A&D Weighing

Product Note

Hazardous Area weighing solutions from A&D

Solutions for environments with potentially explosive atmospheres

What is a Hazardous Area?

Hazardous areas are environments where there are sufficient amounts of explosive gases, dusts or vapors in the atmosphere under normal or abnormal conditions which could potentially cause a fire or explosion. In additional to the presence of these flammable substances there are 2 other requirements in order for an explosion to occur:

Oxidizer: Must be present in sufficient quantity (typically oxygen)

Source of ignition: Either from a spark or high heat

If any of the 3 requirements are missing, an explosion will not occur.

For weighing equipment there are two methods of ensuring hazardous area safety. The first type of protection is known as explosion proof – meaning that the equipment itself does not prevent an explosion from occurring, however, it confines the explosion and prevents it from spreading. This type of equipment is usually much bigger and heavier (in order to contain an explosion), which typically makes them more expensive to manufacture and to transport. It also means that if an explosion does occur, it will need to be replaced.

The other type of protection is known as intrinsically safe. Intrinsically safe means that the equipment is designed to limit the energy available for ignition. If there isn't enough energy to create a spark, then the 3rd requirement for an explosion to occur is not present. The advantage of intrinsically safe equipment is that it typically has the same size and appearance as standard equipment, but with additional safeguards to lower the energy output.

Regardless of the type of protection the device offers, they must be certified for specific areas of classification, substance classes and temperature based on the National Electrical Code (NEC). The categories for substances are Gases/Vapors (Class I), Dusts (Class II) and Fibers (Class III). Classes I and II are then further divided into material groups A,B,C,D,E,F and G, specifying the types of gases or materials the equipment is protected against (propane or combustible metal dust, for example). Temperature is rated from T1 to T6 with T1 being the highest temperature rating and T6 being the lowest.

Lastly, the areas are rated as Division 1 or Division 2. Division 1 areas mean that the potential for an explosion is always present. Division 2 areas mean that there is the potential for explosion only under abnormal conditions (a leak at a gas station).

Substance	Substance Class	Area Classification		Hazardous Location Characteristics
		NEC500	NEC505	
Gases/ Vapors	Class I (NEC 501)	Division 1	Zone 0	Explosion hazard present continuously or occasionally under normal operating conditions
			Zone 1	
		Division 2	Zone 2	Ignitable concentrations of flammable gases or vapors are not normally present, but could be present in the case of a fault
Dusts	Class II (NEC 502)	Division 1		Combustible dusts are presents in quantities sufficient to produce explosive and ignitable mixtures
		Division 2		Combustible dust due to abnormal operations may be present in quantities sufficient to produce explosive or ignitable mixtures
Fibers	Class III (NEC 503)	Division 1		Easy ignitable fibers / flyings are handled or manufactured
		Division 2		Easy ignitable fibers / flyings are stored or handled

A&D offers two solutions for hazardous area weighing environments:

EK-AEP for lower capacity/higher resolution applications

HW-CEP for heavier capacity/industrial applications.

Both models are Factory Mutual (FM) approved for Class I, Div I, Groups C&D and Temperature T4 in both the United States and Canada. The Class I rating and high resolution offered by the EK-AEP make it ideal for expensive gas filling applications and the heavy capacity of the HW-CEP allows for taring of heavy gas cylinders which are commonly used.

The EK-AE comes in capacities from 300 g to 12 kg and readabilities down to 0.01 g. The HW-CEP offers capacities from 10 kg up to 220 kg, with readabilities as low as 1 g.

For more information on A&D's products or for assistance with your hazardous area application please contact A&D Weighing at 888-726-5931

EK-AEP Series	EK-300AEP	EK-3000AEP	EK-12KAEP
Weighing capacity	300 g	3000 g	12 kg
Minimum weighing value	0.01 g	0.1 g	1 g
Repeatability (Standard Deviation)	0.01 g	0.1 g	1 g
Linearity	±0.02 g	±0.2 g	±1 g
Display	7 segment LCD (character height: 16 mm) with backlight		
Battery life	Approx. 250 hours (with four AA alkaline batteries*i, backlight off)		
Weighing pan size	Ø110 mm	133 × 170 mm	
Dimensions	190 (W) × 218 (D) × 54 (H) mm	190 (W) × 218 (D) × 53 (H) mm	

*i To be used only with four DURACELL AA alkaline MN1500 LR6, ENERGIZER AA E91 alkaline LR6 AM3, or Panasonic AA alkaline LR6 (XJ) 1.5V batteries.

		HV-15KCEP	HV-60KCEP	HV-200KCEP	HW-10KCEP	HW-60KCEP	HW-100KCEP	HW-200KCEP
kg	Capacity	3 / 6 / 15	15 / 30 / 60	60 / 150 / 220	10	60	100	220
	Min. display	0.001 / 0.002 / 0.005	0.005 / 0.01 / 0.02	0.02 / 0.05 / 0.1	0.001	0.005	0.01	0.02
Stabilization time		Within 1 second			Within 1.5 seconds			
Repeatability (std. deviation) [kg]		0.001 / 0.002 / 0.005	0.005 / 0.01 / 0.02	0.02 / 0.05 / 0.1	0.002	0.01	0.02	0.04
Linearity (kg)		±0.001 / ±0.002 / ±0.005	±0.005 / ±0.01 / ±0.02	±0.02 / ±0.05 / ±0.1	±0.002	±0.01	±0.02	±0.04
Display		7 segment LCD (Character height: 25 mm) with backlight; 3-color, 5-step LED comparator lights						
Power supply		Four D-size, alkaline, 1.5 V batteries*2						
Battery Life (approx.)		1,500 hours with LED and backlight OFF or 1,000 hours with LED and backlight ON						
Weighing Pan size		250 × 250 mm 9.8 × 9.8 in	330 × 424 mm 13.0 × 16.7 in	390 × 530 mm 15.4 × 20.9 in	250 × 250 mm 9.8 × 9.8 in	330 × 424 mm 13.0 × 16.7 in	390 × 530 mm 15.4 × 20.9 in	
Dimensions (W × D × H)		250 × 439 × 397 mm 9.8 × 17.3 × 15.6 in	330 × 585 × 776 mm 13.0 × 23 × 30.6 in	390 × 691 × 776 mm 15.4 × 27.2 × 30.6 in	250 × 439 × 397 mm 9.8 × 17.3 × 15.6 in	330 × 585 × 776 mm 13.0 × 23 × 30.6 in	390 × 691 × 776 mm 15.4 × 27.2 × 30.6 in	

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