

Axis cameras employed in outboard monitoring system of ships sailing Japan's domestic waters.

Axis network camera contributes to accurate understanding of operation conditions.



Organization:

Marine Japan, AShip Corporation

Location:

Hiroshima City, Japan

Industry segment:

Transportation

Application:

Remote monitoring and management

Axis partner:

AIS Live Japan LLP

Mission

Ships specialized for sea routes which link ports in Japan (coastal vessels) transport one third or over 330 million tons of the total amount of domestic freight, a huge volume of goods. More than 5,400 coastal vessels navigate Japan's coast day and night. Information such as current location, course and speed of the ships being navigated is constantly obtained and understood via a system called an automatic identification system (AIS).

By adding images to this system, the condition of ships and their routes can be more accurately understood. Ships have a total length of dozens of meters, and high-level zoom performance is required of a camera which must accurately check conditions of the area of operation, conditions of loading/unloading and other work situations, and conditions at departure and arrival time.

Solution

At AIS Live Japan LLP, which provides an AIS service for coastal vessels, an image transmission service that employs network cameras and uses a mobile network linking the coast and the ship was started in March 2011, in cooperation with Marine Japan.

The AXIS P5532, a pan/tilt/zoom camera equipped with a 29x optical zoom function, was chosen. Cameras were set up on the compass deck and in the pilothouse, and transmit images which show the course and the deck from above. This camera, which can accurately show objects which are 150 meters or further ahead via the high-power zoom, and in addition can pan/tilt to a designated position, was a perfect choice for this system. Furthermore, it may be said that the Axis product, which has an H.264 compression efficiency higher than other companies' products, was indeed the best choice, as it was also important to keep the bandwidth to a low level. Through the joint development of AShip Corporation, a coastal vessels management company, and AIS Live Japan, a stabilizer which prevents the vibration of the ship from adversely affecting the camera was installed when the camera was mounted. At the AShip office, as well as location information obtained via the AIS service, images from ships can now be checked in real-time. It is anticipated that due to this capability, it will be possible to quickly and accurately respond to navigational obstacles and issues.

“Damage that arises due to operating trouble is immeasurable. When we consider emergencies that may occur, it is well worth investing in a system that employs such high quality images.”

Keisuke Makita, AShip Corporation representative.

Result

After the introduction of the Axis network camera, the following results were gained.

- > Current weather conditions can be checked visually by managers on shore as well as onboard
- > Freight loading and unloading can now also be monitored and issues are dealt with more appropriately
- > People responsible for management see the same images as those at the operation site, so discrepancies in understanding of events are eliminated
- > In situations which require specialized knowledge, specialist staff will be able to make decisions and give instructions more appropriately

Keisuke Makita, AShip Corporation representative, says, “Damage that arises due to operating trouble is immeasurable. A large advantage is gained through more appropriate responses being made possible by employing high-quality images. Considering emergencies that may occur, it is well worth investing in this system.” It is anticipated that the Axis network camera, which has a high-power zoom and excellent compression efficiency, will play an important role in overcoming challenges like this.

High-power PTZ camera does the job

In order to understand conditions in the vicinity of a ship when an incident has occurred during navigation, and to more accurately understand conditions when there is an abnormality with loading/unloading and freight, a high-power zoom camera which can check both left and right using high magnification is required. In this case, AXIS P5532, which is equipped with a 29x optical zoom and has a 360° auto-flip panning function, was chosen.

Transmitting via Internet for coastal vessels

The inboard network is connected to the Internet via an access point set up on the coast. Images taken by the camera are sent to the operation company’s management center via this network. At the management center, images from the camera can be seen by clicking the ship’s position, which is displayed on a map via the AIS system. Unlike roads and streets, shipping does not involve frequent and large movements; therefore, even about five or six images per second is considered a sufficient amount of information.

Safer and more efficient operation with accurate understanding of conditions

“Until the monitoring system using images was introduced, we relied on communication from crew members to let us know about conditions and events occurring at the operation site. Now, staff with more specialized knowledge concerning freight and the hull see images directly, and due to this, the gap in understanding between crew members and staff has been filled, and it is possible to make more appropriate decisions. When the camera was first set up, the lens were affected by large vibrations of the hull and shifted out of position, but that problem was solved by mounting the stabilizer. We are also considering using a wireless network camera to give inboard maintenance instructions from distant places in the future,” says Keisuke Makita.



A stabilizer (ballast) has been installed between the AXIS P5532 camera set up in the pilothouse, and the ceiling, avoiding adverse influence from hull vibrations.

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