Water Hazards

Protecting Enterprise Computers from Liquids

It is no secret that water is a natural enemy of electronics and, in particular, computers. Some components are so sensitive that even high humidity can cause damage. When computers are used in areas exposed to rain, snow, fog, sea spray, humidity, or standing or spraying water, completely sealing against water is imperative.

IP RATINGS

Ingress Protection (IP) ratings are assigned using a two-digit IP code that indicates the degree to which an enclosure prevents the intrusion of solids and liquids.

The first digit indicates the level of protection against the ingress of solid foreign objects, and the second digit indicates protection against the harmful ingress of water. The protection from solids rating ranges from no protection at 0 to completely sealed against dust at 6. The protection from liquids rating ranges from no protection at 0 to protected against long periods of immersion under pressure at 8.

Ingress Protection (IP) Ratings			
Solids		Liquids	
0	No protection	0	No protection
1	Protected against objects greater than 50 mm (large body parts, hands)	1	Protected against dripping water or condensation
2	Protected against objects greater than 12.5 mm (fingers)	2	Protected against dripping water when tilted 15 degrees
3	Protected against objects greater than 2.5 mm (tools/thick wires)	3	Protected against water spray at any angle up to 60 degrees from vertical
4	Protected against objects greater than 1 mm (most wires, screws)	4	Protected against splashing water from any direction
5	Protected against dust, limited ingress	5	Protected against jets of water
6	Dust tight, totally protected against dust	6	Protected against high pressure water jets
		7	Protected against the effects of immersion up to 1 m
		8	Protected against immersion beyond 1 m

WATER HAZARDS

Consumer laptops and tablets typically carry a rating of IP42, meaning they are vulnerable to anything smaller than a pebble or greater than a few drops of water. In industrial environments where exposure to the elements may be an everyday occurrence, this level of protection simply isn't enough.

If a computer is not sealed against water, it can cause considerable damage almost immediately and valuable data can be irrevocably lost in mere seconds. In addition to shorting components, water and even high levels of humidity can corrode circuitry and promote the growth of mold.

In reality, water isn't actually the problem. Pure H_2O doesn't conduct electricity, but almost all water—including rain, tap water, bottled water, rivers, lakes, standing water, oceans—contains minerals like salt, which are excellent conductors of electricity. These elements are also typically responsible for the corrosive nature of water.

MINIMUM IP REQUIREMENTS FOR INDUSTRIAL, WAREHOUSE, AND FIELD ENVIRONMENTS

The minimum requirement for computers operating in most industrial and field service environments is IP65, which protects against both dust and water. The "6" means it is dust-proof; there is no ingress of dust. And the "5" means water projected by a nozzle against any of the computer's enclosures from any direction will have no harmful effects.

DAP Technologies' ultra-rugged computers are rated IP65 and above, providing complete protection against the ingress of dust and water and ensuring reliable performance in the most challenging environments. Some DAP computers—like the M9010 tablet—achieve an impressive IP67 rating, indicating they are completely sealed against the ingress of dust and sealed against liquid when fully immersed in up to one meter (39 inches) of water. The M9010 even floats when dropped in water, making retrieval easy.

KEEPING COMPUTERS SAFE FROM WATER

The best defense against damage from water—and the associated costs of downtime, repair, and replacement—is sealing against it. Choosing computer hardware that carries an IP liquids rating of at least 5 is necessary for most industrial, warehouse, and field service environments.

While selecting hardware with a lower IP rating might result in initial cost savings at the time of purchase, the damaging effects of water are too great to leave to chance. Repairs, replacements, downtime, and lost productivity from even minimal exposure to water will add up, resulting in a much higher cost of ownership. If there is a chance that your enterprise handhelds, tablets, and vehicle-mount computers will be exposed to water, make an investment in continued productivity and choose rugged.

ABOUT DAP TECHNOLOGIES

DAP Technologies has offices in Tempe, Ariz.; Quebec City; and Abingdon, U.K., and designs and manufactures a full range of rugged computers, including PDAs, handhelds, tablets, and vehicle-mount computers for demanding industries and harsh environments. DAP's mobile and vehicle-mount computers improve data collection, processing, and transmission in numerous industries, including utilities, field service, identity management, transportation, and logistics.

To learn more, please visit DAP Technologies at www.daptech.com or contact your nearest DAP office location.

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