DURAG Flame Supervisor – Secure. Safe. By design.
For direct and fiber optic viewing

Compact fail-safe optical flame monitors for all fuels

- Auto Learn function for easy setting on different firing situations
- Built-in redundancy, ensuring continuous process operation
- SIL 3 for low demand and high demand mode
- Flame Companion app – total remote control
- Certified security as per IEC 62443 (optional) for high cybersecurity

H2 READY

ONE COMPANY | COMPREHENSIVE SOLUTIONS

- **Local support, global reach:** Benefit from local commissioning and services through our extensive network of partners and corporate organizations, ensuring prompt assistance and expertise wherever you are.
- **One company, comprehensive solutions:** DURAG GROUP offers a comprehensive solution for your plant, from combustion optimization and safety to environmental compliance and atmospheric impact monitoring.

SELECT AND ROTARY SWITCH VERSIONS

Available in two versions:
- **D-LX 1100 (Rotary Switch version):** For easy, manual settings with the use of rotary switches.
- **D-LX 2xxx (Select version):** With multiple filters and Auto Learn function, and settings and analysis via the Flame Companion app.

FEATURES AND BENEFITS (ALL DEVICES)

- **Extended ambient temperature range**
  Certified performance across a wide range of temperatures – no need for insulation, heating, or cooling accessories.
- **Ready to connect**
  Combination with the Flame Companion app enables convenient and user-friendly operation of the Flame Supervisor via USB and Modbus (see page 3).
- **Functional safety**
  Redundant channel operation ensures reliable performance in safety-critical applications (SIL 3).
- **Detection of all gas fuels**
  Ultraviolet UV cell in all device versions to ensure detection of gas fuels (H2 Ready).
- **Flame signal**
  Configurable analog output for flame intensity and fault indication.

- **Safe landing**
  Dual-channel configuration, TÜV certified, ensuring continued safe operation for up to 22 hours and 50 minutes in the event of internal disruption.
- **Continuous flame monitoring**
  All Flame Supervisor versions equipped with photodiodes, collect data continuously (without shuttering or blind periods).
- **User-friendly operation**
  Flame Companion app/Software (Android, Windows) enabling intuitive setup and operation of the flame scanner.
- **Local LED lights**
  Provides clear indication of operating status, flame presence (ON), current FFDT, flame intensity, Auto-Learn status, and optional Bluetooth connectivity.

FEATURES AND BENEFITS (SELECT VERSION)

- **Effortless setup and operation**
  Quick commissioning using Auto Learn function – just two buttons for a straightforward user experience.
- **Simplifies complex requirements**
  Comes with four preconfigured operating modes combining firing scenarios or fuel types, making setup easier and ensuring user-friendly operation.
- **Enhanced connectivity**
  In addition to the three communication channels Bluetooth, USB, and Modbus, the Select version comes with two analog outputs.
- **Dual-color detection for wide fuel ranges**
  Combined UV + IR photodiode sensors available in one device to detect almost all kinds of fuels (dusty, liquid, gaseous, chemicals, waste products).

- **Tailored monitoring**
  Auto Learn automatically generates the best settings. In combination with four ranges, optimum monitoring of the most variable and complex combustion situations is guaranteed.
- **Certified cybersecurity**
  The Flame Supervisor offers certification in accordance with IEC 62443-4-2 (parameter configuration is still available with the Flame Companion app).
- **Fiber optics based version (D-LX 27x0)**
  Flexible or rigid tube for complex conditions such as tilting burners, high temperatures in combustion chambers, space constraints or high vibrations.

FLAME COMPANION APP

Paired with the Flame Companion app, the compact flame monitor offers easy and intuitive settings and evaluation via USB, Modbus, or Bluetooth.


UNLEASH THE POWER OF THE FLAME SUPERVISOR – RIGHT FROM YOUR POCKET

- **Built to maximize performance**
  The Flame Companion app is specifically designed to support and enhance every step of working with the Flame Supervisor, from commissioning to full operation. With intuitive guidance and smart functionality, this powerful tool fits in your pocket, putting control, configuration, and confidence at your fingertips: anytime, anywhere.
- **Intuitive configuration with user guidance**
  The app offers step-by-step guidance and feedback, giving users confidence in the accuracy and quality of their configuration settings.
- **Effortless settings transfer**
  Quickly copy and apply settings from one Flame Supervisor to another. This saves time and ensures consistent configurations and monitoring behavior across all devices.
- **Extended Auto Learn function**
  Customize the Auto Learn phase duration to suit challenging firing conditions. This guarantees safe and reliable flame detection even under difficult circumstances.

- **Cybersecurity support**
  When configuring devices certified to IEC 62443 standards, the app provides a structured setup process that aligns with cybersecurity requirements. Multiple user levels with password protection and multifactor authentication features ensure that only authorized personnel can use the device and access or modify settings.
- **Cross-platform availability**
  Available for download directly from our website for:
  - **Android** – via Google Play Store
  - **Windows** – via Microsoft Store

Google Play   Microsoft Store

FLAME COMPANION | CONFIGURATION EXAMPLES
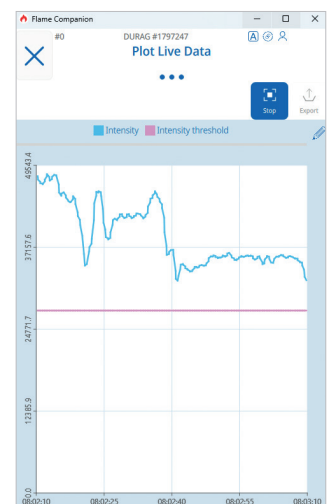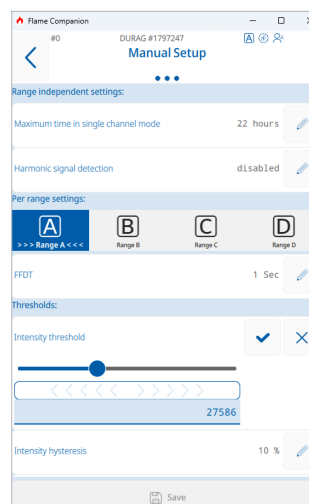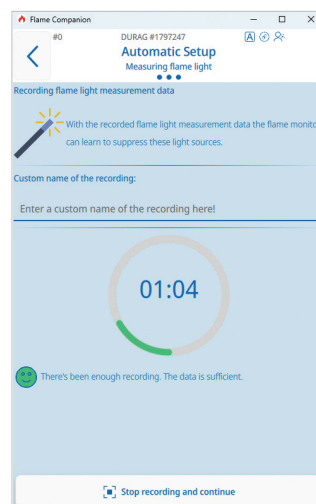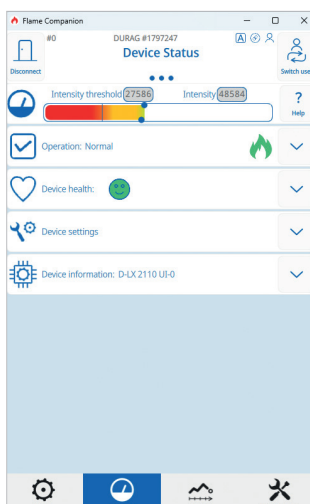
Settings in Flame Companion (from left to right): Device Status, Automatic Setup, Manual Setup, Plot Live Data

TECHNICAL DATA

	Rotary Switch version	Select version
Type of detector	UL: 185 ... 260 nm UA: 305 ... 480 nm IG: 780 ... 1,800 nm	UL: 185 ... 260 nm UA: 305 ... 480 nm UI: 220 ... 360 nm and 780 ... 1,800 nm
Operating mode	Intermittent operation and continuous operation	
Switching threshold	Flame intensity	
Local display (LEDs)	• Operating status • Flame ON • Current FFDT • Flame intensity	• Operating status • Flame ON • Current FFDT • Flame intensity • Auto Learn • Bluetooth (optional)
Flame failure detection time (FFDT)	0.5 ... 5 s (increments of 0.5 s), separately adjustable for each of the 2 ranges	0.5 ... 5 s (increments of 0.5 s), separately adjustable for each of the 4 ranges
Flame ON contact	Normally open: Active when flame is ON	
Flame OFF contact	Normally closed: Active when flame is OFF	
Ready-for-operation contact (SPDT)	Changeover relay switch (ready/not ready)	
Switching capacity, relay contacts*	Maximum 50 V=, 0.5 A; Maximum 230 V~, 0.2 A	
Analog output	0/4 ... 20 mA (configurable) Load max. 750 Ω	2x 0/4 ... 20 mA (configurable) Load max. 750 Ω
Viewing angle	6 °	6 °
Power supply	24 V= ±20%; 5 W; PELV (as per IEC 60730-1)	
Ambient conditions	UL: −40 ... +85 °C (−40 ... +185 °F) UA: −40 ... +75 °C (−40 ... +167 °F) IG: −40 ... +90 °C (−40 ... +194 °F)	UL: −40 ... +85 °C (−40 ... +185 °F) UA: −40 ... +75 °C (−40 ... +167 °F) UI: −40 ... +90 °C (−40 ... +194 °F)
Operating conditions (internal temperature)	UL: −40 ... +95 °C (−40 ... +203 °F) UA: −40 ... +85 °C (−40 ... +185 °F) IG: −40 ... +95 °C (−40 ... +203 °F)	UL: −40 ... +95 °C (−40 ... +203 °F) UA: −40 ... +85 °C (−40 ... +185 °F) UI: −40 ... +95 °C (−40 ... +203 °F)
Protection level	• IP66 / IP68, NEMA 4X • IP65, NEMA 4X (/MP9) • IP66, NEMA 4X (Ex versions without connector)	
Weight, housing (without cables)	• P2 (plastic): Approx. 0.9 kg (1.9 lbs) • M5 (aluminum): Approx. 1.3 kg (2.8 lbs) • M4 (aluminum): Approx. 3.0 kg (6.6 lbs) • S2 (stainless steel): Approx. 7.0 kg (15.4 lbs)	

* Power connection and safety-related relay outputs are routed separately.

PRODUCT CONFIGURATION CODES

ROTARY SWITCH VERSION D-LX 11D0 FF-G/HHII/JJ/EXKKL/MMM X X		
D	Wireless communication	0: None
FF	Detector type	UL; UA; IG
G	Cybersecurity	0: Factory security
HHII	Compliance	HH: Device compliance II: Application compliance
JJ	Housing type/ Ex-zone	P2: Safe zone M5: Safe zone/zone 2 M4: Zone 1 S2: Zone 1
KK	Ex compliance	E.g. AX for IECEx and ATEX; UC; GB; IN; KR; JP; EA
L	Ex protection	x: Safe zone; 1: E.g. zone 1/21 for IECEx/ATEX; 2: E.g. zone 2/22 for IECEx/ATEX
MMM	Electrical connections	MP9; PCG; MCG; MC2; M20; NPT
X	Mechanical connections	NPT: Connections for sighting tube and purge air with NPT thread
X	Special versions	SAxxx: Customized

SELECT VERSION D-LX 2CD0 FF-G/HHII/JJ/EXKKL/MMM X X		
C	Sighting	1: Direct view (UL, UA, UI, IG) 7: Fiber optic (only D-LX 2CD0 UA, UI) with separate D-LL fiber optic system
D	Wireless communication	0: None 1: Bluetooth
FF	Detector type	UL; UA; UI
G	Cybersecurity	0: Factory security 1: Certified security as per IEC 62443-4-2
HHII	Compliance	HH: Device compliance II: Application compliance
JJ	Housing type/ Ex-zone	P2: Safe zone M5: Safe zone/zone 2 M4: Zone 1 S2: Zone 1
KK	Ex compliance	E.g. AX for IECEx and ATEX; UC; GB; IN; KR; JP; EA
L	Ex protection	x: Safe zone; 1: E.g. zone 1/21 for IECEx/ATEX; 2: E.g. zone 2/22 for IECEx/ATEX
MMM	Electrical connections	MP9; PCG; MCG; MC2; M20; NPT
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X	Special versions	SAxxx: Customized

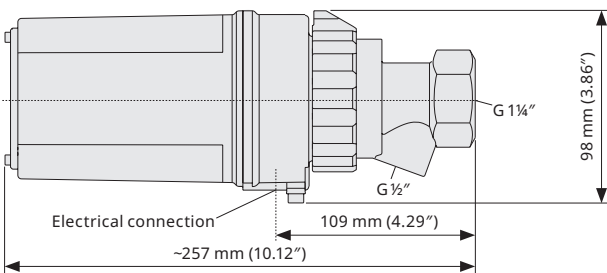# ROTARY SWITCH AND SELECT | VERSIONS AND DIMENSIONS

P2 HOUSING (PLASTIC)

118 mm (4.65")
G 1¼"
G ½"
113 mm (4.45")
261 mm (10.276")
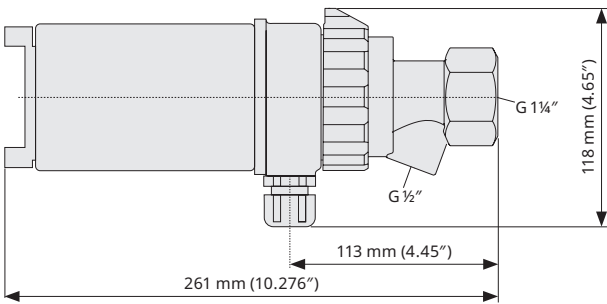
P2 housing, Rotary Switch

P2 housing, Select

M5 HOUSING (ALUMINUM)

98 mm (3.86")
G 1¼"
G ½"
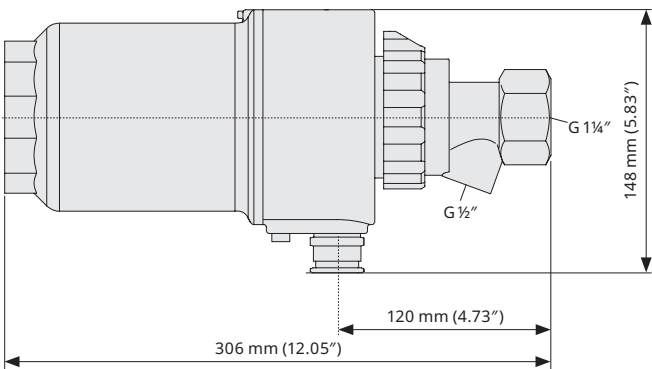Electrical connection
109 mm (4.29")
~257 mm (10.12")

M5 housing, Rotary Switch
(with plug-in cover)

M5 housing, Select
(with plug-in cover)
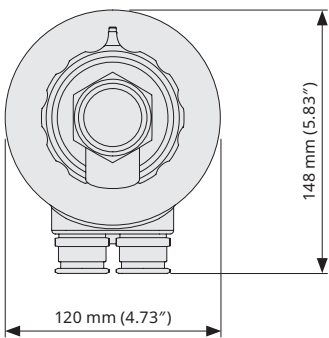
M4 HOUSING (ALUMINUM) + S2 HOUSING (STAINLESS STEEL)
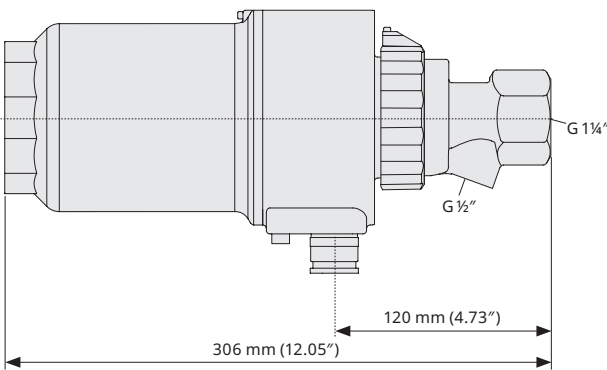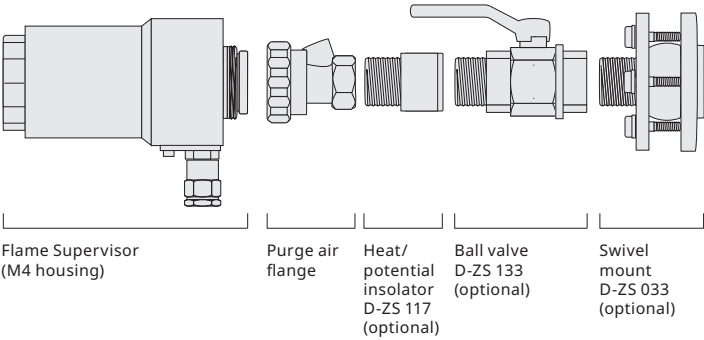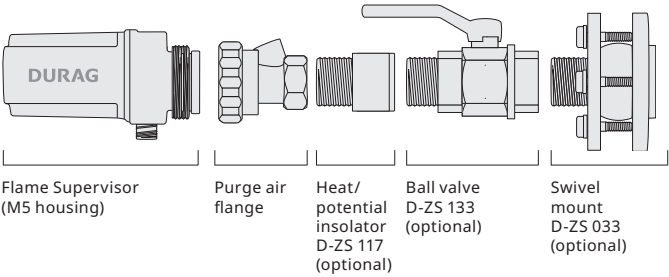

G 1¼"
148 mm (5.83")
G ½"
120 mm (4.73")
306 mm (12.05")
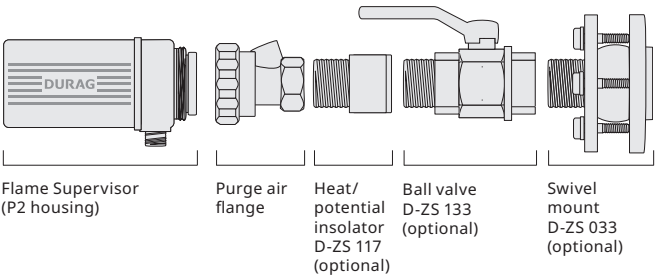

M4 housing, Select

S2 housing, Select

M4 HOUSING (ALUMINUM) + S2 HOUSING (STAINLESS STEEL) | DUAL CABLE CONNECTION VARIANT

G 1¼"
G ½"
120 mm (4.73")
306 mm (12.05")

148 mm (5.83")
120 mm (4.73")

Flame Supervisor (P2 housing)

Purge air flange

Heat/ potential insolator D-ZS 117 (optional)

Ball valve D-ZS 133 (optional)

Swivel mount D-ZS 033 (optional)

Flame Supervisor (M5 housing)

Purge air flange

Heat/ potential insolator D-ZS 117 (optional)

Ball valve D-ZS 133 (optional)

Swivel mount D-ZS 033 (optional)

Flame Supervisor (M4 housing)

Purge air flange

Heat/ potential insolator D-ZS 117 (optional)

Ball valve D-ZS 133 (optional)

Swivel mount D-ZS 033 (optional)

FIBER OPTIC (Flexible or rigid tubes) | SELECT VERSION ONLY

P2 housing

Fiber optic system, here for example D-LL 703

M5 housing

Fiber optic system, here for example D-LL 704

M4 + S2 housing

Fiber optic system, here for example D-LL 703

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