

NOVA22

DIN Rail & Panel Mount Solid State Relays



crydom[®]

The Global Expert in **Solid State Switching** Technology


Sensata
Technologies

NOVA22

NOVA22 Solid State Relays were developed combining technology and innovation to offer high performing solid state relays in a 22.5mm industrial package.

Highest power available in a 22.5mm wide package

The advanced design and technology used in NOVA22 products provide greater power density than any other 22.5 mm wide SSR in the market: 35 Amps in DIN Rail mount and 95 Amps in Panel Mount package.

Wide and innovative range of connections

The unique range of terminal options and configurations makes NOVA22 the most versatile solution. Relay or Contactor terminal configurations, screw or spring cage plug-in input terminals, standard or elevator screws, allowing the use of ring terminals, are all options offered within the NOVA22 family.

NOVA22 Solid state relays are built with high quality components and Crydom's technology and innovation making them the most powerful and versatile solid state relays in a 22.5mm package on the market today!

Diverse Range of Applications

NOVA22 Solid State Relays can be used in a wide range of AC and DC applications. Ideal for heating applications, NOVA22s are also suitable for motion, power and lighting applications; especially for demanding applications that require higher levels of reliability including:

Industrial OEMs: Plastic Machinery, Packaging and Material Handling Equipment, Industrial Ovens, Pumps

Food & Beverage: Baking Ovens, Refrigeration, Food Processing Equipment

Building Equipment: HVAC&R, Lighting, Access Control

Energy & Infrastructure: Renewable Energy, Water and Waste Water Treatments

Transportation: Agricultural Machinery, Railway Vehicles (Tested for Shock and Vibration Resistance up to 50g and 500 Hz, per IEC 60068-2)



Power & Versatility in a 22.5mm Package!

Rated up to 35 Amps (DIN Rail Mount) and 95 Amps (Panel Mount)

600 VAC or 200 VDC models

Built-in overvoltage transient protection

ID marker for easy identification

LED input status indicator

Input control available in DC and AC voltage options

High I^2t for use with circuit breakers (8320 A^2sec)

Zero Voltage or Instantaneous Turn-On

High resistance to Shock and Vibration

C-UL-US Listed, CE, and TUV certified

100 kA SCCR

Industry standard Panel Mount package available

Screws or spring cage Input terminals

Standard or elevator innovative output screw

Relay or Contactor configuration



DR22 Series AC & DC Output DIN Rail Mount Solid State Relays

- Ratings up to 35 Amps at 600 VAC and 30 Amps at 200 VDC
- Built-in overvoltage transient protection on AC models
- Relay or Contactor configuration
- Integral heat sink eliminates the need for complex thermal calculations
- DBC substrate for superior thermal performance
- Optional "Elevator" screw suffix "W" allows the use of ring or lug type terminals
- 1kHz Maximum PWM frequency
- C-UL-US Listed and TUV approved

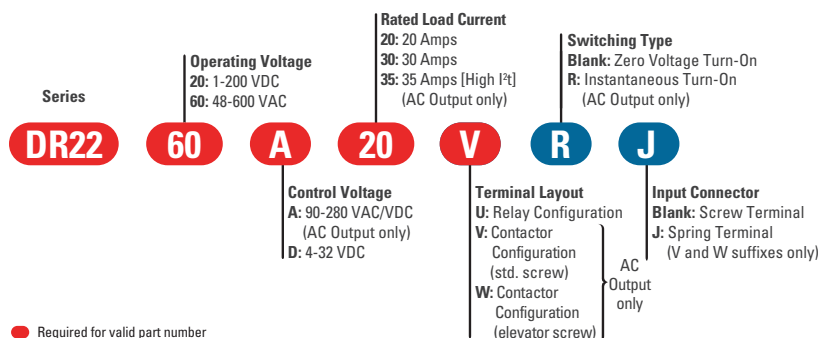


Output Specifications (A)	DR2260x20x	DR2260x30x	DR2260x35x	DR2220D20U	DR2220D30U
Operating Voltage (47-440 Hz)	48-600 V _{RMS}	48-600 V _{RMS}	48-600 V _{RMS}	1-150 VDC	1-150 VDC
Absolute Maximum Rating [VDC]	-	-	-	200	200
Transient Overvoltage [Vpk] (B)	1200	1200	1200	-	-
Maximum Off-State Leakage Current @ Rated Voltage [mA]	1	1	1	0.1	0.2
Minimum Off-State dV/dt @ Maximum Rated Voltage [V/μsec]	500	500	500	-	-
Load Current, General Use UL508/LC A IEC62314 @ 40°C [A _{RMS}]	20	30	35	-	-
Load Current, Motor Starting UL508 FLA / LC B IEC62314 @ 40°C [A _{RMS}]	8.5/4.8	14/7.6	26/14	-	-
Load Current, DC General Use UL508 @ 40°C [ADC]	-	-	-	20	30
Load Current, DC Motor Starting UL508 FLA @ 40°C [ADC]	-	-	-	4.1	5.4
Maximum Load Current	20 A _{RMS}	30 A _{RMS}	35 A _{RMS}	20 ADC	30 ADC
Minimum Load Current (C)	100 mA _{RMS}	100 mA _{RMS}	150 mA _{RMS}	5 mA	5 mA
Maximum 1 Cycle Surge Current (50/60 Hz) [A _{pk}]	286/300	716/750	1290/1350	-	-
Maximum On-State Voltage Drop @ Rated Current	1.35 V _{pk}	1.35 V _{pk}	1.30 V _{pk}	0.68 VDC	0.48 VDC
Maximum 1/2 Cycle I ² t for Fusing (50/60 Hz) [A ² sec]	409/375	2563/2343	8320/7593	-	-
Minimum Power Factor (at Maximum load)	0.5	0.5	0.5	-	-
Maximum Surge Current [ADC] (10 msec)	-	-	-	58	86
Maximum On-State Resistance [R _{DS-ON}] [Ohms]	-	-	-	0.034	0.016
Maximum Pulse Width Modulation Frequency [Hz] (D)	-	-	-	1000	900
Motor Rating UL 508/IEC62314 [HP (kW)]: 120 VAC	0.5 (0.37)	1 (0.74)	2 (1.5)	-	-
Motor Rating UL 508/IEC62314 [HP (kW)]: 240 VAC	1.5 (1.1)	3 (2.2)	5 (3.73)	-	-
Motor Rating UL 508/IEC62314 [HP (kW)]: 480 VAC	3 (2.24)	5 (3.7)	10 (7.4)	-	-
Motor Rating UL 508 [HP (kW)]: 120 VDC	-	-	-	1/3 (0.25)	1/2 (0.37)

Input Specifications (A)	DR2260Axxx	DR2260Dxxx	DR2220DxxU
Control Voltage Range	90-280 VAC/VDC (E)	4-32 VDC (F)	4-32 VDC
Maximum Reverse Voltage	-	-32 VDC	-32 VDC
Minimum Turn-On Voltage	90 VAC/VDC	4 VDC	4 VDC
Must Turn-Off Voltage	5 VAC/VDC	1 VDC	1 VDC
Minimum Input Current (for on-state) [mA]	6	10	11
Maximum Input Current [mA]	10	15	15
Nominal Input Impedance [Ohms]	Current Limited	Current Limited	Current Regulated
Maximum Turn-On time	20 msec	1/2 Cycle (G)	75 μsec
Maximum Turn-Off time	30 msec	1/2 Cycle	100 μsec

General Specifications	DR2260xxxx	DR2220DxxU
Dielectric Strength, Input to Output (50/60 Hz) [V _{RMS}]	4000	3750
Dielectric Strength, Input/Output/Case (50/60 Hz) [V _{RMS}]	4000	2500
Minimum Insulation Resistance (@ 500 VDC) [Ohms]	-	10 ⁹
Maximum Capacitance, Input/Output [pF]	-	8
Ambient Operating Temperature Range [°C] (H)	-	-40 to 80
Ambient Storage Temperature Range [°C]	-	-40 to 100
Short Circuit Current Rating [kA] (J)	100	-
LED Input Status Indicator	-	Green
Weight (Typical) [oz] (g)	Suffix "U" 10.5 (298), "V" & "W" suffixes 10.6 (301)	10.5 (298)
Housing Material	-	UL94 V-0
Baseplate Material	-	Aluminum
Hardware Finish	-	Nickel Plating
Humidity	-	85% non-condensing

Part Number Nomenclature



- Required for valid part number
- For options only and not required for valid part number

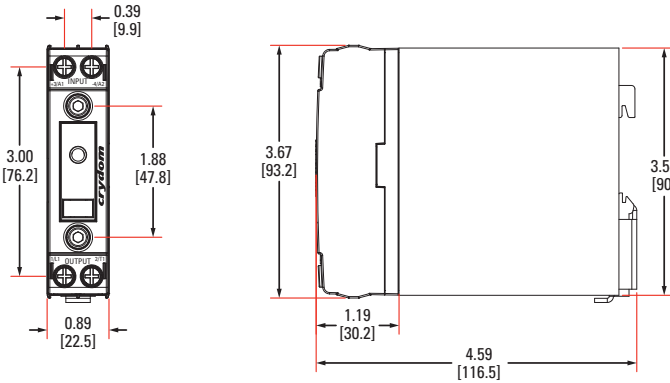
Recommended Accessories for DR22 Series

Connectors	ID Marker	Lug Terminal
CP201	CNLB	TRM0
CP202	CNLN	TRM6
	CNL2	

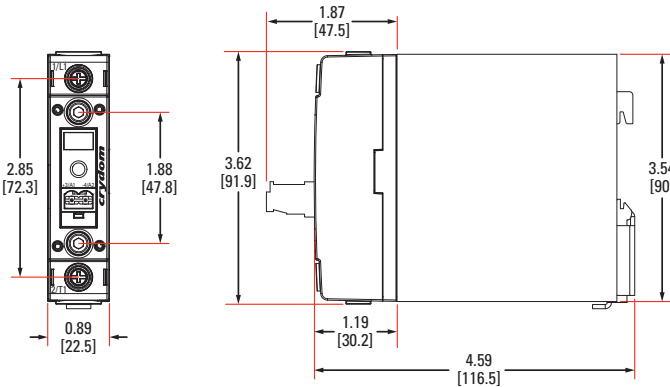
Mechanical Dimensions

Tolerances: ±0.02 in / 0.5 mm
All dimensions are in: inches [millimeters]

Relay Configuration

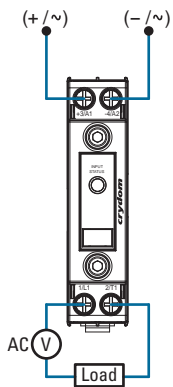


Contact Configuration

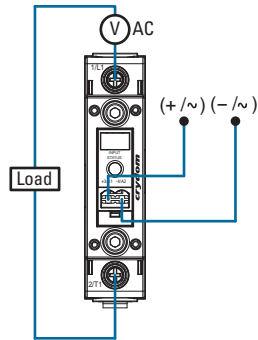


Wiring Diagrams

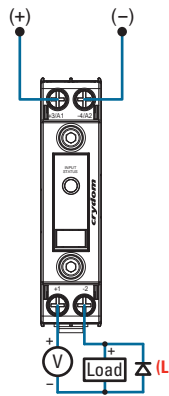
Relay Configuration AC Output



Contact Configuration AC Output

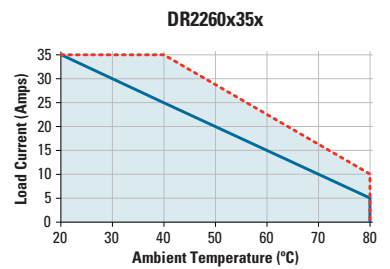
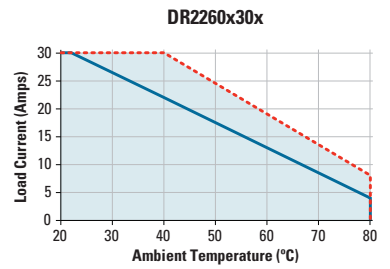
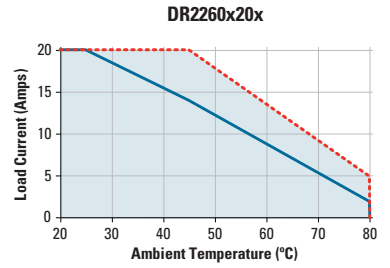


Relay Configuration DC Output (K)

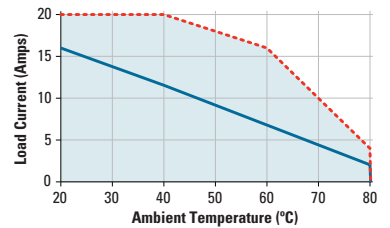


Derating Curves (H)

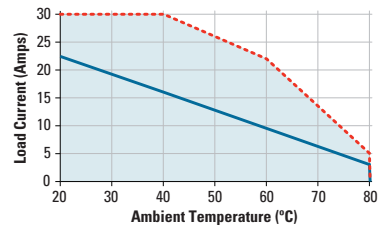
--- Single unit
— Multiple units, no minimum spacing between components



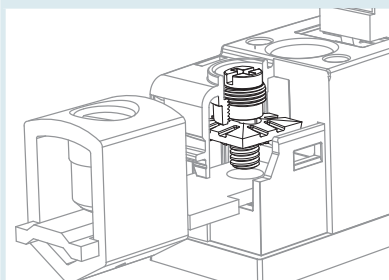
DR2220D20U



DR2220D30U



Elevator Screw (Suffix "W")



The Elevator Screw option allows the screw and clamp to be raised out of the mating threads completely. This provides for the insertion and use of a ring or lug type wire terminal. See datasheet for Compatible Terminals.

General Notes

- (A) All parameters at 25°C unless otherwise specified.
- (B) Output will self trigger between 900-1200 Vpk. Not suitable for capacitive loads.
- (C) Low current loads and high ambient temperature can affect turn-on time.
- (D) 8 VDC Minimum control voltage. Resistive loads only. Consider switching losses; at maximum frequency reduce to 75% output current. Recommended suppressor diode connected at load side, see wiring diagram.
- (E) Above 40°C ambient temperature the maximum control voltage must not exceed 250 VAC/VDC.
- (F) Increase minimum voltage by 1 V for operations from -20 to -40°C.
- (G) Turn-On Time for Instantaneous Turn-On versions is 0.1 msec.
- (H) Operating range -20 to 60°C for AC control models only.
- (J) With appropriate class and rated fuse, see product datasheet for detailed info
- (K) Load can be wired to either terminal 1 or terminal 2. Proper polarity must be observed for the DC control power supply, with terminal 3 being positive with respect to terminal 4.
- (L) DC inductive loads must be diode suppressed.



PM22 Series AC Output Panel Mount Solid State Relays

- Ratings up to 95 Amps at 600 VAC
- Built-in overvoltage transient protection
- DBC substrate for superior thermal performance
- LED input status indicator
- IP20 touch safe housing
- AC or DC control voltage options
- 4000 VAC optical isolation
- C-UL-US Recognized and TUV approved

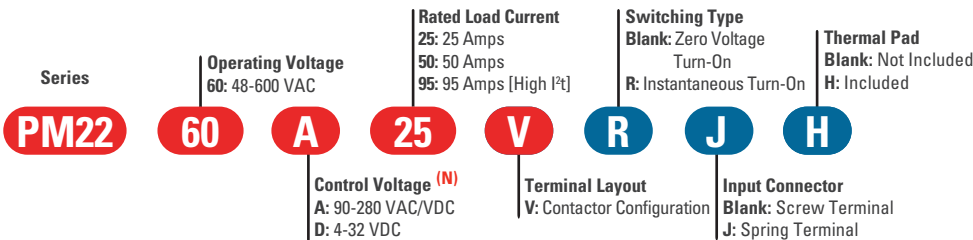


Output Specifications (A)	PM2260x25x	PM2260x50x	PM2260x95x
Operating Voltage (47-440 Hz) [V _{RMS}]	48-600	48-600	48-600
Transient Overvoltage [Vpk] (B)	1200	1200	1200
Maximum Off-State Leakage Current @ Rated Voltage [mA _{RMS}]	1	1	1
Minimum Off-State dV/dt @ Maximum Rated Voltage [V/μsec]	500	500	500
Load Current, General Use UL508/LC A IEC 62314 @ 40°C [A _{RMS}] (M)	25	50	95
Load Current, Motor Starting UL508 FLA /LC B IEC 62314 @ 40°C [A _{RMS}] (M)	8.5/4.8	14/7.6	26/14
Minimum Load Current [mA _{RMS}]	100	100	150
Maximum 1 Cycle Surge Current (50/60 Hz) [A _{pk}]	286/300	716/750	1290/1350
Maximum On-State Voltage Drop @ Rated Current [Vpk]	1.35	1.35	1.30
Thermal Resistance Junction to Case (R _{jc}) [°C/W]	0.49	0.27	0.2
Maximum 1/2 Cycle I ² t for Fusing (50/60 Hz) [A ² sec]	409/375	2563/2343	8320/7593
Minimum Power Factor (at Maximum load)	0.5	0.5	0.5
Minimum Heat sink for Rated Current @ 40°C	2	0.7	0.23
Motor Rating UL 508/IEC62314 [HP (kW)]: 120 VAC	0.5 (0.37)	1 (0.74)	2 (1.5)
Motor Rating UL 508/IEC62314 [HP (kW)]: 240 VAC	1.5 (1.1)	3 (2.2)	5 (3.73)
Motor Rating UL 508/IEC62314 [HP (kW)]: 480 VAC	3 (2.24)	5 (3.7)	10 (7.4)

Input Specifications (A)	PM2260Axx	PM2260Dxx
Control Voltage Range	90-280 VAC/VDC (E)	4-32 VDC (F)
Maximum Reverse Voltage	-	-32 VDC
Minimum Turn-On Voltage	90 VAC/VDC	4 VDC
Must Turn-Off Voltage	5 VAC/VDC	1 VDC
Minimum Input Current (for on-state) [mA]	6	10
Maximum Input Current [mA]	10	15
Nominal Input Impedance [Ohms]	Current Limited	Current Limited
Maximum Turn-On time	20 msec	1/2 Cycle (G)
Maximum Turn-Off time	30 msec	1/2 cycle

General Specifications	PM2260xxx
Dielectric Strength, Input to Output (50/60 Hz) [V _{RMS}]	4000
Dielectric Strength, Input/Output/Case (50/60 Hz) [V _{RMS}]	4000
Minimum Insulation Resistance (@ 500 VDC) [Ohms]	10 ⁹
Maximum Capacitance, Input/Output [pF]	8
Ambient Operating Temperature Range [°C] (H)	-40 to 80
Ambient Storage Temperature Range [°C]	-40 to 100
Short Circuit Current Rating [kA] (J)	100
LED Input Status Indicator	Green
Weight (Typical) [oz] (g)	2.3 (64)
Housing Material	UL94 V-0
Baseplate Material	Aluminum
Hardware Finish	Nickel Plating
Humidity	85% non-condensing

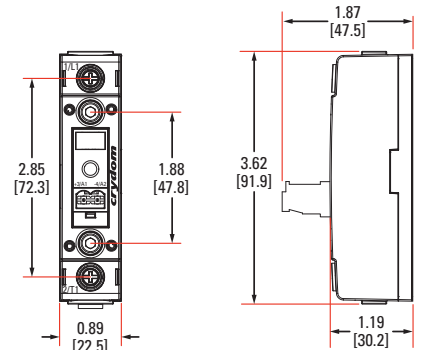
Part Number Nomenclature



- Required for valid part number
- For options only and not required for valid part number

Mechanical Dimensions

Tolerances: ±0.02 in / 0.5 mm
All dimensions are in: inches [millimeters]



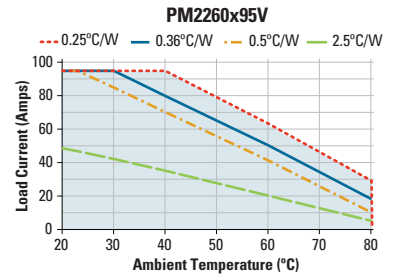
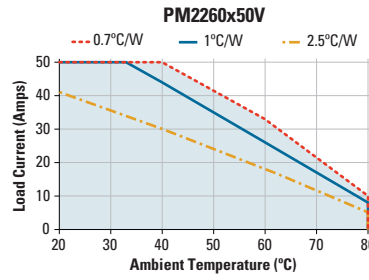
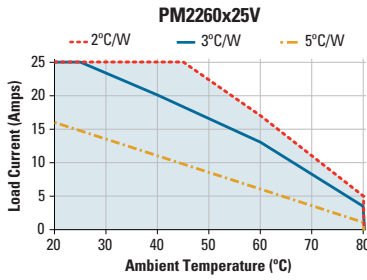
Questions?
Call or e-mail:

America Tel.: +1 (877) 502 5500
e-mail: sales@crydom.com

EMEA Tel.: +44 (0) 1202 606030
e-mail: sales-europe@crydom.com

Asia Tel.: +86 (0) 21 6065 7725
e-mail: sales-cn@crydom.com

Derating Curves (H)



Recommended Accessories for PM22 Series

Connectors	ID Marker	Hardware Kit	Heat Sink Part No.	Thermal Resistance [°C/W]	Thermal Pad
CP201	CNLB	HK8	HS301 / HS301DR	3.0	HSP-7
CP202	CNLN		HS251	2.5	
	CNL2		HS259DR	2.5	
			HS202 / HS202DR	2.0	
			HS201 / HS201DR	2.0	
			HS172	1.7	
			HS151 / HS151DR	1.5	
			HS122 / HS122DR	1.2	
			HS103 / HS103DR	1.0	
			HS101	1.0	
			HS073	0.7	
			HS072	0.7	
			HS053	0.5	
			HS033	0.36	
		HS023	0.25		

New Accessories!

Connectors

Part number: CP201, CP202



Pluggable input connectors, 2 position, with screw terminals (CP201) or spring type terminals (CP202). Compatible with Contactor configuration NOVA22 SSRs.

Hardware Kit

Part number: HK8



Bag with 2 SSR mounting screws 8-32 x 3/8, Hex Socket Cap, compatible with PM22 Series Panel Mount SSRs. Used to mount the SSR onto any of our compatible heat sinks.

Heat Sink

Part number: HS259DR



DIN Rail mountable heat sink with 2.5°C/W thermal resistance. Heat sink material is aluminum with black anodized finish. Suitable for mounting a single PM22 Series Panel Mount SSR.

Lug Terminal

Part number: TRM0



Copper wire lug for AWG 6 (13.3 mm²) to AWG 0 (53.5 mm²) wire size. For use with "Elevator" screw option ("W" suffix) NOVA22 SSRs.

Thermal Pad

Part number: HSP-7



Non-adhesive thermal pad for half-puck package SSRs. Compatible with PM22 Series Panel Mount SSRs.

General Notes

- (A) All parameters at 25°C unless otherwise specified.
- (B) Output will self trigger between 900-1200 Vpk. Not suitable for capacitive loads.
- (E) Above 40°C ambient temperature the maximum control voltage must not exceed 250 VAC/VDC.
- (F) Increase minimum voltage by 1 V for operations from -20 to -40°C.
- (G) Turn-On Time for Instantaneous Turn-On versions is 0.1 msec.
- (H) Operating range -20 to 60°C for AC control models only.
- (M) Heat sink required, see derating curves.
- (N) Control voltage 18-52 VAC/VDC is available upon request.

crydom®

AMERICAS



United States & Canada

2320 Paseo de las Americas,
Suite 201
San Diego, CA 92154

Sales Support:
Tel.: +1 (877) 502 5500
Fax: +1 (619) 210 1590
sales@crydom.com

Technical Support:
Tel.: +1 (877) 702 7700
support@crydom.com

Southern & Central

Tel.: +1 (877) 502 5500
Fax: +1 (619) 210 1590
sales@crydom.com

EUROPE, MIDDLE EAST & AFRICA



United Kingdom

Everdene House, Deansleigh Road
Wessex Fields, Bournemouth,
Dorset BH7 7DU

Sales Support
Tel.: +44 (0) 1202 416170
Fax: +44 (0) 1202 416171
sales-europe@crydom.com

Technical Support
support-europe@crydom.com

Austria & Switzerland

Tel.: +44 (0) 1202 416170
Fax: +44 (0) 1202 416171
vertrieb@crydom.com

Belgium

Tel.: +32 (0) 2 460 4413
Fax: +32 (0) 2 461 2614
sales-europe@crydom.com

France

Tel.: +33 (0) 810 123 963
Fax: +33 (0) 810 057 605
sales-europe@crydom.com

Germany

Tel.: +49 (0) 180 3000 506
Fax: +49 (0) 180 3205 227
vertrieb@crydom.com

Italy

Tel.: +39 (0) 2 665 99 260
Fax: +39 (0) 2 665 99 268
sales-europe@crydom.com

Spain

Tel.: +34 902 876 217
Fax: +34 902 876 219
sales-europe@crydom.com

Netherlands

Tel.: +31 (0) 71 582 0068
Fax: +31 (0) 71 542 1648
sales-europe@crydom.com

Middle East, Africa & Other European Countries

Tel.: +44 (0) 1202 416170
Fax: +44 (0) 1202 416171
sales-europe@crydom.com

ASIA



China

11th floor
Chang Feng International
Tower
89 Yunling Road (East)
Putuo District
Shanghai, 200062

Sales Support
Tel.: +86 (21) 8025 7166
Fax: +86 (21) 6107 1771
sales-cn@crydom.com

Technical Support
support-cn@crydom.com

South Korea

14F, Kbiz DMC Tower,
189, Seongam-ro, Mapo-gu,
Seoul 121-904, South Korea
Tel.: +82 2 2629 8312
Fax: +82 2 2630 9800
korea@cstsensors.com

India

4th Floor, Trident Towers,
No. 23, 100 Ft- Ashoka Pillar Road,
2nd Block, Jayanagar,
Bangalore- 560011
Tel: +91 (80) 4113 2204 /05
Fax: +91 (80) 4113 2206
india@cstsensors.com

East Asia Pacific

10/F, Wharf T & T Centre, Harbour
City, 7 Canton Road, Tsim Sha
Tsui, Kowloon, Hong Kong
Tel.: +852 3960 6473
Fax: +852 3669 7111
eap@cstsensors.com

© 2015 Crydom Inc., All Rights Reserved.

Specifications are subject to change without prior notice. Crydom and the Crydom logo are registered trademarks of Crydom Inc.

10/2015
Rev.011116

CAT/CR/NV/EN

Distributed by :

