



US Quattro



US Oneway



DT Quattro



US Hallway



Information

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### (2) Assembly / Installation / Dimensional Drawings



### US Quattro COM2-24 / DT Quattro COM2-24 / US Oneway COM2-24 / US Hallway COM2-24



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### US Quattro COM1-24 / DT Quattro COM1-24 / US Oneway COM1-24 / US Hallway COM1-24

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# **Operating Instructions**

#### Installer:

This product has been manufactured and 100% quality tested. Please read all of the instructions before installation. This will help you to be familiarized with all the features and options available to you with these devices. This will also assist you to minimize installation time and provide maximum energy savings and trouble-free operation.

## A Safety Warnings

- Disconnect the power supply before attempting any work on the sensor!
- Before installation, make sure that power has been switched off at the breaker and check that the circuit is dead with a voltage tester.
- Installing the sensor involves work on the line voltage power supply. This work must therefore be carried out professionally in accordance with the applicable Nation Electrical Codes and electrical operating conditions.
- Control output DIM-24 (1-10 V) must only be used for connecting electronic ballasts with an electrically isolated 10V dimming control input.

### Assembly/Installation (2) (see chart on page 2)

For indoor use only.

Sensor and load modules come preassembled and must be separated for access to the commissioning settings on the backside of sensor module by opening the locking tabs (1) on the sides. Reconnect and seat the sensor to the load module and secure the locking tabs (1) for normal operation. Accessories:

- WGC Wire Guard Cage
- RC 3 Service Remote
- RC 4 User Remote

### System Components

- Load module
- Sensor module
- Sensor control plate
  - ) Sensor DIP switch settings
    - (1) Normal / Test mode (2) Manual 'ON' / Automatic
    - 'ON' mode
    - (3) Momentary / Maintained switch option
    - (4) 'ON' only / 'ON'&'OFF' manual switching
    - (5) Constant light level DIM control option
    - (6)(7)(8) Trigger mode (DT Quattro only)

- (5) Light level setting
- Occupancy time delay setting Switching output 1
- (7) HVAC stay-'ON' time Switching output 2
- (8) HVAC switch-'ON' delay Switching output 2
- 9 Reach setting
- (10.1) COM1-24 Wiring
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- 10.4 DIM-24 Wiring
- 10.5 DIM-24 Multiple Sensor Wiring
- Locking mechanism
- (2) Assembly / Installation / Dimensional Drawings
- Stay 'ON' time DIM before 'OFF' option
- 14 Trigger mode options

### How it Works / Basic Function

The Control Pro DT Quattro and Ultrasonic presence detector product familiy is intended to control lighting and HVAC in commercial buildings, schools, public building, etc. Lighting is controlled in relation to both the presence of motion and ambient light levels. The HVAC output on the (COM2-24) is signaled in relation to only the presence of motion.

#### US Quattro COM1-24 DT Quattro COM1-24

#### US Oneway COM1-24 US Hallway COM1-24

1 switching output (COM1-24 Low Voltage) operating in relation to the detection of motion and ambient light level.

Settings:

- Light level setting
- Occupancy time delay, Pulse mode, IQ mode

#### US Quattro COM2-24 DT Quattro COM2-24 US Oneway COM2-24 US Hallway COM2-24

 low voltage switching output operating in relation to the detection of motion and ambient light level. An additional isolated normally open and normally closed set of dry contact closures for signaling HVAC (heating/ventilation/airconditioning) in relation only to the presence of persons.

Settings:

- Light level setting
- Occupancy time delay, Pulse mode, IQ mode
- HVAC stay-'ON' time
- HVAC switch-'ON' delay, Auto-HVAC mode

Commissioning adjustments are made by potentiometer or dip switch settings on the sensor or by the optional (RC3 service remote) commissioning tool.

#### US Quattro DIM-24 DT Quattro DIM-24 US Oneway DIM-24 US Hallway DIM-24

1 low voltage switching output operating in relation to the detection of motion and ambient light level. An additional isolated 1-10 volt dimming output operating in relation to the amount of daylight present.

Settings:

- Light level setting
- Occupancy time delay, IQ mode
- Stay 'ON' time DIM before 'OFF'
- Constant light level DIM control option

### **Detection Zone**

### US Quattro / DT Quattro Ultrasonic Detection / DT Quattro Infrared Detection



#### US Oneway / US Hallway Ultrasonic Detection

US ONEWAY --+ --

Coverage diagram at 9 ft mounting height.

One grid line = 1 m / 3.3 ft



#### Note:

- 1.) Tangential
  - motion perpendicular to the sensor
- 2.) Radial
  - motion either directly toward or away from the sensor
- 3.) Presence
  - minor motion as described by NEMA WD7 with the additional requirement of both radial and tangential detection

Ultrasonic signal can be increased by hard surfaces and decreased by soft surfaces.











# **Technical Specifications**

Dimensions (L x W x D)		US Quattro / DT Quattro COM1-24 / COM2-24 / DIM-24			
		120 x 120 x 68 mm / 4.72 x 4.72 x 2.68 inches			
		US Oneway / US Hallway COM1-24 / COM2-24 / DIM-24			
		120 x 120 x 73 mm / 4.72 x 4.72 x 2.8	7 inches		
Power supply:		US / DT Quattro COM1-24	18 - 24 VDC/VAC (30 mA) 50/60 Hz		
		US / DT Quattro COM2-24	18 - 24 VDC/VAC (34 mA) 50/60 Hz		
		US / DT Quattro DIM-24	18 - 24 VDC/VAC (46 mA) 50/60 Hz		
		US Oneway / US Hallway COM1-24	18 - 24 VDC/VAC (30 mA) 50/60 Hz		
		US Oneway / US Hallway COM2-24	18 - 24 VDC/VAC (34 mA) 50/60 Hz		
		US Oneway / US Hallway DIM-24	18 - 24 VDC/VAC (46 mA) 50/60 Hz		
Maximum load:		US Oneway / US Hallway COM1-24 / COM2-24 / DIM-24			
		Control output (Blue) 1 A @ 30 VAC/VDC 50/60 Hz			
		US Quattro / DT Quattro COM2-24 US Hallway COM2-24	/US Oneway /		
		Control output (Blue) 1 A @ 30 VAC/	/DC 50/60 Hz		
		HVAC dry contacts: Common (Yellow	v)		
		- Normally open (Yellow/Red)	*		
		- Normally closed (Yellow/Black) 1 A	@ 30 VAC/VDC 50/60 Hz		
		US Quattro/DT Quattro DIM-24 / US Oneway / US Hallway DIM-24			
		Control output (Blue) 1 A @ 30 VAC/VDC 50/60 Hz			
1 - 10 vol		- 10 volt dimming output (Purple & Grav)			
		100 mA, max. 50 (1 - 10 V electronic of	dimming ballasts)z		
Ultrasonic detection zones:		US Quattro / DT Quattro			
(Coverage at 2.5 m /					
9 ft installation height)		min. of 2 x 2 m (4 sq.m.)			
	Presence (ft):	: max. of 20 x 20 ft (400 sq.ft.)			
		min. of 6.5 x 6.5 ft (42.25 sq.ft.)			
	Radial/Tangential	(m): max. of up to 10x10 m (100 sq.m	ı.)		
		(ft): max. of up to 32 x 32 ft (1000 sq.f	t.)		
		US Oneway			
		max. of 2 x 10 m (20 sq.m.)			
		min. of 2 x 2.5 m (5 sq.m.)			
		max. of 6.5 x 33 ft (214.5 sq.ft.)			
		min. or 6.5 x 10 ft (65 sq.ft.)			
		$rac{1}{2}$ may of 2 x 20 m (40 cg m)			
		$min_{10} \circ f_{10}^2 \times 5 \ m(10 \ sq.m)$			
		max. of 6.5 x 65 ft (422.5 sq.ft.)			
		min. of 6.5 x 20 ft (130 sq.ft.)			
PIR detection zones:		DT Quattro COM1-24 / COM2-24 /	DIM-24		
	Presence (m)	max. of 3x3 m (9 sqm)			
	Presence (ft)	max. of 10x10 ft (100 sqft)			
	Radially (m)	max.of4x4m			
	Radially (ft)	max. of 13 x 13 ft			
	Tangentially (m):	max. of 8 x 8 m			
	Tangentially (ft):	max. of 26 x 26 ft			

Time setting:	Control output 30 sec 30 min.			
	Pulse mode (approx. 2 sec. 'ON' 8 sec. 'OFF') - for time delay relay IQ mode (automatic adjustment to the usage profile)			
	HVAC dry contacts (only in COM2-24)			
	0 sec 10 min. switch 'ON' delay			
	1 min 2 hrs. stay 'ON' time			
	Auto-HVAC mode 🛛 🔊			
Installation height:	US Quattro / DT Quattro COM1-24 / COM2-24 / DIM-24			
	2.5 - 3,5 m / 8 - 12 ft			
	US Oneway / US Hallway COM1-24 / COM2-24 / DIM-24			
	2.5 - 3,5 m / 8 - 12 ft			
Environment:	IP 20 - For indoor use only			
Sensor technology:	DT Quattro COM1-24 / COM2-24 / DIM-24			
	PIR (Passive Infrared), Single pyro, 11 detection levels, 520 switching zones			
	Ultrasonic 40 kHz			
	US Quattro / US Oneway / US Hallway COM1-24 / COM2-24 / DIM-24			
	Ultrasonic 40 kHz			
Protection class:	Class 2			
Temperature range:	0° F to +40° C / 32° F to 104° F			
Certifications:	UL & CUL Listed,			
	RoHS & California Compliant,			
	UL 2043 plenum rated			

### COM1-24 / COM2-24 / DIM-24

### DIP 1

#### Normal mode / Test mode (NORM / TEST)

Test mode has priority over all other settings on the presence detector and serves the purpose of checking for proper working order as well for testing the detection zone. Irrespective of ambient light level, the presence detector activates the light to stay 'ON' for approx. 8 sec. in response to movement in the room (blue LED flashes when movement is detected). All userselected potentiometer settings apply in normal mode. The presence detector can also be set by means of the blue LED without any load connected.

### DIP 2

#### Manual ON mode (MAN) / Automatic mode (AUTO)

#### Manual ON mode: (MAN)

The load will only switch 'OFF' automatically. Light is switched 'ON' sta

manually by the occupant and stays 'ON' for the time

#### Automatic mode: (AUTO)

The light automatically switches 'ON' and 'OFF' in relation to occupancy and daylight contribution. Light can be switched 'ON' and 'OFF' manually at any time. When switched 'OFF' manually this temporarily interrupts the automatic 'ON' function as long as the room is occupied. Once the room is no longer occupied setting of the sensor.

and the time delay of the sensor has elapsed the sensor will return to the automatic 'ON' function.

### DIP 3

#### Momentary / Maintained switch option

Tells the sensor how to interpret the incoming maintained or momentary switching signal. Assigning external (momentary) buttons / (maintained) switches allows you to operate the detector as a manual on unit or override it manually at any time. When using the DIM-24 power module and a momentary switch, light can be dimmed manually by pressing and holding the momentary switch until the desired light level is achieved. Maximum wire lenght between sensor and switch <50 m / 164 ft.

### DIP 4

#### 'ON' only / 'ON'&'OFF' manual switching

In the 'ON'-'OFF' setting, the light can be switched 'ON' and 'OFF' manually at any time (except in pulse mode: no manual 'OFF'). In the 'ON' setting, light can not be switched 'OFF' manually. The stay-'ON' time starts from the beginning again each time the button is pressed.

### DIM-24

### DIP 5

#### Constant light level DIM control option

Provides constant light level. Detector measures the level of daylight and activates sufficient artificial light to achieve the required level of light intensity. As daylight changes, the electric light is adjusted accordingly. In addition to the daylight component, electric light is also switched 'ON' and 'OFF' in relation to whether or not persons are present.

### DIP 6 / 7 / 8 Trigger mode

The trigger mode enables the user to choose which sensing technologies should be used to initially turn the load on and which technologies are required to keep it on. The following settings are possible:

- Both: Requires movement recognition by PIR and US
- Either: Requires movement recognition by PIR or US
- PIR: Requires movement recognition by PIR
- US: Requires movement recognition by US

#### Inital occupancy:

Sensor technology used to turn the load on (PIR, US, Both, Either)

#### Maintain Occupancy:

Sensor technology used to keep the load on after initial occupancy (PIR, US, Both, Either)

The trigger mode is selected by DIP switches 6, 7 & 8.



Trigger mode options (4)	Initial Occupancy	Maintain Occupancy	DIP 6	DIP 7	DIP 8
Option 1	Both	Either	OFF	OFF	OFF
Option 2	Both	Both	OFF	OFF	ON
Option 3	PIR	Either	OFF	ON	OFF
Option 4	US	Either	OFF	ON	ON
Option 5 (factory setting)	Either	Either	ON	OFF	OFF
Option 6	US	US	ON	OFF	ON
Option 7	PIR	PIR	ON	ON	OFF
Option 8	Either	Both	ON	ON	ON

### DT Quattro COM1-24 / COM2-24 / DIM-24

### Potentiometer (5)

#### Light level setting

The chosen response threshold can be adjusted from approx. 10 – 1000 lux / 1 – 100 fc. Control dial turned fully clockwise: MAX daylight mode Control dial turned fully counterclockwise: MIN night-time operation

Application Examples	Light level settings		
Night-time mode, minimum setting approx. 10 lux / 1 fc	min		
Corridors, foyers	1		
Stairs, escalators, moving walkways	2		
Restrooms, dining areas	3		
Classrooms, sales floors, gymnasiums	4		
Individual offices, conference and meeting rooms	5		
Laboratories, precision work areas	>=6		
Daylight mode	max		

Note: Depending on the site of installation, the setting may need to be corrected by 1 – 2 marks on the scale. Brightness is measured directly at the sensor.

### Potentiometer 6

#### Occupancy time delay setting

The occupancy time delay setting for switching output 1 is adjustable from a minimum of 30 seconds to a maximum of 30 minutes.

### Pulse mode (except DIM) $\square$

If the dial is set to 几 (fully counterclockwise), the unit is in pulse mode, i.e. the output is switched 'ON' for approx. 2 sec. Afterwards, the sensor does not respond to movement for approx. 8 sec. For use with a time delay relay.

#### IQ mode

Turned fully clockwise: The stay-'ON' time is self-learning and adjusts dynamically to user behaviour. The optimum time cycle is determined by means of a learning algorithm. The shortest time is 5 min., the longest 20 min.

### Potentiometer (7)

#### Stay-'ON' time for switching output 2 HVAC

Setting 1 sec. – 2 hr

- · Turned fully clockwise: max
- Turned fully counterclockwise: min

### Potentiometer (8)

#### Switch-'ON' delay for switching output 2 HVAC

- Setting 0 sec. 10 min.
- Turned fully clockwise: Auto-HVAC mode Image
- Turned fully counterclockwise: 0 sec. (OFF)

Turning the potentiometer to the "Auto-HVAC mode" setting reduces the sensitivity of the "Presence" switching output. The contact only closes after surveying the activity of the space and then, signaling with a high degree of certainty that multiple persons are present. The stay-'ON'- time remains active. The switch-'ON' delay is inactivated.

### DIM-24

### Potentiometer 13

#### Stay 'ON' time DIM before 'OFF' option

Provides basic illumination for the selected stay-'ON' time when are bient light falls below the selected brightness threshold that is set. This can be dimmed to 10% of maximum light intensity. As soon as a person is detected, the sensor switches either to 100% light intensity (constant-lighting controller 'OFF') or adjusts to the preselected brightness level (constant-lighting controller 'ON'). When no movement is detected and the occupancy time setting (6) has elapsed, the sensor dims light levels back to basic brightness after the stay 'ON' time (1 min. - 30 min.) has expired or the daylight level exceeds the selected level of brightness. If the occupancy time delay setting (a) is greater than the stay on time DIM before 'OFF' setting (b) the light will not dim before turning 'OFF'.

### Reach Adjustment (9)







### Potentiometer (9)

Adjusts ultrasonic reach to specific requirements. Reach can be adjusted by using the RC3 remote control commissioning tool.

### **Remote Control**

Using the remote control, functions can be conveniently activated from the floor. Note: The pulse mode cannot be overridden by the remote control. Switch pulse mode 'OFF' manually. Presence Control remote control unit: - RC 3 Service Remote - RC 4 User Remote

#### RC 3 Service Remote

#### Description

The RC 3 service remote (commissioning tool) gives the installer the ability to set basic functions of the entire line of Control Pro sensors via remote control. Each valid press of a button is indicated by a blue LED flash on the sensor.



### Functions

# Reach setting (Control Pro Ultrasonic and DT Quattro sensors only)

 Ultrasonic coverage can be selected from minimum, 1/3, 2/3, or maximum by pressing these buttons. Use this setting to increase or decrease the coverage (detection range) of the sensor.

#### Time setting CH 1 -

Stay 'ON' time for switching contact 1

The period of time you want the light to stay 'ON' for after last detecting movement can be set from between 30 sec., 2 min., 5 min., 15 min. and 30 min. by pressing these buttons.

- (Xm) 3 Setting the light to stay 'ON' for a time of your own choice. Each press of the button increments the chosen time setting by 1 minute.
- IQ mode. Stay 'ON' time is self-learning and adjusts dynamically to user behaviour. The optimum time is determined by means of a learning algorithm. The shortest time is 2 min., the longest time 20 min.
  - 5 Test mode. The test mode has the purpose of checking for proper working order as well as testing the detection zone. The presence detector switches 'ON' for approx. 8 sec. regardless of brightness and movement. The test mode has priority over all other settings. All user-selected potentiometer settings apply in normal mode. The test mode ends automatically after 10 min.

#### Time setting CH 2 -

Stay 'ON' time for switching contact 2 (HVAC)

6 The period of time you want the HVAC contacts to signal the HVAC controller (stay 'ON') after last detecting movement can be set from 1 min., 5 min., 30 min., or 2 hours by pressing these buttons.

#### Light level setting

The chosen response threshold can be varied from approx. 10 – 1000 lux / 1 - 100 fc.

- 8 Night-time mode (minimum setting approx. 10 lux., 1 fc.)
- Daylight mode (maximum light level function overridden)
- To Teach-IN. Twilight setting at the memory button/Teach mode. This button must be pressed at the level of light at which you want the sensor to respond to movement. The current light level is saved.



#### Reset

Resets all settings to the values selected on the detector manually or to the factory settings.

#### RC 4 - User Remote

#### Description

The RC<sup>4</sup> user remote control gives the occupant the ability to turn lighting 'ON' or 'OFF' with the entire line of Control Pro sensors via remote control. The dimming functions are only available with the DIM-24 sensors. Each valid press of a button is indicated by a blue LED flash on the sensor.



#### Functions Dimming function

Q. DIM ☆ ■ The RC 4 remote enables the user to dim up or down to desired levels when used with the Control Pro DIM-24 sensors and 0-10 volt dimming ballasts. The last light level adjustment setting is saved and will return after being switched 'OFF' and then back 'ON' again by the RC 4, switch or presence detection.

#### Light 'ON'/ 'OFF'

- Q. Q.
- The ON/OFF remote feature allows the occupant to conveniently turn lighting OFF and ON again such as needed during video or presentation viewing. Controls only lighting and does not effect HVAC outputs of the COM2-24. The ON/OFF function works with all of the Control Pro sensors.



Returns settings to those selected manually on the detector or to the factory setting (only applies to settings that can be changed by remote control)

### Troubleshooting

Malfunction	Cause	Remedy
Light does not switch 'ON'	<ul><li>No supply voltage</li><li>Light level setting too low</li></ul>	<ul> <li>Check supply voltage</li> <li>Slowly increase light level setting until light switches 'ON'</li> </ul>
	No motion detection	<ul><li>Ensure unobstructed view of detection area</li><li>Adjust detection zone</li></ul>
Light does not switch 'OFF'	<ul> <li>Light level setting too high</li> <li>Stay-'ON' time running out</li> </ul>	<ul> <li>Reduce light level setting</li> <li>Wait until stay-'ON' time elapses; reduce stay-'ON' time if persenting</li> </ul>
	Interference from unintended sources of motion, e.g.: ceiling fan, heater, HVAC, open doors and windows	<ul> <li>Readjust coverage zone or apply masking material</li> </ul>
Sensor switches 'OFF' when occupied	<ul><li>Stay-'ON' time too short</li><li>Light-level threshold too low</li></ul>	<ul> <li>Increase stay-'ON' time</li> <li>Change light threshold</li> </ul>
Sensor does not switch 'OFF' quickly enough	Stay-'ON' time too long	Reduce stay-'ON' time
Sensor detects initial occupancy but turns off in 2 seconds	Sensor is in pulse mode but is not connected to a time delay relay	Adjust sensor's time delay or use with a time delay relay

### Warranty

STEINEL America warrants its products against defects in material or workmanship for a period of **five** years.



STEINEL will replace or repair the item provided that it has not been altered or subjected to abuse, accident, improper installation or improper use. There are no obligations or liabili-

ties on the part of STEINEL for consequential damages arising out of or in connection with the use or performance of this product or other indirect damages with respect to loss of property, revenue, or profit, or cost of removal, installation or reinstallation.

### **STEINEL** America, Inc.

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