

FLAT PAK I/O MODULE SELECTION GUIDE

5 Volt Logic Voltage Only

AC INPUT

12 - 32 VAC	IDC5P
90 - 140 VAC	IAC5P

AC OUTPUT

12 - 140 VAC	OAC5P
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DC INPUT

10 - 32 VDC	IDC5P
90 - 140 VDC	IAC5P

DC OUTPUT

5 - 60 VDC	ODC5P
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AC INPUT MODULES FLAT PAK, PLUG-IN

12 - 32 VAC
90 - 140 VAC

DESCRIPTION

The Flat Pak AC input modules are used for sensing ON/OFF alternating current (AC) voltage levels. All AC input modules are designed with filtering on the input and a hysteresis amplifier for high noise rejection and transient free "clean" switching. Each module provides up to 4000 V_{rms} of optical isolation between the field inputs and the logic side of the circuit.

The Flat Pak module are typical used on user-designed printed circuit boards where the standard single channel or Quad Pak module do not provide an exact fit. The Flat Pak modules are also ideal for circuit boards designed for computer chassis (i.e., Intel's MultiBus, STD bus, etc.) because of its low profile.

Typical uses and applications include sensing the presence or absence of voltage or sensing contact closures from sources such as:

- Proximity Switches
- Limit Switches
- Selector Switches
- Push Button And Toggle Switches
- Thermostats

FEATURES

- Industry standard plug-in module
- 4000 VAC optical isolation
- UL recognized #E58169
- CSA certified #35852
- Operating temperature: -30 to 70° C
- Built-in filtering for transient suppression and noise rejection

ORDERING GUIDE

Input Voltage VAC	Logic Voltage	Part Number
12 - 32	5	IDC5
90 - 140	5	IAC5

AC INPUT MODULES FLAT PAK, PLUG-IN

12 - 32 VAC
90 - 140 VAC

SPECIFICATIONS

GENERAL - Applies To All Models

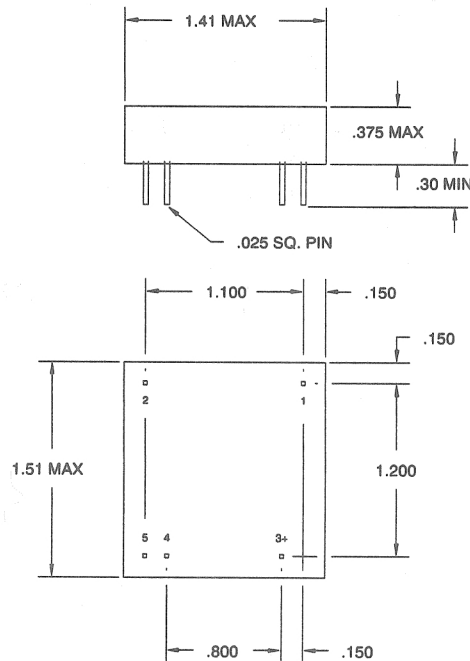
Operating Ambient Temperature:	-30 to 70° C
Isolation Input-To-Output:	4000 V _{rms}
Output Voltage Drop:	0.4 Volts @ 50 milliamperes
Output Current:	50 milliamperes
Output Leakage With No Input:	100 microamperes maximum @ 30 VDC
Output Transistor:	30 Volts breakdown

	Units	IDC5P	IAC5P
Input Voltage Range:	VAC	12 - 32	90 - 140
Input Current @ Maximum Line:	mA	25	11
Turn-on Time:	msec	5	20
Turn-off Time:	msec	5	20
Input Allowed For No Output:	mA, V	1, 3	3, 45
Logic Supply Voltage-Nominal:	VDC	5	5
Logic Supply Voltage Range:	VDC	4.5 - 6	4.5 - 6
Logic Supply Current:	mA	12	12
@ Nominal Logic Voltage*			
Input Resistance:	Ohms	1.5k	14k
(R1 in Schematic Diagram)			
Control Resistance:	Ohms	220	220
(Rc in Schematic Diagram)			

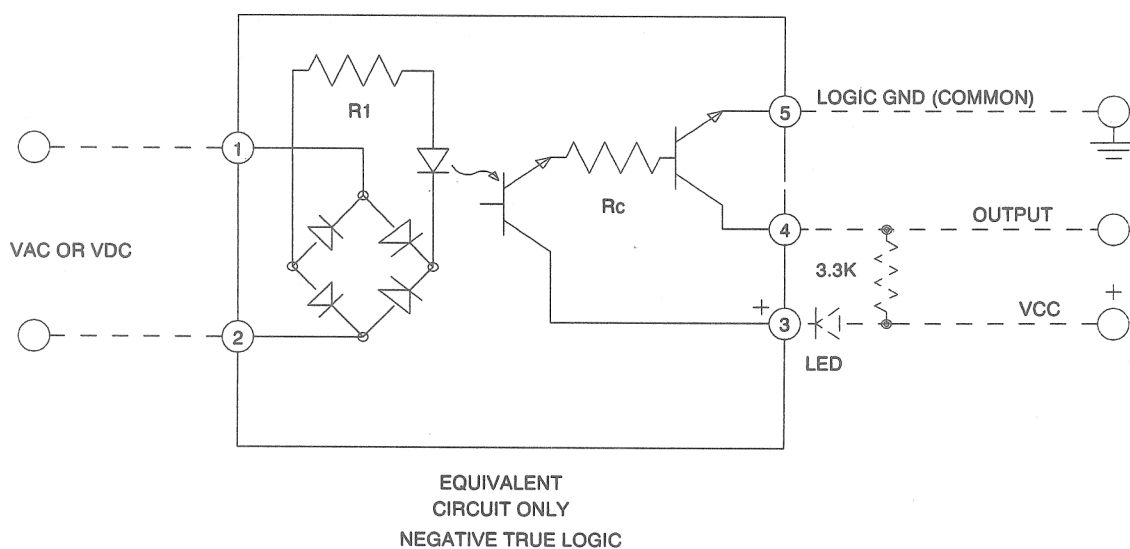
AC INPUT MODULES FLAT PAK, PLUG-IN

12 - 32 VAC
90 - 140 VAC

DIMENSIONS



SCHEMATIC



AC OUTPUT MODULES FLAT PAK, PLUG-IN

12 - 140 VAC

DESCRIPTION

The Flat Pak AC output modules are used for controlling or switching AC loads. Each module provides up to 4000 V_{rms} of optical isolation between the field devices and the control logic. With the exception of the OAC5A5 module, all AC output modules are equivalent to a single pole, single throw, normally open contact (FORM A, SPST-NO, Make). The OAC5A5 is equivalent to a single pole, single throw, normally closed contact (FORM B, SPST-NC, Break). All AC output modules feature zero voltage turn-on and zero current turn-off.

The Flat Pak module are typical used on user-designed printed circuit boards where the standard single channel or Quad Pak module do not provide an exact fit. The Flat Pak modules are also ideal for circuit boards designed for computer chassis (i.e., Intel's MultiBus, STD bus, etc.) because of its low profile.

Typical uses and applications for AC output modules include switching the following loads:

- Relays
- Solenoids And Contactors
- Motor Starters
- Heaters
- Lamps Or Indicators

FEATURES

- Industry standard plug-in module
- 4000 VAC optical isolation
- Current rating: 3 amperes @ 45° C
- Withstands one cycle surge of 80 amperes
- UL recognized #E58169
- CSA certified #35852
- Operating temperature: -30 to 70° C
- Zero voltage turn-on
- Zero current turn-off

ORDERING GUIDE

Line Voltage VAC	Logic Voltage	Part Number
12 - 140	5	OAC5P

AC OUTPUT MODULES FLAT PAK, PLUG-IN

12 - 140 VAC

SPECIFICATIONS

GENERAL - Applies To All Models

Current Rating:	
@ 45° C Ambient	3 amperes
@ 70° C Ambient	2 amperes
One Cycle Surge:	80 amperes peak
Peak Repetitive Voltage:	500 Volts
Operating Ambient Temperature:	-30 to 70° C
Isolation Input-To-Output:	4000 V _{rms}
Minimum Load Current:	20 milliamperes
Operating Frequency:	25 - 65 Hz
Turn-on Time:	1/2 cycle maximum - Zero Voltage
Turn-off Time:	1/2 cycle maximum - Zero Current
DV/DT - Off-state:	200 Volts/microsecond
DV/DT - Commutating:	Snubbed for rated 0.5 power factor load
Output Voltage Drop Maximum Peak:	1.6 Volts
Off-state Leakage:	5 milliamperes, rms

OAC5P

Line Voltage - Nominal:	120 VAC
Operating Voltage Range:	12 - 140 VAC
Logic Voltage - Nominal:	5 VAC
Logic Voltage Range (V _{cc}):	2.5 - 8 VDC
Logic Pickup Voltage:	2.55 VDC
Logic Dropout Voltage:	1 VDC
Logic Input Current:	12 mA
@ Normal Logic Voltage (I _{out} in Schematic Diagram)	
Control Resistance:	220 Ohms
(R _c in Schematic Diagram)	

12 - 140 VAC

AC OUTPUT

LOAD

VAC

OR

LOAD

ZERO VOLTAGE CIRCUIT

R_c

LED

VCC

3.3K

I OUT

EQUIVALENT CIRCUIT ONLY

NEGATIVE TRUE LOGIC

DC INPUT MODULES FLAT PAK, PLUG-IN

10 - 32 VDC
90 - 140 VDC

DESCRIPTION

The Flat Pak DC input modules are used for sensing ON/OFF DC voltage levels. All DC input modules with the exception of the IDC5B and the IDC5D are designed with filtering on the input and a hysteresis amplifier for high noise rejection and transient free "clean" switching. The IDC5B module is a fast switching input module for signals produced by photoelectric switches, encoders, DC proximity switches or TTL level devices. The IDC5D is a low cost, DC only, input module for use in data acquisition applications. Each module provides up to 4000 V_{rms} of optical isolation between the field inputs and the logic side of the circuit.

The Flat Pak module are typical used on user-designed printed circuit boards where the standard single channel or Quad Pak module do not provide an exact fit. The Flat Pak modules are also ideal for circuit boards designed for computer chassis (i.e., Intel's MultiBus, STD bus, etc.) because of its low profile.

Typical uses and applications include sensing the presence or absence of voltage or sensing contact closures from sources such as:

- Proximity Switches
- Limit Switches
- Selector Switches
- Push Button And Toggle Switches
- Photoelectric Switches
- TTL Compatible Devices

FEATURES

- Industry standard plug-in module
- 4000 VAC optical isolation
- UL recognized #E58169
- CSA certified #35852
- Operating temperature: -30 to 70° C

ORDERING GUIDE

Input Voltage VDC	Logic Voltage	Part Number
10 - 32	5	IDC5P
90 - 140	5	IAC5P

**DC INPUT MODULES
FLAT PAK, PLUG-IN**

**10 - 32 VDC
90 - 140 VDC**

SPECIFICATIONS

GENERAL - Applies To All Models

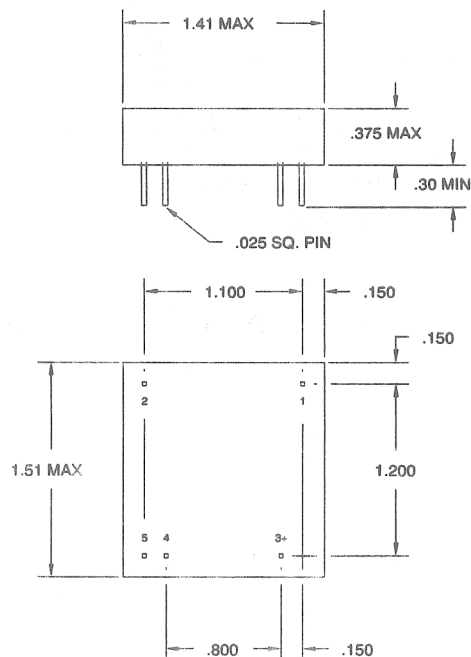
Operating Ambient Temperature:	-30 to 70° C
Isolation Input-To-Output:	4000 V _{rms}
Output Voltage Drop:	0.4 Volts @ 50 milliamperes
Output Current:	50 milliamperes
Output Leakage With No Input:	100 microamperes maximum @ 30 VDC
Transistor:	30 Volts breakdown

	Units	IDC5P	IAC5P
Input Voltage Range:	VDC	10 - 32	90 - 140
Input Current @ Maximum Line:	mA	25	11
Turn-on Time:	msec	5	20
Turn-off Time:	msec	5	20
Input Allowed For No Output:	mA, V	1, 3	3, 45
Logic Supply Voltage - Nominal:	VDC	5	5
Logic Supply Voltage Range:	VDC	4.5 - 6	4.5 - 6
Logic Supply Current:	mA	12	12
@ Nominal Logic Voltage*			
Input Resistance:	Ohms	1k	14k
(R1 in Schematic Diagram)			
Control Resistance:	Ohms	220	220
(Rc in Schematic Diagram)			

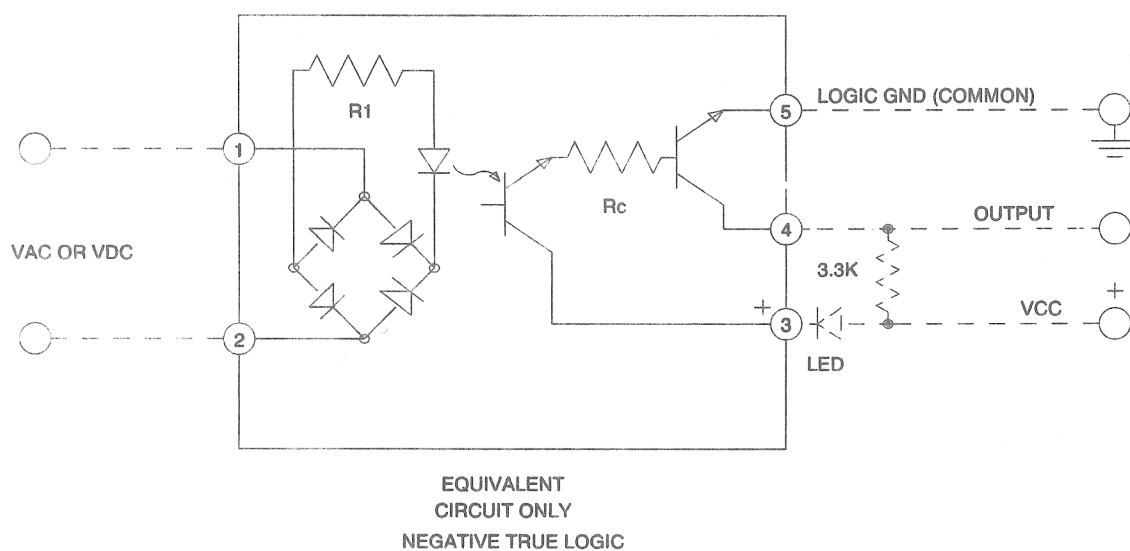
DC INPUT MODULES FLAT PAK, PLUG-IN

10 - 32 VDC
90 - 140 VDC

DIMENSIONS



SCHEMATIC



DC OUTPUT MODULES FLAT PAK, PLUG-IN

5 - 60 VDC

DESCRIPTION

The Flat Pak DC output modules are used for controlling or switching DC loads. Each module provides up to 4000 V_{rms} of optical isolation between the field devices and the control logic.

The Flat Pak module are typical used on user-designed printed circuit boards where the standard single channel or Quad Pak module do not provide an exact fit. The Flat Pak modules are also ideal for circuit boards designed for computer chassis (i.e., Intel's MultiBus, STD bus, etc.) because of its low profile.

Typical uses and applications for DC output modules include switching the following loads:

- DC Relays
- DC Solenoids
- DC Motor Starters
- DC Lamps Or Indicators

FEATURES

- Industry standard plug-in module
- 4000 VAC optical isolation
- Withstands one second surge at 5 amperes
- UL recognized #E58169
- CSA certified #35852
- Operating temperature: -30 to 70° C

ORDERING GUIDE

Line Voltage VDC	Logic Voltage	Part Number
5 - 60	5	ODC5P

DC OUTPUT MODULES FLAT PAK, PLUG-IN

5 - 60 VDC

SPECIFICATIONS

GENERAL - Applies To All Models

One Second Surge:	5 amperes
Operating Ambient Temperature:	-30 to 70° C
Isolation Input-To-Output:	4000 V _{rms}
Turn-on Time:	100 microseconds
Turn-off Time:	750 microseconds
Output Voltage Drop Maximum:	1.6 Volts

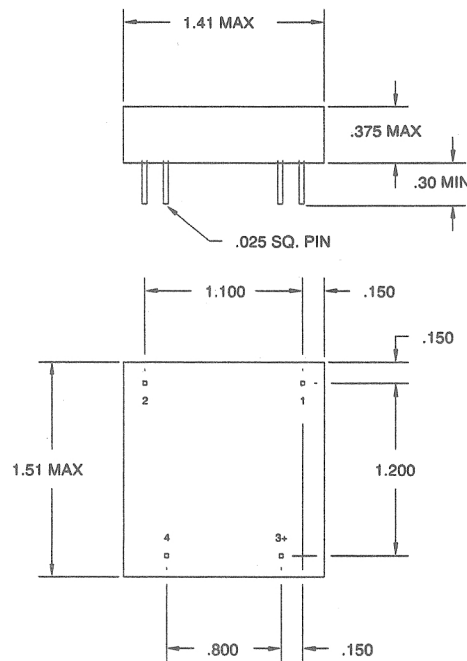
ODC5P

Line Voltage - Maximum:	60 VDC
Operating Voltage Range:	5 - 60 VDC
Current Rating:	
@ 45° C Ambient	3 Amps
@ 70° C Ambient	2 Amps
Off-state Leakage:	1 mA
@ Maximum Voltage	
Logic Voltage - Nominal:	5 VDC
Logic Voltage Range (V _{cc}):	2.5 - 8 VDC
Logic Pickup Voltage:	2.5 VDC
Logic Dropout Voltage:	1 VDC
Logic Input Current:	12 mA
@ Nominal Logic Voltage*	
Control Resistance:	220 Ohms
(R _c in Schematic Diagram)	

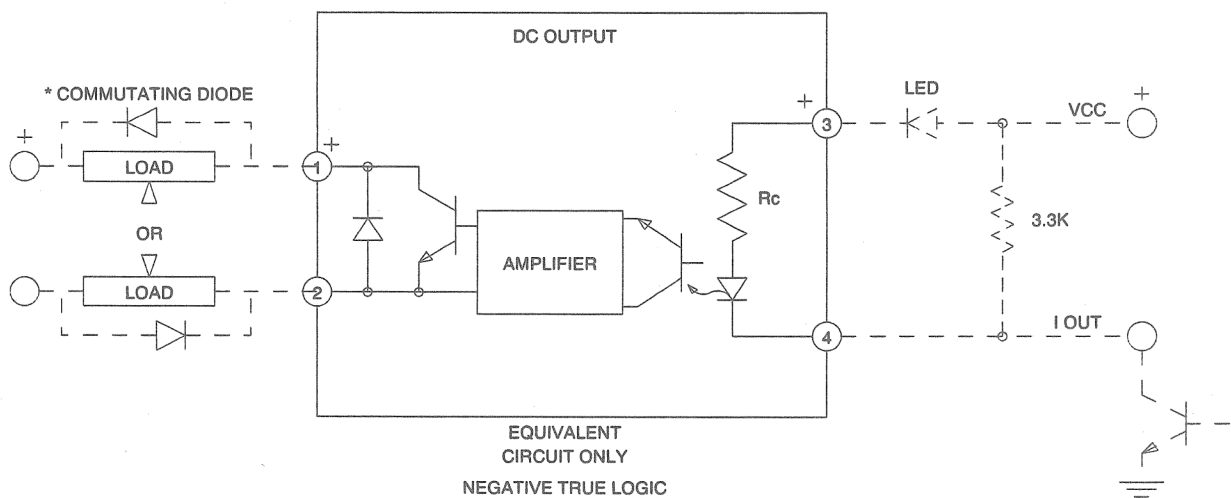
DC OUTPUT MODULE FLAT PAK, PLUG-IN

5 - 60 VDC

DIMENSIONS



SCHEMATIC



* Must be used on inductive loads.

Note: Also compatible with Totem Pole or 3-State Output.