =$ Negligible $C_i =$ Negligible
Module Field-side Power Consumption	7.5W

AB Drive

16 FLEX Ex 8 Input Analog, HART, and Noise Filter Analog Modules

Specification 1797-IE8, -IE8H, and -IE8NF (Continued)	
Power Dissipation	5.2W
Thermal Dissipation	17.75 BTU/hr
Module Location	Cat. No. 1797-TB3 or -TB3S
Conductor Wire Size	12 gauge (4mm ²) stranded maximum 3/64in (1.2mm) insulation maximum
Dimensions	46mm x 94mm x 75mm (1.8in x 3.7in x 2.95in)
Weight	200g (approximately)
Keyswitch Position	3
Environmental Conditions	
Operational Temperature	-20 to +70°C (-4 to +158°F)
Storage Temperature	-40 to +85°C (-40 to +185°F)
Relative Humidity	5 to 95% noncondensing
Shock Operating	Tested to 15g peak acceleration, 11(+1)ms pulse width
Nonoperating	Tested to 15g peak acceleration, 11(+1)ms pulse width
Vibration	Tested 2g @ 10-500Hz per IEC68-2-6
Agency Certification	
CENELEC	II (1) 2G EEx ia/ib IIB/IIC T4 II (1D) (2D)
UL, C-UL	Class I Division 1 & 2 Groups A-D T4 Class I Zone 1 & 2 AEx ib/[ia] IIC T4
FM	Class I Division 1 Groups A-D T4 Class I Zone 1 AEx ib/[ia] IIC T4
Certificates	
CENELEC	DMT 98 ATEX E 020 X 
UL, C-UL	UL Certificate Number 99.19699 c  US Class I Division 1 Hazardous
FM	FM Certificate Number 3009806 

CE, CENELEC I/O Entity Parameters

Measurement input (sig to -) for ch 0 to ch 7 (terminals: 1-2; 5-6; 9-10; 13-14; 18-19; 22-23; 26-27; 30-31)

	Protection	Group	Allowed Capacitance	Allowed Inductance
$U_o = 5V$ $I_o = 1mA$ $P_o = 1.3mW$ $U_i = 28V$ $I_i = 93mA$ C_i and L_i negligible	EEx ia	IIB	1000 μ F	1H
		IIC	100 μ F	1H

Source output (+ to sig) for ch 0 to ch 7

(terminals: 0-1; 4-5; 8-9; 12-13; 17-18; 21-22; 25-26; 29-30)

	Protection	Group	Allowed Capacitance	Allowed Inductance
$U_o = 23.7V$ $I_o = 92.5mA$ $P_o = 548mW$	EEx ia	IIB	560nF	10mH
		IIC	66nF	2.5mH
If concentrated capacitance and/or inductance are available, use the following values.	EEx ia	IIB	320nF	10mH
		IIC	60nF	2mH

AB Drive

18 FLEX Ex 8 Input Analog, HART, and Noise Filter Analog Modules

Source output plus measurement input (+ to -) for ch 0 to ch 7 (terminals: 0-2; 4-6; 8-10; 12-14; 17-19; 21-23; 25-27; 29-31)

	Protection	Group	Allowed Capacitance	Allowed Inductance
$U_0 = 23.7V$ $I_0 = 93.5mA$ $P_0 = 555mW$	EEx ia	IIB	560nF	10mH
		IIC	66nF	2.5mH
If concentrated capacitance and/or inductance are available, use the following values.	EEx ia	IIB	320nF	10mH
		IIC	60nF	2mH

UL, C-UL I/O Entity Parameters

If this product has the UL/C-UL mark, it has been designed, evaluated, tested, and certified to meet the following standards:

- UL 913, 1988, Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III Division 1, Hazardous (Classified) Locations
- UL 1203, Explosion-Proof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations
- UL 2279, Electrical Equipment for Use in Class I, Zone 0, 1, and 2 Hazardous (Classified) Locations
- UL 508, Industrial Control Equipment
- CSA C22.2 No. 157-92, Intrinsically Safe and Non-Incendive Equipment for Use in Hazardous Locations
- CSA C22.2 No. 30-M1986, Explosion-Proof Enclosures for Use in Class I Hazardous Locations
- CSA-E79-0-95, Electrical Apparatus for Explosive Gas Atmospheres, Part 0: General Requirements
- CSA-E79-11-95, Electrical Apparatus for Explosive Gas Atmospheres, Part 11: Intrinsic Safety “i”
- CSA C22.2 No. 14-95, Industrial Control Equipment

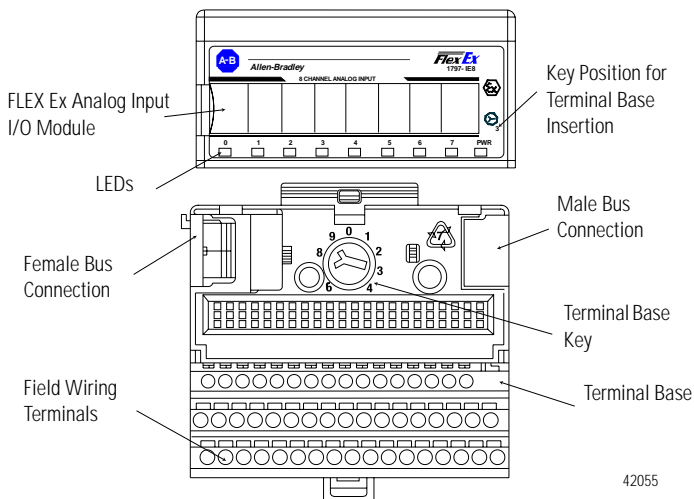
Wiring Methods

- Wiring method 1 - Each channel is wired separately.
- Wiring method 2 - Multiple channels in one cable, providing each channel is separated in accordance with the National Electric Code (NEC) or Canadian Electric Code (CEC).

AB Drive

Table 1

Wiring Method	Channel	Terminals	V _{oc} (V)	I _{sc} (mA)	V _t (V)	I _t (mA)	Groups	C _a (μF)	L _a (mH)
1 and 2	Any one channel e.g. ch0	0(+), 1(sig)	23.7	92.5	-	-	A, B, IIC	0.06	2.0
							C, E, IIB	0.18	8.0
							D, F, G, IIA	0.48	16.0
		1(sig), 2(-)	5	1.0	-	-	A, B, IIC	100	1000
							C, E, IIB	300	1000
							D, F, G, IIA	800	1000
		0(+), 1(sig), 2(-)	-	-	23.7	93.5	A, B, IIC	0.06	2.0
							C, E, IIB	0.18	8.0
							D, F, G, IIA	0.48	16.0



42055

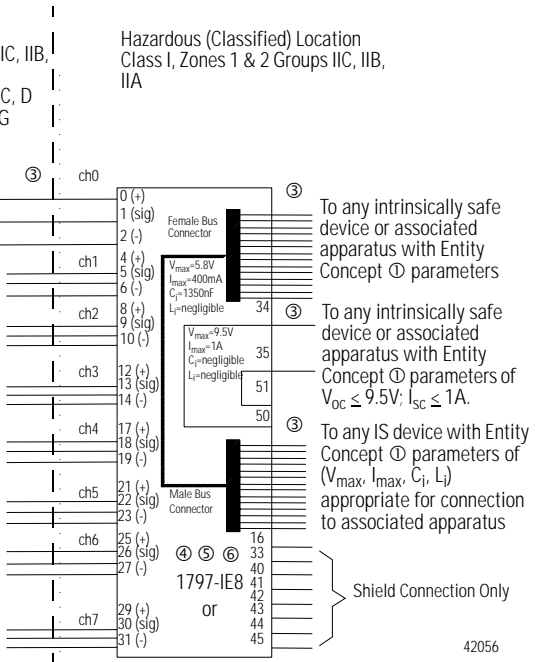
IMPORTANT

A terminal base may or may not have an I/O module installed.

Hazardous (Classified) Location
 Class I, Zones 0, 1, & 2 Groups IIC, IIB, IIA
 Class I, Div. 1 & 2 Groups A, B, C, D
 Class II, Div. 1 & 2 Groups E, F, G

Hazardous (Classified) Location
 Class I, Zones 1 & 2 Groups IIC, IIB, IIA

Any Simple Apparatus ② or I.S. device with Entity Concept parameters ① (V_{max} , I_{max} , C_i , L_i) appropriate for connection to associated apparatus with Entity Concept parameters listed in Table 1.



42056

AB Drive

Table 2

Terminals	V_t (V)	I_t (mA)	Groups	C_a (μ F)	L_a (μ H)
Male Bus Connector	5.8	400	A-G	3.0	3.0

① The entity concept allows interconnection of intrinsically safe apparatus with associated apparatus not specifically examined in combination as a system when the approved values of V_{oc} and I_{sc} or V_t and I_t of the associated apparatus are less than or equal to V_{max} and I_{max} of the intrinsically safe apparatus and the approved values of C_a and L_a of the associated apparatus are greater than $C_i + C_{cable}$ and $L_i + L_{cable}$ respectively for the intrinsically safe apparatus.

② Simple apparatus is defined as a device which neither generates nor stores more than 1.2V, 0.1A, 20 μ J, or 25mW.

③ Wiring methods must be in accordance with the National Electric Code, ANSI/NFPA 70, Article 504 and 505 or the Canadian Electric Code CSA C22.1, Part 1, Appendix F. For additional information refer to ANSI/ISA RP12.6.

④ This module, 1797-IE8, must be used with terminal base 1797-TB3 or 1797-TB3S.

⑤ Terminals 3, 7, 11, 15, 20, 24, 28, 32, 36-39, and 46-49 shall not be connected.

⑥ **WARNING:** Substitution of components may impair intrinsic safety. **AVERTISSEMENT:** La substitution de composant peut compromettre la securite intrinseque.

FM I/O Entity Parameters

If this product has the FM mark, it has been designed, evaluated, tested, and certified to meet the following standards:

- FM C1. No.3600:1998, Electrical Equipment for Use in Hazardous (Classified) Locations General Requirements
- FM C1. No.3610:1999, Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, III Division 1 Hazardous (Classified) Locations
- FM C1. No.3615:1989, Explosionproof Electrical Equipment General Requirements
- FM C1. No.3810:1989, 1995, Electrical and Electronic Test, Measuring and Process Control Equipment
- ANSI/NEMA 250, 1991, Enclosures for Electrical Equipment

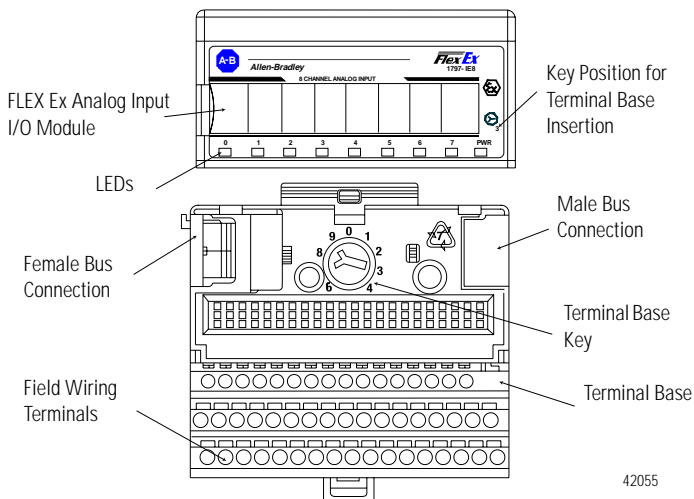
Wiring Methods

- Wiring method 1 - Each channel is wired separately.
- Wiring method 2 - Multiple channels in one cable, providing each channel is separated in accordance with the National Electric Code (NEC).

AB Drive

Table 1

Wiring Method	Channel	Terminals	V_{oc} (V)	I_{sc} (mA)	V_t (V)	I_t (mA)	Groups	C_a (μ F)	L_a (mH)
1 and 2	Any one channel e.g. ch0	0(+), 1(sig)	23.7	92.5	-	-	A, B	0.15	4.0
							C, E	0.45	12.0
							D, F, G	1.20	32.0
		1(sig), 2(-)	5	1.0	-	-	A, B	100	1000
							C, E	300	1000
							D, F, G	800	1000
		0(+), 1(sig), 2(-)	-	-	23.7	93.5	A, B	0.15	4.0
							C, E	0.45	12.0
							D, F, G	1.20	32.0



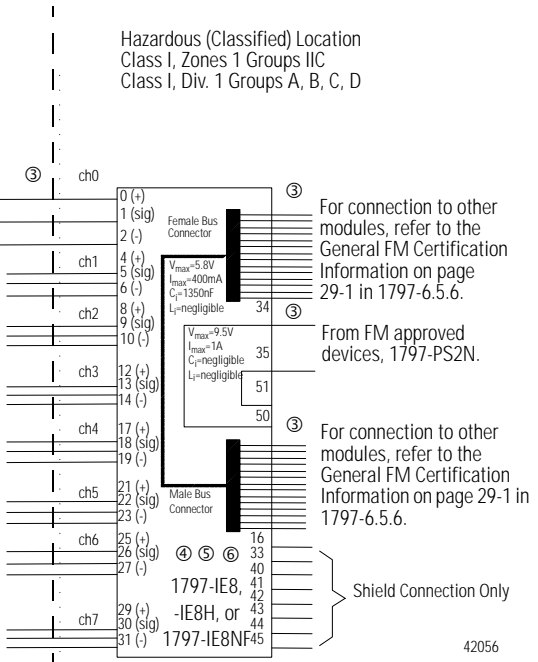
IMPORTANT

A terminal base may or may not have an I/O module installed.

Hazardous (Classified) Location
 Class I, Zones 0 Groups IIC
 Class I, Div. 1 Groups A, B, C, D
 Class II, Div. 1 Groups E, F, G
 Class III, Div. 1

Hazardous (Classified) Location
 Class I, Zones 1 Groups IIC
 Class I, Div. 1 Groups A, B, C, D

Any Simple Apparatus ② or FM approved device with Entity Concept parameters ① (V_{max} , I_{max} , C_i , L_i) appropriate for connection to associated apparatus with Entity Concept parameters listed in Table 1.



42056

AB Drive

Table 2

Terminals	V_t (V)	I_t (mA)	Groups	C_a (μ F)	L_a (μ H)
Male Bus Connector	5.8	400	A-G	3.0	3.0

- ① The entity concept allows interconnection of intrinsically safe apparatus with associated apparatus not specifically examined in combination as a system when the approved values of V_{oc} and I_{sc} or V_t and I_t of the associated apparatus are less than or equal to V_{max} and I_{max} of the intrinsically safe apparatus and the approved values of C_a and L_a of the associated apparatus are greater than $C_i + C_{cable}$ and $L_i + L_{cable}$ respectively for the intrinsically safe apparatus.
- ② Simple apparatus is defined as a device which neither generates nor stores more than 1.2V, 0.1A, 20 μ J, or 25mW.
- ③ Wiring methods must be in accordance with the National Electric Code, ANSI/NFPA 70, Article 504 and 505. For additional information refer to ANSI/ISA RP12.6.
- ④ This module, 1797-IE8, must be used with terminal base 1797-TB3 or 1797-TB3S.
- ⑤ Terminals 3, 7, 11, 15, 20, 24, 28, 32, 36-39, and 46-49 shall not be connected.
- ⑥ **WARNING:** Substitution of components may impair intrinsic safety.

IMPORTANT

For detailed certification information, refer to the FLEX Ex System Certification Reference Manual, publication 1797-6.5.6.

Attention: Avoid electrostatic charge.

AB Drive

Rockwell Automation Support

Rockwell Automation provides technical information on the web to assist you in using our products. At <http://support.rockwellautomation.com>, you can find technical manuals, a knowledge base of FAQs, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools.

For an additional level of technical phone support for installation, configuration and troubleshooting, we offer TechConnect Support programs. For more information, contact your local distributor or Rockwell Automation representative, or visit <http://support.rockwellautomation.com>.

Installation Assistance

If you experience a problem with a hardware module within the first 24 hours of installation, please review the information that's contained in this manual. You can also contact a special Customer Support number for initial help in getting your module up and running:

United States	1.440.646.3223 Monday – Friday, 8am – 5pm EST
Outside United States	Please contact your local Rockwell Automation representative for any technical support issues.

New Product Satisfaction Return

Rockwell tests all of our products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning and needs to be returned:

United States	Contact your distributor. You must provide a Customer Support case number (see phone number above to obtain one) to your distributor in order to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for return procedure.

www.rockwellautomation.com

Corporate Headquarters

Rockwell Automation, 777 East Wisconsin Avenue, Suite 1400, Milwaukee, WI, 53202-5302 USA, Tel: (1) 414.212.5200, Fax: (1) 414.212.5201

Headquarters for Allen-Bradley Products, Rockwell Software Products and Global Manufacturing Solutions

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444
Europe: Rockwell Automation SA/NV, Vorstlaan/Boulevard du Souverain 36-BP 3A/B, 1170 Brussels, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640
Asia Pacific: Rockwell Automation, 27/F Citicorp Centre, 18 Whitfield Road, Causeway Bay, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

Headquarters for Dodge and Reliance Electric Products

Americas: Rockwell Automation, 6040 Ponders Court, Greenville, SC 29615-4617 USA, Tel: (1) 864.297.4800, Fax: (1) 864.281.2433
Europe: Rockwell Automation, Brühlstraße 22, D-74834 Elztal-Dallau, Germany, Tel: (49) 6261 9410, Fax: (49) 6261 17741
Asia Pacific: Rockwell Automation, 55 Newton Road, #11-01/02 Revenue House, Singapore 307987, Tel: (65) 351 6723, Fax: (65) 355 1733

Publication 1797-5.5 - December 2003

PN 957726-77

Supersedes Publication 1797-5.5 - February 2001

Copyright © 2003 Rockwell Automation, Inc. All rights reserved. Printed in the U.S.A.