PRODUCT DATA

Modal Exciters — Types 4825 and 4826

Designed for demanding modal testing applications, Electrodynamic Modal Exciters Types 4825 and 4826 provide precise, reliable, stable and long-lasting operation. Highest quality materials, stringent quality control and rugged constructions provide for a versatile means of modal excitation for any experimental modal test using the attached excitation method.

The two modal exciters are available as stand-alone units – supplied only with the appropriate trunnion, blower and connecting cable – or as complete systems with matching power amplifier.

Optional accessories include traditional push/pull stingers, tension wire stingers, lateral modal exciter stands, turnbuckles, hose and cable extension kits, chuck nut assemblies and various adaptors.

4825, 4826

Brüel & Kjær

USES

- ❍ General mechanical mobility measurements
- ❍ Experimental modal analysis on most mechanical structures
- ❍ SISO, MISO, SIMO and MIMO modal testing applications
- ❍ Advanced structural dynamics investigations
- ❍ Structural damage detection
- ❍ Finite element model correlation

FEATURES

- ❍ Force rating 200 N sine (Type 4825) or 400 N sine (Type 4826)
- ❍ Hole-through design for choice of tension wire stingers or traditional stingers
- ❍ Rugged, industrial design
- ❍ Extremely high force-to-weight ratio due to rare-earth magnet technology
- ❍ One inch peak-to-peak displacement for best low frequency excitation
- ❍ High-rigidity, low-mass magnesium armature for minimised force drop-offs at resonance
- ❍ Compact construction enabling easy positioning/orientation relative to test object
- ❍ Wide frequency range
- ❍ Low stray magnetic field
- ❍ Built-in air switch for protection against damage related to excessive current
- ❍ Built-in optical sensor for accurate determination of armature position
- ❍ Ideal for any excitation signal (sine, impulse and random signals)
- ❍ Electronic DC control of tension wire pre-tensioning (optional)
- ❍ Full range of stingers – tension wire technology as well as traditional push/pull stinger technology (optional)
- ❍ Robust lateral exciter stands for easy positioning and orientation (optional)
- ❍ Can be delivered as a complete turn-key excitation system with trunnion, auxiliary hardware and all necessary cables

Description

The “hole-through” design of Modal Exciters Types 4825 and 4826 makes it possible to use tension wire stingers or traditional push/pull stingers with the exciters. Easy and rapid attachment of stingers is achieved by use of a chuck nut assembly (for use with tension wire stingers) or with an M6 to 10–32 UNF threaded insert (for use with push/pull stingers).

In lateral set-ups of Modal Exciters Types 4825 and 4826, tension wire stingers can easily be mechanically pre-tensioned when Lateral Modal Exciter Stands UA 1607 and UA 1608 are used. For electrical pre-tensioning, especially useful in vertical, skewed excitation setups and for excitation in confined spaces, the optional DC Static Centering Unit Type 1056 can be used. Modal Exciters Types 4825 and 4826 have a Video HR-10 socket that outputs the signal from the built-in optical sensor, providing necessary feedback to the optional DC Static Centering Unit Type 1056. Traditional push/pull stingers require no pre-tensioning.

Specifications – Modal Exciters Type 4825 and 4826

COMPLIANCE WITH STANDARDS

CE compliance with EMC Directive and Low Voltage Directive

compliance with EMC Requirements of Australia and New Zealand

Safety, EMC Emission and Immunity: According to relevant standards: EN 61010–1, IEC 61010–1, UL 3111–1, EN 50081–1/2, IEC 61000–6–1/2/3/4, EN 61326–1, CISPR22 Class B limits, FCC Rules Part 15, EN 50082–1/2, EN 61326–1

Temperature: According to IEC 60068–2–1 & IEC 60068–2–2
Operating temperature: +5 to +40°C (41 to 104°F)
Storage temperature: –25 to +70°C (–13 to 158°F)
Humidity: According to IEC 60068–2–3, Damp Heat: 90% RH (non-condensing at 40°C (104°F))
Mechanical: Non-operating according to IEC 60068–2–6, IEC 60068–2–27, IEC 60068–2–29
Enclosure: IEC 60529: Protection provided by enclosures: IP 20

Fig. 1
Dimensions of Modal Exciters Types 4825 and 4826 (mm)

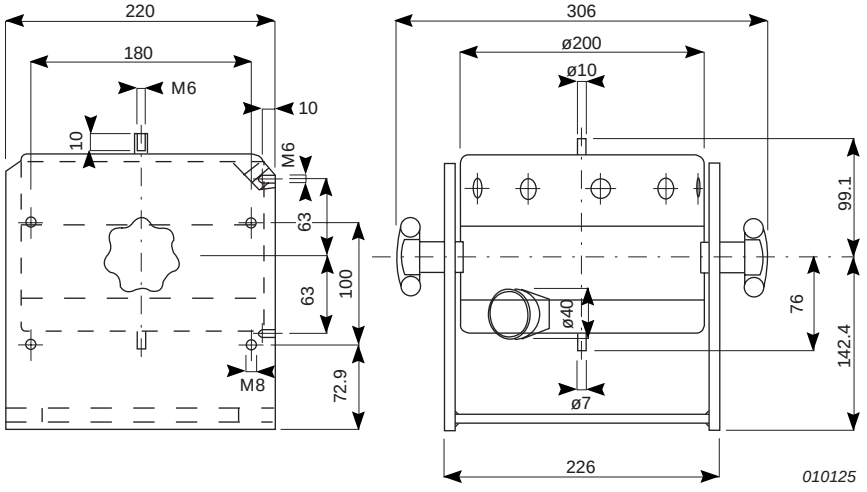

Table 1 *Overview of specifications for Modal Excitation Systems Types 3625, 3626*

Exciter	Type 4825	Type 4826
Matching Power Amplifier	Type 2720	Type 2721
Matching Blower	UH 1035	UH 1035
Rated Force – without forced air cooling [sine (peak)/random (RMS)]	100/70 N	100/70 N
Rated Force – with forced air cooling [sine (peak)/random (RMS)]	200/140 N[a]	400/280 N[a]
Useful Frequency Range	2 – 5000 Hz	2 – 5000 Hz
Operating Frequency Range	DC – 5000 Hz	DC – 5000 Hz
Max. Rated Travel	25.4 mm (1 inch)	25.4 mm (1 inch)
Max. Velocity [sine (peak)/random (RMS)]	1.5/1.5 m/s	1.5/1.5 m/s
Max. Acceleration [sine (peak)/random (RMS)]	863/608 m/s^2 (88/62 g)	981/697 m/s^2 (100/71 g)
Rated Current	11.2 A	18 A
Suspension Stiffness	4 N/mm	4 N/mm
Effective Moving Mass	0.23 kg	0.40 kg
Main Resonance Frequency	> 6000 Hz	4000 Hz
Weight with Trunnion	21 kg (46 lb)	21 kg (46 lb)

a. Brüel & Kjær assumes no responsibility if blowers other than UH 1035 are used for cooling.

Table 2 *Overview of specifications for the blowers UH 1035*

	Air capacity	Max pressure	Electro-motor	Hose diameter	SPL	Weight	Dimensions	Enclosure
UH 1035	2.2 m^3/min	66 mbar	0.36 kW	40 mm	65 dB(A)	14.5 kg	282/323/320 mm	IP class 54

Ordering Information

MODAL EXCITER TYPE 4825
Includes the following accessories:

AQ 0649	Cable with two 4-pin Neutrik Speakon plugs, length 5 m
KC 1007	Trunnion
UH 1035	200 N Blower
AF 1101	Air hose for UH 1035, 5 m
UA 1612	Three adaptors M6 to 10–32 UNF

MODAL EXCITATION SYSTEM TYPE 3625

Type 4825	Modal Exciter
Type 2720	Power Amplifier
UA 1598	Three push/pull steel stingers. Content: Three fastening screws. Three adaptors diameter 2.5 mm to 10–32 UNF. Three steel rods, length 500 mm, diameter 2.5 mm. One 2.5 mm collet chuck (chuck nut with collet insert)

MODAL EXCITER TYPE 4826
Includes the following accessories:

AQ 0659	Cable with two 8-pin Neutrik Speakon plugs, length 5 m
KC 1007	Trunnion
UH 1035	200 N Blower
AF 1101	Air hose for UH 1035, length 5 m
UA 1612	Three adaptors, M6 to 10–32 UNF

MODAL EXCITATION SYSTEM TYPE 3626

Type 4826	Modal Exciter
Type 2721	Power Amplifier
UA 1598	Three push/pull steel stingers. Content: Three fastening screws. Three adaptors diameter 2.5 mm to 10–32 UNF. Three steel rods, length 500 mm, diameter 2.5 mm. One 2.5 mm collet chuck (chuck nut with collet insert)

Optional Accessories

ELECTRICAL TENSION WIRE PRE-TENSIONING

Type 1056	DC Static Centering Unit

POWER AMPLIFIERS

Type 2720	Power Amplifier
Type 2721	Power Amplifier

STINGERS, COLLET CHUCKS AND ADAPTORS

UA 1596	Five push/pull steel stingers. Content: Ten adaptors diameter 2.5 mm to 10–32 UNF. Five Steel rods, length 200 mm, diameter 2.5 mm. Ten fastening screws
UA 1597	Five push/pull steel stingers. Content: Ten adaptors, diameter 3.5 mm to 10–32 UNF. Five steel rods, length 200 mm, diameter 3.5 mm. Ten fastening screws
UA 1598	Three push/pull steel stingers. Content: Three fastening screws. Three adaptors diameter 2.5 mm to 10–32 UNF. Three steel rods, length 500 mm, diameter 2.5 mm. One 2.5 mm collet chuck (chuck nut with collet insert)
UA 1599	Three Push/Pull steel stingers. Content: Three fastening screws. Three Adaptors, diameter 3.5 mm to 10–32 UNF. Three steel rods, length 500 mm, diameter 3.5 mm, one 3.5 mm collet chuck (chuck nut with collet insert)
UA 1600	One tension wire, length 5000 mm, with collet chuck. Content: One fastening screw. One adaptor, diameter 0.75 mm to 10–32 UNF. One tension wire, length 5000 mm, diameter 0.75 mm, on a spool. One 0.75 mm collet chuck (chuck nut with collet insert)
UA 1601	Three tension wires. Content: Three fastening screws. Three adaptors, diam. 2.0 mm, 10–32 UNF One tension wire, length 500 mm, diameter 2.0 mm, three 2.0 mm collet chucks (chuck nut with collet insert)
UA 1602	Collet chuck and adaptor for tension wire with diameter 0.75 mm. Content: Three chuck nuts. Three collet inserts for wire diameter 0.75 mm. Three fastening screws. Three adaptors, diameter 0.75 mm to 10–32 UNF
UA 1603	Collet chuck and adaptor for tension wire with 2.0 mm. Content: Three chuck nuts. Three collet inserts for wire diameter 2.0 mm. Three fastening screws. Three adaptors, 2.0 mm to 10–32 UNF
UA 1604	Collet chuck and adaptor for push/pull rod, diameter 2.5 mm. Content: Three chuck nuts. Three collet inserts for push/pull rod diameter 2.5 mm. Three fastening screws. Three adaptors, 2.5 mm to 10–32 UNF
UA 1605	Collet chuck and adaptor for push/pull rod, diameter 3.5 mm. Content: Three chuck nuts. Three collet inserts for push/pull rod diameter 3.5 mm. Three fastening screws. Three adaptors, 3.5 mm to 10–32 UNF
UA 1606	Five nylon stingers. Content: Five nylon rods, 200 mm, diameter 3.5 mm. Ten fastening screws. Ten adaptors, diameter 3.5 mm to 10–32 UNF

FORCE TRANSDUCERS AND IMPEDANCE HEAD

EE-0357	ENDEVCO 2312 Piezoelectric Force Sensor
EE-0358	ENDEVCO 2313 Piezoelectric Force Sensor
EE-0112	ENDEVCO 2311-1 ISOTRON® Force Transducer
EE-0113	ENDEVCO 2311-10 ISOTRON® Force Transducer
EE-0114	ENDEVCO 2311-100 ISOTRON® Force Transducer
EE-0115	ENDEVCO 2311-500 ISOTRON® Force Transducer
Type 8203	Force Transducer/Impact Hammer
Type 8001	Impedance Head

THREAD AND BUSHING ADAPTORS

EE-5227-002	Bushing Adaptor, 10–32 UNF to ¼–28 UNF
EE-5004	Adaptor, Male 10–32 UNF to Male ¼–28 UNF

CABLE AND HOSE EXTENSIONS

AQ 0648	Extension cable with Neutrik Speakon 4-pin connector at both ends, length 10 m
AQ 0655	Extension cable with Neutrik Speakon 8-pin connector at both ends, length 10 m
AF 1102	Extension air hose, length 10 m
AQ 0658	Extension cable with 9-pin D-sub connector to video HR-10 connector

LATERAL MODAL EXCITER STANDS

UA 1607	Modal Exciter Stand, height 1.4 m. Mechanical pre-tensioning of tension wire is possible via an adjustable spring
UA 1608	Modal Exciter Stand, height 2.0 m. Mechanical pre-tensioning of tension wire is possible via an adjustable spring

Brüel & Kjær reserves the right to change specifications and accessories without notice.

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