

Durable Displays with Excellent Dustproof and Water-resistant Performance, and a Wide Operating Temperature Range Provide Stable Information Even in Harsh Outdoor Conditions.

Installation Details

The stadium's broadcast system was updated to Full-HD.

The Nagoya Keirin Stadium, which opened in 1949, holds cycle races and sells betting tickets both for its own races and races at other cycling tracks. In November 2014, the stadium upgraded its indoor broadcasting system to a Full-HD system. Durable Panasonic LCD displays were selected for outdoor installation.

The weather resistance of durable LCD displays was highly evaluated, leading to their outdoor installation use.

A wide range of information, including betting odds and race results as well as live, high-speed race images, are displayed at the stadium. Until now, CRT displays were used to show this information, but they were all upgraded to consumer-type LCD TVs with Full-HD compatibility. However, the displays, which are installed at the outdoor ticket counters, must provide a high level of durability against wind and rain, and offer clear legibility even under bright sunlight conditions. These were difficult requirements for consumer-type TVs.



Waterproof performance was required for outdoor installation. Durable LCD displays are ideal because their wide operating temperature range withstands temperature changes.

TH-47LFX6N displays were proposed because they offer the following features:

- IP55 equivalent levels of dustproof and water-resistant performance, allowing outdoor installation without requiring any special casing.
- High-brightness performance to display clear images even under bright outdoor conditions.
- An Outdoor mode that enables stable operation in outdoor environments, under hot summer and cold winter conditions.
- Aluminum cabinets that resist corrosion and rust. The performance was demonstrated using actual TH-47LFX6N displays, leading to the installation of 12 units for outdoor use.



Displays are installed under the eaves. The surrounding area is very bright on clear days, but the images are constantly sharp and clear.

Professional Display System Report

Vol.27

Nagoya Keirin Stadium

Aichi, Japan

Date delivered: November 2014

System Outline

Stadium broadcasting system built for multi-channel, long-distance distribution.

The Nagoya Keirin Stadium required a multi-channel, long-distance distribution system to meet the following conditions. For this purpose a stadium broadcasting system was built using the same method as a CATV system.

- Broadcasting over a distance of up to 300-400 meters was required between the Video Control Center and the displays.
- A wide range of information needed to be presented, including betting odds, live race images, and race results. (Example: There are 7 ticket types, making a total of 783 combinations that needed to be displayed.)
- Approximately 130 displays needed to be operated, and precise content had to be

displayed at each location according to a preset schedule.

Text information on betting odds and race results, live race images, and other content were each assigned a channel number and this data was converted to RF signals by an ODFM modulator.

Coaxial cables were used to distribute the signals inside the stadium.

tuners were connected to the displays installed outdoors, and the received RF signals were demodulated to HDMI images and displayed. The video content was switched by sending operating signals from the Video Control Center to the tuners, so information could be smoothly presented to the viewers.

After Installation

Highly evaluated for sharp, crisp images even outdoors.

The durable LCD displays that were installed are well suited to outdoor installation because of their excellent waterproof performance and their high legibility under bright sunlight. Stadium personnel praised them, saying "They're clear and easy to view even outdoors." Totalizator Engineering Limited, the company in charge of installing and operating the system, explained how the system was selected, saying, "We've experienced cases at other sports stadiums where images weren't clear in consumer-type TVs installed outdoors, requiring the equipment to be frequently replaced. We confirmed through demonstrations using actual TVs that there wouldn't be any problems even in wind and rain. This allowed us to recommend them with confidence."

Linking to Race Action for Various Information



- 1 Betting odds (the plate on the top of the display is a guide to the type of tickets displayed)
- 2 Notification of the end of betting
- 3 Live race images
- 4 Race results. This content switches to match the race schedule. When a race ends, the display starts again from 1.

Broadcasting System for Nagoya Keirin Stadium (Schematic) [Extract]

Video Control Center

- ... Stadium HD camera images
- ... Betting odds information
- ... Images from other cycling stadiums



▲ Checking input/output images, switching display content, etc.



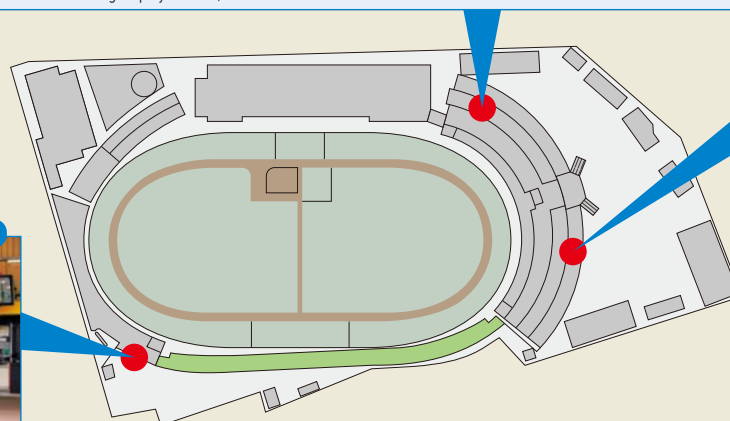
▲ Panasonic DMR-4000R Digital Input Recorders. Automatically record all race images and results.



▲ SDI images are modulated and distributed as RF signals.

RF signals
Sent to each display.

Ticket counter facing outward



East Ticket Counter No.2



◀ Durable displays are installed outdoors in their original form. Tuners are stored in cases (red dotted lines) for protection against wind and rain.