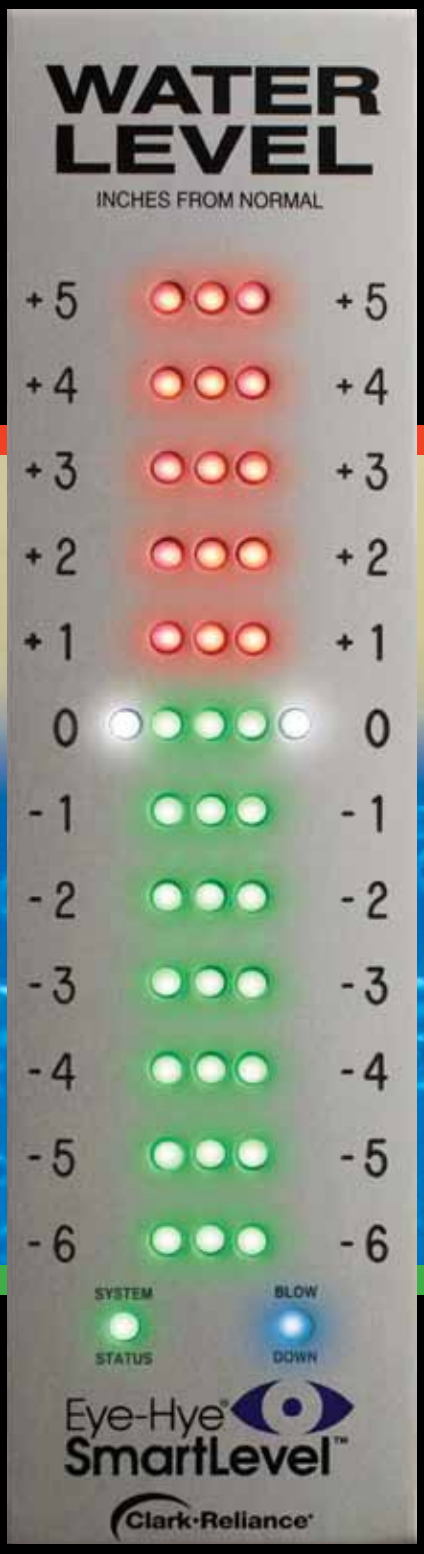
Section: R100
Bulletin: R100.51
Date: 07/13
Supersedes: New

TRUST
Your Water Level



Steam you can depend on,
24/7

Eye-Hye® SmartLevel™
Boiler Level Indication System

Eye-Hye® SmartLevel™
Boiler Level Indication System

Where's your water? For over 53 years, Eye-Hye® Indicators have provided remote indication of boiler water level, trusted by operators of thousands of boilers worldwide.

The all new Eye-Hye® SmartLevel™ Boiler Indication System adds patent pending technology to intelligently monitor the condition of its probes which sense water level in the boiler's steam drum. When the probes require cleaning to remove residue and mineral build-up to maintain their accuracy, the system's smart technology unambiguously notifies the control room or other remote locations that a probe column blowdown (cleaning) is necessary. If the blue light on the indicator is illuminated, a blowdown is needed.



New Intelligence to Improve Steam Efficiency

By notifying operators with unique LED indication that the probes need to be cleaned, the new Eye-Hye system can help provide the most reliable, most accurate water level for your boiler. Not only is safety enhanced, but turbine and generation efficiency are optimized.

- Reliable indication promotes optimum quality steam to the turbine or your process
- Provides an optimized system for heat rate efficiency.
- Remote indicators at multiple locations provide operators information at a glance and save stair climbing, especially on HRSG applications

New Intelligence to Make Maintenance Safer & Easier

The system's intelligence can distinguish "dirty" probes from probes that need to be replaced. Also, the Eye-Hye SmartLevel system eliminates the need for frequent blowdowns. Now, blow-downs can be performed when the blue indicator is illuminated (the probes need cleaning) or for scheduled cleaning of the connecting piping.

- Operator exposure to hazardous areas is minimized…unnecessary "nuisance" repair trips are eliminated.
- Longer probe and valve life… blowdowns are performed only when necessary, reducing wear.
- Pinpoints the failure of any module or peripheral in the system to simplify repair.

Benefits You Can Bank On

Most Accurate Water Level

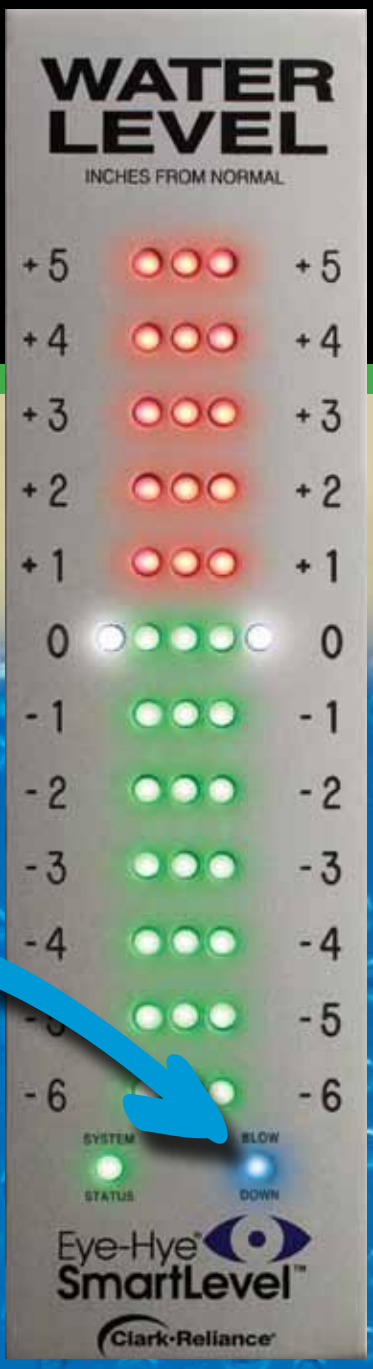
Consistently Provides Optimal Quality Steam to the Turbine or Your Process

Longer Turbine Life

An Optimized System for Heat Rate Efficiency

A Very Easy Upgrade

No modifications are required to retrofit an existing Eye-Hye probe column or probes. Remote and Local LED Indicators are available in two sizes and fit existing panel cutouts in control room. (Swap out your old Eye-Hye indicator without cutting a new hole!) Consult Clark-Reliance with your original system serial number for exact recommendations to upgrade your existing control unit and indicator. Typical system can be upgraded in a few hours.



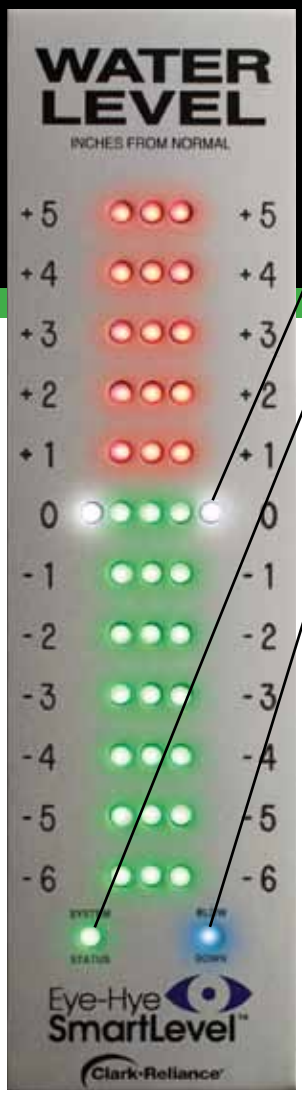
Standardized for Global Applications

EPCs and OEMs will appreciate that one model of the Eye-Hye SmartLevel can be specified for worldwide use. You can standardize on one water level-sensing device for 85 to 264 VAC 50/60 Hz.

If it's Blue, a Blowdown is Due!

When blue light on remote indicator is illuminated, operators know with certainty that probe cleaning is required to maintain accuracy and reliability.

Remote Indicators Provide Critical Information At a Glance



SIM Series (Standard Size)

Indicator Features	Benefits
At-a-Glance Normal Water Level Reference	White lights highlight normal water level so operator can see instantly if boiler is above or below expected level.
System Status Indicator	Control room indication of any system error, i.e. an individual level detection module or peripheral has failed. Is independent from blowdown indicator.
Blowdown Indicator Light	Warning system intelligently monitors condition of water column probes. When probes need cleaning, a blue light is illuminated on the control room panel, indicating that a probe has become unreliable due to build-up of minerals. The cleaning process (blowdown) brings the probes back to reliable condition, providing longer probe life. The system's intelligence helps minimize operators' exposure to hazardous areas by eliminating unnecessary "nuisance" repair trips.
4-Wire Indicator Circuit Between Control Unit and Indicator	Lower installation costs versus up to 25 conductors between control unit and indicator in traditional systems.
Fail Safe Communication	Indicator cycles with controller for continuous communication.
Indicator Mode for Colorblind Operators	By turning off the red (steam) lights, colorblind operators can still see normal water levels (indicated by white border lights) and the current water level indicated by green lights.



SIS Series (Compact Size)



SIS Indicator in control room.



Remote indicators can be located up to one mile from the boiler. For operator convenience, additional indicators can be provided in weather-proof enclosures for in-plant locations.

Specify An Indicator with Blowdown Notification for Your Next Project

Eye-Hye Indicator	Style	Colors	Width in	Width mm	Height in	Height mm	Power Consumption	Field Wiring
SIM (medium)	Standard Size	Red/Green/ White	3.00	76	11.75	298	Typical operating power consumption for a 12 light Indicator (powered separately) is 8 watts with a 12 watt maximum draw. Typical power consumption is 25 watts for a 12 probe channel Control Unit and 55 watts for a typical 24 probe channel Control Unit.	4 wire circuit between Control Unit and remote indicator with 18 gage shielded cable for up to 1 mile (1.61 kilometers) from the control unit
SIS (small)	Miniature	Red/Green/ White	1.75	44	4.50	114		

All New SC Series Control Unit

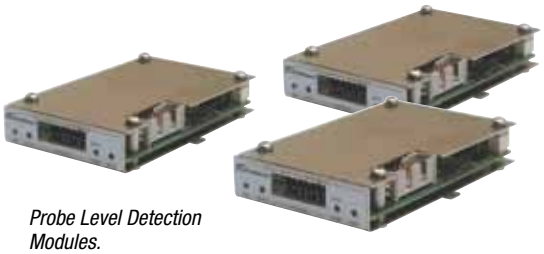
Field-proven, 100% modular design with rugged vibration-resistant connections for probe level detection modules, peripheral accessory boards, and field wiring terminations. Includes wire guides for incoming wiring to relieve stress at wire terminations.

- *Provides alarms and trip circuits at field selectable levels and 2 out of 3 voting logic*
- *Time delay on actuation and release*



Stainless steel enclosure shown.

Control Unit Features	Benefits (Base Model)
Status Indicator for Each Level Sensing Module	Operator can quickly be alerted to loss of power, processor interruption, water indication and blowdown mode.
Lamp Test Feature	Comes standard without cost of additional circuits or field wiring.
Voting Logic Circuitry	System is field-selectable to set the level of alarm or trip output. Standard feature.
System Fault or Blowdown Indication of External Switch	Can direct alerts to any external system or device, not just control room indicator.
Accepts Up to Two Separate Power Sources from Separate Breakers	Assures continuous system operation.
System Operates on 85 to 264 VAC 50/60 Hz	One model for worldwide use. Simplifies specification requirements for EPCs, OEMs and contractors.
Multiple Remote Indicators Can be Installed up to 1 Mile (1.61 Kilometers) Away	You can have duplicate indicators wherever you choose for operator convenience.
Level Detection Sensitivity	Field selectable: • sensitivity for extreme water conditions • time delay on actuation and release



Probe Level Detection Modules.



Control Unit shown with door-mounted SIS Series Indicator.

Base Model Includes:

- Weatherproof (NEMA 4 – IP65) enclosure
- Individual probe modules for each level detected
- Single power supply
- Relay module with 6 field selectable switches for alarm or trip levels rated at 10 Amp @ 120 VAC or 28 VDC and 7 Amp @ 240 VAC
- Indicator output module

Options:

- Stainless steel (NEMA 4X – IP66) enclosure
- Second power supply
- 4-20 mA output
- Additional relay module

At the Heart of the System:
Reliable, Repairable Conductivity Probes

Traditional Probes



The T Type has been designed for pressures up to 450 PSI (30 Bar).

The V Type has been designed for pressures up to 1000 PSI (66 Bar).

("T" and "V" probes are Teflon insulated with an average service life of 5 to 15 years).

Clark-Reliance offers a full selection of conductivity probes to meet your specifications. Originally introduced in 1959, our conductivity probe technology has since become the most relied-upon for boiler drum level applications.

Brazed Probes



The ZB type brazed probe has been designed for pressures up to 1800 PSI (120 Bar).

The FB type brazed probe (not shown) has been designed for pressures up to 3000 PSI (200 Bar). These probes provide maximum service life on applications with frequent cycling, with an average service life of 5 years.

Non-brazed type probes ZG (not shown) rated to 1800 PSI (120 Bar) and FG (not shown) rated to 3000 PSI (200 Bar) remain available for traditional applications.

Our line of brazed probes offer one-piece construction with high reliability for harsh applications or boilers that cycle frequently. These probes are manufactured to the highest quality standards.

Each probe is tested with three separate methods to ensure reliability for a wide range of boiler applications with variable water chemistry.

Compression Type Brazed Probe



The FSB Type has been designed for pressures up to 3000 PSI (200 Bar)



No gaskets means low risk for leakage in especially high pressure and frequent cycling applications. The FSB brazed probe has proven to be successful in many extremely harsh applications with an average service life 5 years.

Electrolev Probe Column

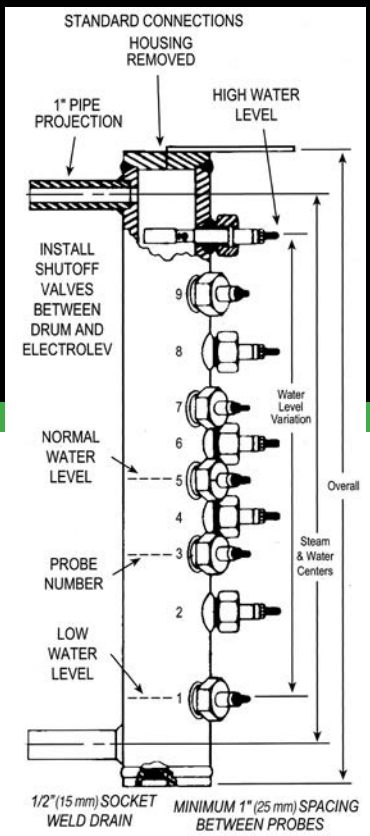
The Eye-Hye® probes are mounted in the Electrolev column to provide access to boiler water. Four pressure classes are available:

Models

EL450 Series for applications to 450 PSI (30 Bar)
EL1000 Series for applications to 1000 PSI (66 Bar)
ZB1800 Series for applications to 1800 PSI (120 Bar)
ESB3000 Series for applications to 3000 PSI (200 Bar)
Other Traditional Series (EL1800 and ELF3000) are available



Standard Electrolevs contain 10, 12, 20 or 24 probes.



Typical arrangement and dimensions for 10-probe Electrolev.



Available with integrally mounted junction box to simplify wiring.

Items to Consider When Specifying

- Number of probes: Four standard probe configurations are available (10, 12, 20 and 24) to meet typical resolution requirements. Other configurations are offered, ask your representative for details.
- Vessel connection centers
- Indication range and probe locations – 1" (25mm) minimum centers
- Type of vessel connections

  A) Flanged – size and type

  B) Female socket-weld-size

  C) Special drain connections
  – extended pipe (male) 1/2" (15 mm) or 3/4" (20 mm)
  – flange (size & type)
- Extended high temperature probe wires (30" (.76 meter) extending from unit is standard)
- Integrally mounted NEMA 4(IP65) or NEMA 4X (IP66) weatherproof pre-wired junction box
- Insulation jacket designed for easy access to accommodate maintenance

See page 7 for more economical solutions

Optional Insulation Jacket

Custom-made to precisely fit your column and to be easily removed for inspections. The jacket protects personnel while helping to provide maximum system accuracy. Two-inch thick insulation makes it suitable for outdoor service while withstanding contact surfaces up to 700˚F (265˚C).



Combine Your Local and Remote Systems to Save on Installation Costs





Consider updating your existing Water Gage Glass with a new LevelMax™ system. LevelMax systems combine the Eye-Hye® SmartLevel™ Indicator with a new Water Gage Glass and LED Illuminator to maximize reliability while also providing the most economical method to meet ASME code.

Offers local and remote drum level monitoring:

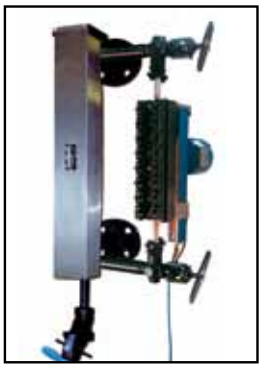
- Eye-Hye® Smartlevel™ Indicator for remote indicator, and
- Glass Gage for local monitoring (For high pressure service, a Simpliport® Bicolor gage. For low to medium pressure service, a flat glass gage with a DuraStar Illuminator.

Low Installation Cost

The LevelMax™ system provides one of the most economical drum level systems for ASME code compliance and compact assembly design for any application. It eliminates a portion of the field piping and welding which is associated with the traditionally independent instruments — thereby, reducing the installation cost. The Eye-Hye System is the hub of the assembly, and is available for design pressures of: 450 PSI (30 Bar), 1000 PSI (66 Bar), 1800 PSI (120 Bar) & 3000 PSI (200 Bar).



LevelMax unit for high pressure service (up to 3000 PSI [200 Bar]), including our Simpliport® Bicolor type water gage glass.The high pressure design for application pressures up to 3000 PSI (200 Bar) include chain wheel actuated water gage valves and flanged connections to the water gage.



LevelMax unit with Flat Glass gage lit by DuraStar Illuminator.

Optional low to medium pressure models are rated up to 1500 PSI (100 Bar) with lever actuated water gage isolation valves and an end stem connected water gage for easy maintenance.

Maintain Optimum Performance and Accuracy with OEM Parts

Critical spare parts for overnight delivery, direct from the manufacturer.

clark-reliance.com/parts

Clark·Reliance®

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