

# DPWL\*: sensore rilevatore perdite gas refrigerante / Gas Sensor leakage / Capteur détection de gaz / Kältegasdetektor / Sensor detector de fugas de gas refrigerante



## Descrizione generale

Il sensore rilevatore di gas refrigerante è un dispositivo che segnala le fughe dei più comuni gas (R22, R134a, R404a, R407c, R410a, R290, NH<sub>3</sub>, Etilene e CO<sub>2</sub>). Può essere utilizzato in applicazioni stand-alone, integrato con i controllori Carel, o con dispositivi di terze parti. Prevede il collegamento con il controllo Carel attraverso l'uscita analogica, digitale, o tramite collegamento seriale RS485 Modbus®. Quando viene rilevata la perdita oltre una certa concentrazione, il sensore segnala al controllo l'allarme e attiva localmente una segnalazione acustica e visiva e contemporaneamente un relè (SPDT). Offre il vantaggio di intervenire tempestivamente sulle perdite di gas evitando il fermo macchina e garantendo la sicurezza per le persone che soggiornano nelle vicinanze. Ogni modello è calibrato per uno specifico gas e viene installato tipicamente in edifici nuovi o esistenti, che richiedono un monitoraggio continuo delle perdite di gas. La sua installazione permette il rispetto delle normative Europee F-GAS e EN378 as well as ASHRAE 15. Available in semiconductor or infrared version with enclosure IP41 and IP66 versions, built-in and with remote sensor.

## Caratteristiche tecniche

	Versione Semiconductor R22, R134a, R404a, R407c, R410a, R290, NH <sub>3</sub> , Etilene	Versione Infrared R134a, R404a, R407a, R410a
Alimentazione:	12/24V+20% d.c./a.c. 50/60 Hz	136mA
Consumo elettrico (a 12V):	153mA	136mA
Controllo in funzione:	Led verde	
Visualizzazione allarme:	Led rosso	
Allarme acustico:	abilitato/disabilitato	
Guasto durante il monito.:	Led rosso ON - Verde OFF	
Stato di quiesco:	1V, 2mA	1V, 2mA
Uscita analogica:	0-5V, 1-5V, 0-10V, 2-10V, 4-20mA	
Comunicazione seriale:	RS485 Modbus®	
Uscita digitale:	1 Relé nominale 1Amp/24 Vdc/ac	
Selectable delay:	0,1,5,10min	
Protezione IP:	IP41 versione built-in IP66 versione sensore remoto	IP66 built-in and remote remote sensor version
Campo di lavoro tipico:	0-1.000 ppm	0-10.000 ppm
Campo di lavoro:	-20T50°C	-40T50°C
Umidità senza condensa:	0 to 95%	
Vita del sensore attesa:	5-8 anni	
Soglia allarme	100 ppm	1500 ppm
Tempo di ripristino	600 s	210 s
Linearità	su un campo di taratura	
Lavoro:	• HCFC = 10 a 1.000 ppm (vers. semiconduttore) • HFC's = 10 a 1.000 ppm (vers. semiconduttore) • Carbon Dioxide = 0 to 10.000 ppm (vers. Infrared)	

Tab. 1

## Requisiti di calibrazione

Le normative locali potrebbero richiedere procedure di controllo per la calibrazione del sensore. Le principali normative richiedono almeno l'analisi annua e taratura. I sensori a semiconduttore e infrared CO<sub>2</sub> sono calibrati per un gas specifico. Il primo fatto dal costruttore, e successive dall'installatore. La versione Infrared (R134a, R404a, R407a, R410a) utilizza uno specifico elemento-sensore che non ha bisogno di calibrazione.

## Mantenzione per versione semiconduttore e CO<sub>2</sub> infrared

Test annuale	Per soddisfare la normativa EN378 e F-GAS è necessario eseguire il test di prova ogni anno
Ogni 3 anni	Si consiglia una taratura (vedi procedura di calibrazione nel manuale d'uso).
Ogni 5/6 anni	Si consiglia di cambiare l'elemento di rilevamento gas e fare una calibrazione.

Tab. 2

## Mantenzione per versione infrared R134a, R404a, R407a, R410a

Test annuale	Il Test deve essere eseguito annualmente come indicato dalle normative EN378 e F-GAS
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Tab. 3

Nota: dopo una fuga di gas consistente e prolungata all'esposizione, provvedere ad eseguire un controllo o alla sua sostituzione nel caso sia necessario. Per maggiori informazioni consultare il manuale tecnico (cod. +0300035IT e +0300035EN).

## Codici:

Semiconduttore (IP41)	Semiconduttore con sensore remoto 5 m (IP66)	Descrizione
DPWLA07000	DPWLA27000	R22 gas leak detector
DPWLB07000	DPWLB27000	Sensore rilevamento gas R134a
DPWLC07000	DPWLC27000	Sensore rilevamento gas R404a
DPWLRO7000		Sensore rilevamento gas R407a
DPWLWD07000	DPWLWD27000	Sensore rilevamento gas R407c
DPWLE07000	DPWLE27000	Sensore rilevamento gas R410a
DPWLQ07000		Sensore rilevamento gas NH3
DPWLQ07000		Sensore rilevamento gas ETILENE
DPWLQ07000		Sensore rilevamento gas R290
Infrared (IP41)	Infrared (IP66)	Infrared with 5 m remote sensor (IP66)
DPWLK07000		Sensore rilevamento gas R134a
DPWLQ07000		Sensore rilevamento gas R404a
DPWLQ07000		Sensore rilevamento gas R407a
DPWLQ07000		Sensore rilevamento gas R410a
DPWLQ07000	DPWL417000	Sensore rilevamento gas CO2

Options:

6133015AXX	*HCFC, HFC and ETHYLENE refrigerant gas sensor for semiconductor version
6133017AXX	HFC, HFC and ETHYLENE refrigerant gas sensor for semiconductor version cable 5m
6133017AXX	Elemento sensibile per gas refrigerante HCFC, HFC e ETILENE - per versione a semiconduttore con cavo 5m
6133019AXX	Elemento sensibile per gas refrigerante NH3 - per versione a semiconduttore
6133016AXX	Elemento sensibile per gas refrigerante CO2 - per versione a infrared
6133018AXX	Elemento sensibile per gas refrigerante CO2 - per vers. a infrared con cavo 5m
DPWLKIT000	Adattatore di calibrazione (tubo e cappuccio)
DPWLKIT010	Calibration adapter (hose and hood)
DPWLKIT010	Adattatore di calibrazione (tubo e 4 cappucci)
DPWLKIT100	Protection against water spray for IP66 version
DPWLKIT100	Protezione agli spruzzi per versioni IP66

## General description

The refrigerant gas leak sensor is a device that signals leakages of common gases (R22, R134a, R404a, R407c, R410a, R290, NH<sub>3</sub>, Ethylene and CO<sub>2</sub>). It can be used in stand-alone applications, or integrated into Carel controllers or third party devices. Connection to Carel controllers is made using an analogue or digital output or Modbus® RS485 serial connection. When leaks are detected exceeding a certain concentration, the sensor sends an alarm signal to the controller, activating a local audible and visual warning and a relay (SPDT). This allows prompt identification of gas leaks, avoiding having to shut the unit down and at the same time guaranteeing the safety of any people in the vicinity. Each model is calibrated for a specific gas and is typically installed in new or existing buildings that require continuous monitoring of gas leaks. Installation of the device ensures compliance with European standards F-GAS and EN378 as well as ASHRAE 15. Available in semiconductor or infrared version with enclosure IP41 and IP66, built-in and with remote sensor.

## Technical specifications

	Semiconductor version R22, R134a, R404a, R407c, R410a, R290, NH <sub>3</sub> , Ethylene	Infrared version CO <sub>2</sub>	Infrared version R134a, R404a, R407a, R410a
Power supply:	12/24V+20% dc/a.c. 50/60 Hz		
Power consumption (at 12V):	153mA	136mA	
Monitoring active:	Green LED		
Alarm display:	Red LED		
Audible alarm:	enabled/disabled		
Fault during monitoring:	Red LED ON - Green OFF		
Fault status:	1V, 2mA	1V, 2mA	
Analogue output:	0-5V, 1-5V, 0-10V, 2-10V, 4-20mA		
Serial communication:	Modbus® RS485		
Digital output:	1 relay rated at A/24 Vdc/ac		
Selectable delay:	0, 1, 5, 10min		
IP protection:	IP41 built-in version IP66 IP66 built-in and remote remote sensor version	IP66 built-in and remote sensor	
Typical operating range:	0-1.000 ppm	0-10.000 ppm	
Operating conditions:	-20T50°C	-40T50°C	
Non-condensing humidity:	0 to 95%		
Estimated sensor life:	5-8 years		
Alarm threshold:	100 ppm	1500 ppm	100 ppm
Reset time	600 s	210 s	
Linearity	on calibration field		
Laboratory:	• HCFC = 10 to 1.000 ppm (vers. semiconductor vers.) • HFC's = 10 to 1.000 ppm (vers. semiconductor vers.) • Carbon Dioxide = 0 to 10.000 ppm (vers. Infrared)		

Tab. 1

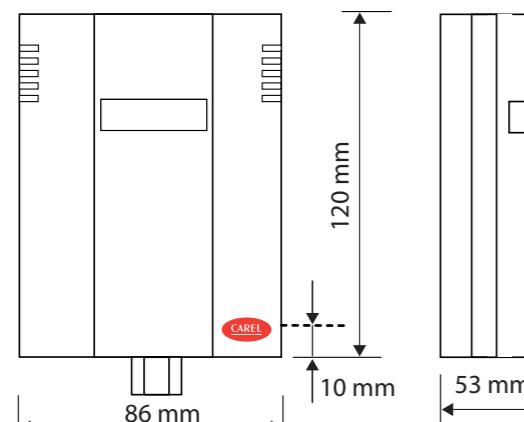
## Description générale

Le capteur détecteur de gaz réfrigérant est un dispositif qui signale les fuites des gaz les plus communs (R22, R134a, R404a, R407c, R410a, R290, NH<sub>3</sub>, Ethylène et CO<sub>2</sub>). Il peut être utilisé pour les applications stand-alone, il est intégré avec les contrôleurs Carel ou avec les dispositifs d'autres pièces. Il prévoit le raccordement avec le contrôle Carel à travers la sortie analogique, numérique ou par le raccordement série RS485 Modbus®. Lorsque la fuite est détectée au-delà d'une certaine concentration, le capteur signale au moment du contrôle l'alarme, il active localement une signalisation acoustique et visuelle et simultanément un relais (SPDT). Il offre l'avantage d'intervenir en temps utile sur les fuites de gaz, évitant de faire arrêter la machine et en garantissant la sécurité des personnes qui sont aux alentours. Chaque modèle est calibré pour un gaz spécifique, il est installé dans un bâtiment nouveau ou existant qui nécessite un suivi continu des fuites de gaz. L'installation de l'appareil garantit le respect des réglementations européennes F-GAS et EN378 ainsi que ASHRAE 15. Disponible dans les versions semi-conducteur ou infrarouge avec version intégrée IP41 et IP66 avec capteur à distance.

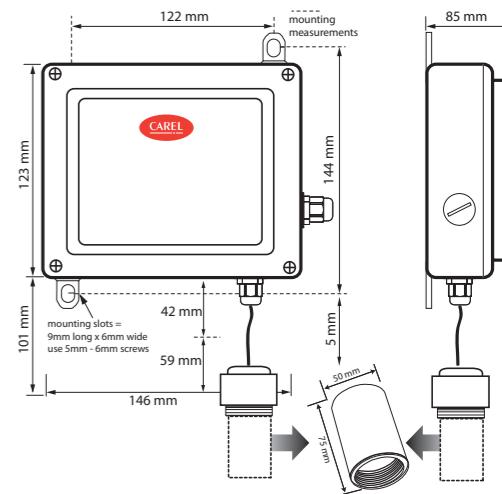
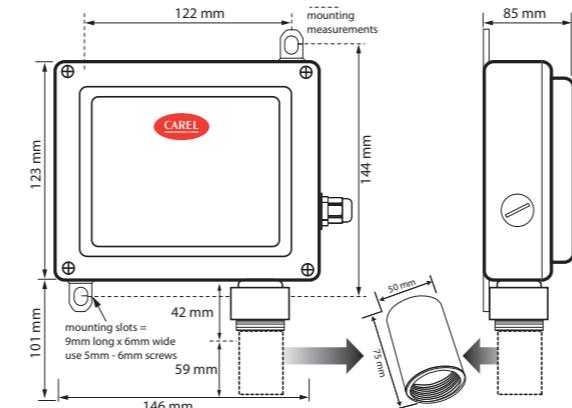
## Caractéristiques techniques

	Version Semiconductor R22, R134a, R404a, R407c, R410a, R290, NH <sub>3</sub> , Ethylène	Version Infrared CO <sub>2</sub>	Version infrarouge R134a, R404a, R407a, R410a
Alimentation:	12/24V+20% d.c./a.c. 50/60 Hz		
Power consumption (at 12V):	153mA	136mA	
Monitoring active:	Green LED		
Alarm display:	Red LED		
Audible alarm:	enabled/disabled		
Fault during monitoring:	Red LED ON - Green OFF		
Fault status:	1V, 2mA	1V, 2mA	
Analogue output:	0-5V, 1-5V, 0-10V, 2-10V, 4-20mA		
Serial communication:	Modbus® RS485		
Digital output:	1 relay rated at A/24 Vdc/ac		
Selectable delay:	0, 1, 5, 10min		
IP protection:	IP41 built-in version IP66 IP66 built-in and remote remote sensor version	IP66 built-in and remote sensor	
Typical operating range:	0-1.000 ppm	0-10.000 ppm	
Operating conditions:	-20T50°C	-40T50°C	
Non-condensing humidity:	0 to 95%		
Estimated sensor life:	5-8 years		</td

## Version IP44

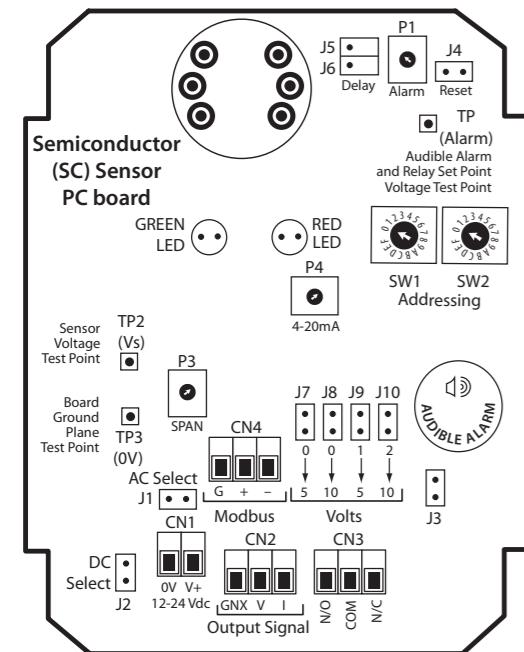


## Version IP66

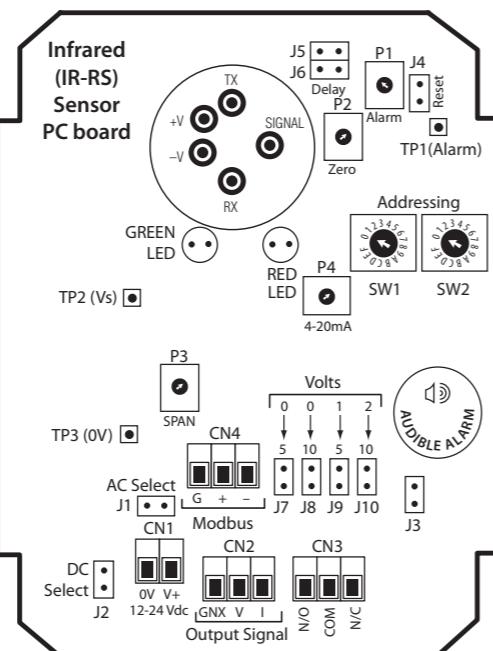


## Collegamenti elettrici e configurazione / Electrical connections and configuration / Raccordements électriques et configuration / Elektrische Anschlüsse und Konfiguration / Conexiones eléctricas y configuración

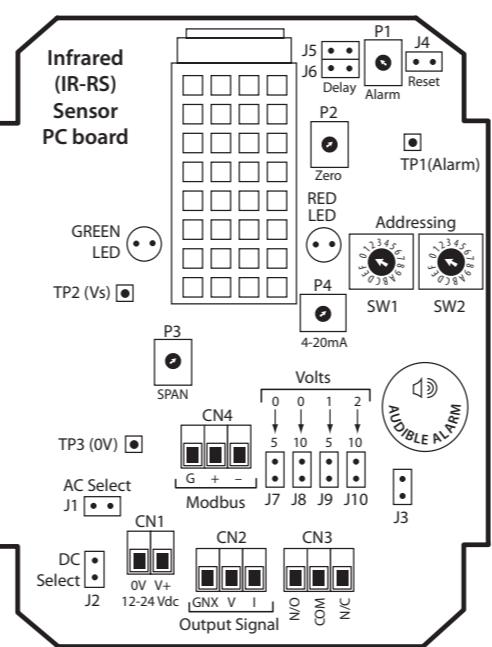
## Semiconductor sensor R22-R134a-R404a-R407a-R410a-R290 version



## Infrared sensor CO2 version



## Infrared R134a-R404a-R407a-R410a version

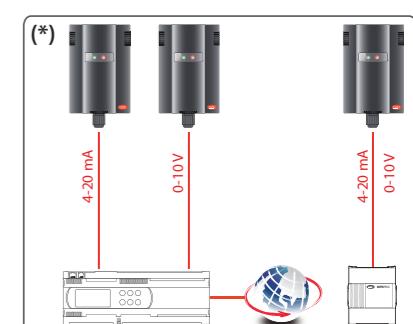
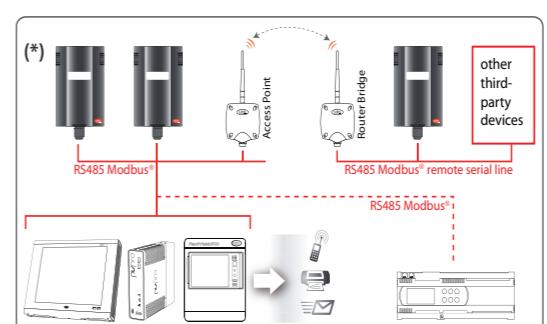


## Consigli per installazione / Installation tips / Conseils pour l'installation / Installationsempfehlungen / Consejos para la instalación

Per gas: R22 - R134a - R404a  
R407 - R410A - R290  
h max 300 mmPer gas: CO2  
h max 1500 mmPer gas: NH3 - ETHYLENE  
h max 300 mm

Nota: da installare vicino all'unità di raffreddamento. / Note: to be installed close the cooler unit.

## Esempi di collegamento / Connection examples / Exemples de raccordement / Anschlussbeispiele / Ejemplos de conexión



**Nota:** verificare compatibilità con l'applicativo del controllo.  
**Note:** check compatibility with the application on the controller  
**Note:** vérifier la compatibilité avec l'application de contrôle.

**NB:** Die Kompatibilität mit dem Anwendungsprogramm der Steuerung überprüfen  
**Nota:** verificar la compatibilidad con la aplicación de controlador.

## Legende

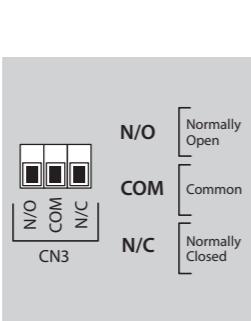
SW1 and SW2  
Modbus Addressing

ADDR (DEC)	SW1 (LSB)	SW2 (MSB)	
D00	0	0	Reserved Address
D01	1	0	Valid Addresses
D02	0	1	
⋮	⋮	⋮	
D17	1	1	
⋮	⋮	⋮	
247	7	7	Reserved Addresses
⋮	⋮	⋮	
248	8	F	
⋮	⋮	⋮	
255	F	F	

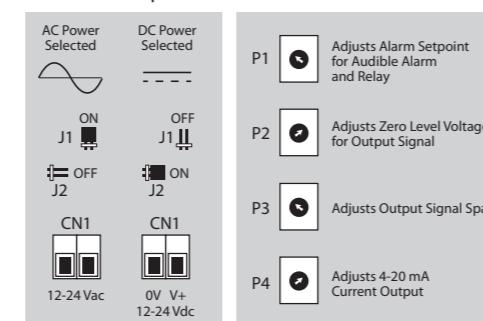
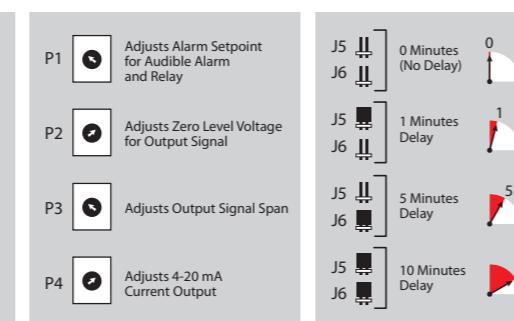
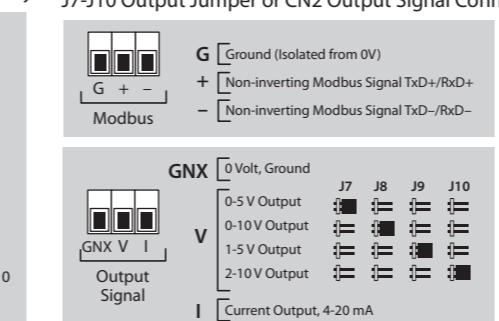
## J4 Reset Jumper

J3 Audible Alarm Jumper

## CN3 Relay Connector



## J1 and J2 Power Supply Selection Jumper

P1-P4 Adjustment Pots  
for Audible Alarm and RelayJ5 and J6 Delay Jumper for Audible Alarm and Relay  
J7-J10 Output Jumper or CN2 Output Signal Connector

**Nota:** verificare compatibilità con l'applicativo del controllo.  
**Note:** check compatibility with the application on the controller  
**Note:** vérifier la compatibilité avec l'application de contrôle.

**NB:** Die Kompatibilität mit dem Anwendungsprogramm der Steuerung überprüfen  
**Nota:** verificar la compatibilidad con la aplicación de controlador.



## Disposal of the product

The appliance (or the product) must be disposed of separately in compliance with the local standards in force on waste disposal.



**Important warnings:** The CAREL product is a state-of-the-art device, whose operation is specified in the technical documentation supplied with the product or can be downloaded, even prior to purchase, from the website www.carel.com. The customer (manufacturer, developer or installer of the final equipment) accepts all liability and risk relating to the configuration of the product in order to reach the expected results in relation to the specific final installation and/or equipment. The failure to complete such phase, which is required/indicated in the user manual, may cause the final product to malfunction; CAREL accepts no liability in such cases. The customer must use the product only in the manner described in the documentation relating to the product. The liability of CAREL in relation to its products is specified in the CAREL general contract conditions, available on the website www.carel.com and/or by specific agreements with customers.

CAREL reserves the right to modify the features of its products without prior notice.