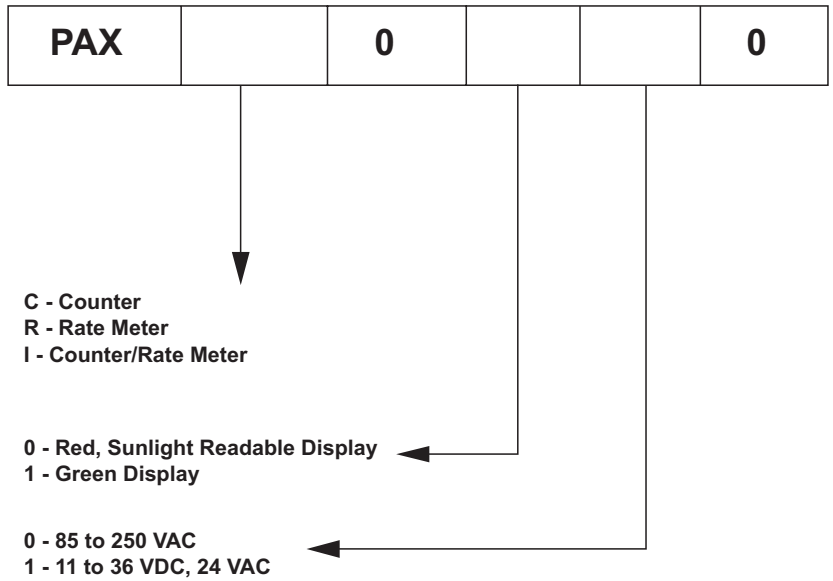


# TABLE OF CONTENTS

Ordering Information . . . . .	2	Installing Plug-In Cards . . . . .	8
General Meter Specifications . . . . .	3	Wiring the Meter . . . . .	9
PAXC Counter . . . . .	4	Reviewing the Front Buttons and Display . . .	11
PAXR Rate Meter . . . . .	4	Programming the Meter . . . . .	12
PAXI Counter/Rate Meter . . . . .	5	Factory Service Operations . . . . .	28
Optional Plug-In Output Cards . . . . .	6	Troubleshooting . . . . .	29
Installing the Meter . . . . .	7	Parameter Value Chart . . . . .	30
Setting the Jumper and DIP Switches . . . . .	7	Programming Overview . . . . .	32

# ORDERING INFORMATION

## Meter Part Numbers



## Option Card and Accessories Part Numbers

TYPE	MODEL NO.	DESCRIPTION	PART NUMBERS
Optional Plug-In Cards	PAXCDS	Dual Setpoint Relay Output Card	PAXCDS10
		Quad Setpoint Relay Output Card	PAXCDS20
		Quad Setpoint Sinking Open Collector Output Card	PAXCDS30
		Quad Setpoint Sourcing Open Collector Output Card	PAXCDS40
	PAXCDC	RS485 Serial Communications Output Card with Terminal Block	PAXCDC10
		Extended RS485 Serial Communications Output Card with Dual RJ11 Connector	PAXCDC1C
		RS232 Serial Communications Output Card with Terminal Block	PAXCDC20
		Extended RS232 Serial Communications Output Card with 9 Pin D Connector	PAXCDC2C
		DeviceNet Communications Card	PAXCDC30
		Modbus Communications Card	PAXCDC40
Extended Modbus Communications Card with Dual RJ11 Connector		PAXCDC4C	
Profibus-DP Communications Card	PAXCDC50		
		Analog Output Card	PAXCDL10
Accessories	SFPAX*	PC Configuration Software for Windows 3.x and 95 (3.5" disk)	SFPAX

\*Software can be downloaded from [www.redlion.net](http://www.redlion.net)

Shaded areas are only available for the PAXI

# OPTIONAL PLUG-IN OUTPUT CARDS



**WARNING: Disconnect all power to the unit before installing Plug-in cards.**

## Adding Option Cards

The PAX and MPAX series meters can be fitted with up to three optional plug-in cards. The details for each plug-in card can be reviewed in the specification section below. Only one card from each function type can be installed at one time. The function types include Setpoint Alarms (PAXCDS), Communications (PAXCDC), and Analog Output (PAXCDL). The plug-in cards can be installed initially or at a later date.

## PAXI COMMUNICATION CARDS (PAXCDC)

A variety of communication protocols are available for the PAX and MPAX series. Only one of these cards can be installed at a time. When programming the unit via RLCPro, a Windows® based program, the RS232 or RS485 Cards must be used.

PAXCDC10 - RS485 Serial (Terminal) PAXCDC30 - DeviceNet  
PAXCDC1C - RS485 Serial (Connector) PAXCDC40 - Modbus (Terminal)  
PAXCDC20 - RS232 Serial (Terminal) PAXCDC4C - Modbus (Connector)  
PAXCDC2C - RS232 Serial (Connector) PAXCDC50 - Profibus-DP

### SERIAL COMMUNICATIONS CARD

**Type:** RS485 or RS232  
**Isolation To Sensor & User Input Commons:** 500 Vrms for 1 min.  
Working Voltage: 50 V. Not Isolated from all other commons.  
**Data:** 7/8 bits  
**Baud:** 300 to 19,200  
**Parity:** no, odd or even  
**Bus Address:** Selectable 0 to 99, Max. 32 meters per line (RS485)  
**Transmit Delay:** Selectable for 2 to 50 msec or 50 to 100 msec (RS485)

### DEVICENET™ CARD

**Compatibility:** Group 2 Server Only, not UCMM capable  
**Baud Rates:** 12.5Kbaud, 250 Kbaud, and 500 Kbaud  
**Bus Interface:** Phillips 82C250 or equivalent with MIS wiring protection per DeviceNet™ Volume I Section 10.2.2.  
**Node Isolation:** Bus powered, isolated node  
**Host Isolation:** 500 Vrms for 1 minute (50 V working) between DeviceNet™ and meter input common.

### MODBUS CARD

**Type:** RS485; RTU and ASCII MODBUS modes  
**Isolation To Sensor & User Input Commons:** 500 Vrms for 1 minute.  
Working Voltage: 50 V. Not isolated from all other commons.  
**Baud Rates:** 300 to 38400.  
**Data:** 7/8 bits  
**Parity:** No, Odd, or Even  
**Addresses:** 1 to 247.  
**Transmit Delay:** Programmable; See Transmit Delay explanation.

### PROFIBUS-DP CARD

**Fieldbus Type:** Profibus-DP as per EN 50170, implemented with Siemens SPC3 ASIC  
**Conformance:** PNO Certified Profibus-DP Slave Device  
**Baud Rates:** Automatic baud rate detection in the range 9.6 Kbaud to 12 Mbaud  
**Station Address:** 0 to 126, set by the master over the network. Address stored in non-volatile memory.  
**Connection:** 9-pin Female D-Sub connector  
**Network Isolation:** 500 Vrms for 1 minute (50 V working) between Profibus network and sensor and user input commons. Not isolated from all other commons.

## PROGRAMMING SOFTWARE

The SFPAX is a Windows® based program that allows configuration of the PAX meter from a PC. Using the SFPAX makes it easier to program the PAX meter and allows saving the PAX program in a PC file for future use. On-line help is available within the software. A PAX serial plug-in card is required to program the meter using the software.

## SETPOINT CARDS (PAXCDS)

The PAX and MPAX series has 4 available setpoint alarm output plug-in cards. Only one of these cards can be installed at a time. (Logic state of the outputs can be reversed in the programming.) These plug-in cards include:

PAXCDS10 - Dual Relay, FORM-C, Normally open & closed  
PAXCDS20 - Quad Relay, FORM-A, Normally open only  
PAXCDS30 - Isolated quad sinking NPN open collector  
PAXCDS40 - Isolated quad sourcing PNP open collector

### DUAL RELAY CARD

**Type:** Two FORM-C relays  
**Isolation To Sensor & User Input Commons:** 2000 Vrms for 1 min.  
Working Voltage: 240 Vrms  
**Contact Rating:**  
One Relay Energized: 5 amps @ 120/240 VAC or 28 VDC (resistive load),  
1/8 HP @120 VAC, inductive load  
Total current with both relays energized not to exceed 5 amps  
**Life Expectancy:** 100 K cycles min. at full load rating. External RC snubber extends relay life for operation with inductive loads  
**Response Time:** 5 msec. nominal with 3 msec. nominal release  
**Time Accuracy:** Counter = ± 0.01% + 10 msec.  
Rate = ± 0.01% + 20 msec.

### QUAD RELAY CARD

**Type:** Four FORM-A relays  
**Isolation To Sensor & User Input Commons:** 2300 Vrms for 1 min.  
Working Voltage: 250 Vrms  
**Contact Rating:**  
One Relay Energized: 3 amps @ 250 VAC or 30 VDC (resistive load), 1/10 HP @120 VAC, inductive load  
Total current with all four relays energized not to exceed 4 amps  
**Life Expectancy:** 100K cycles min. at full load rating. External RC snubber extends relay life for operation with inductive loads  
**Response Time:** 5 msec. nominal with 3 msec. nominal release  
**Time Accuracy:** Counter = ± 0.01% + 10 msec.  
Rate = ± 0.01% + 20 msec.

### QUAD SINKING OPEN COLLECTOR CARD

**Type:** Four isolated sinking NPN transistors.  
**Isolation To Sensor & User Input Commons:** 500 Vrms for 1 min.  
Working Voltage: 50 V. Not Isolated from all other commons.  
**Rating:** 100 mA max @  $V_{SAT} = 0.7$  V max.  $V_{MAX} = 30$  V  
**Response Time:** Counter = 25 µsec; Rate = Low Update time  
**Time Accuracy:** Counter = ± 0.01% + 10 msec.  
Rate = ± 0.01% + 20 msec.

### QUAD SOURCING OPEN COLLECTOR CARD

**Type:** Four isolated sourcing PNP transistors.  
**Isolation To Sensor & User Input Commons:** 500 Vrms for 1 min.  
Working Voltage: 50 V. Not Isolated from all other commons.  
**Rating:** Internal supply: 24 VDC ± 10% , 30 mA max. total  
External supply: 30 VDC max., 100 mA max. each output  
**Response Time:** Counter = 25 µsec; Rate = Low Update time  
**Time Accuracy:** Counter = ± 0.01% + 10 msec.  
Rate = ± 0.01% + 20 msec.

## PAXI LINEAR DC OUTPUT (PAXCDL)

Either a 0(4)-20 mA or 0-10 V retransmitted linear DC output is available from the analog output plug-in card. The programmable output low and high scaling can be based on various display values. Reverse slope output is possible by reversing the scaling point positions.

PAXCDL10 - Retransmitted Analog Output Card

### ANALOG OUTPUT CARD

**Types:** 0 to 20 mA, 4 to 20 mA or 0 to 10 VDC  
**Isolation To Sensor & User Input Commons:** 500 Vrms for 1 min.  
Working Voltage: 50 V. Not Isolated from all other commons.  
**Accuracy:** 0.17% of FS (18 to 28°C); 0.4% of FS (0 to 50°C)  
**Resolution:** 1/3500  
**Compliance:** 10 VDC: 10 KΩ load min., 20 mA: 500 Ω load max.  
**Response Time:** 50 msec. max., 10 msec. typ.