Ambient temperature t_a

The ambient temperature – as specified on every EB – denotes the permissible temperature range within the luminaire.

Reliability and service life

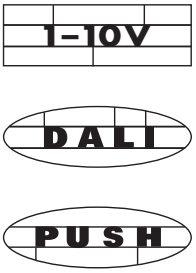
If the max. temperature at the t_c reference point (as specified on the type plate and the technical documentation of the ballast) is not exceeded, the defined service life can be expected to be achieved, assuming a switching cycle of 165 minutes on and 15 minutes off.
See page 246 for service life details regarding the various electronic ballast families.

Emergency lighting

All Vossloh-Schwabe EBs that are suitable for DC voltage operation can be used in emergency lighting systems. Consideration must, however, be taken of system requirements.

VS Dimmable Electronic Ballasts

Vossloh-Schwabe's range of electronic ballasts is rounded off by dimmable ballasts for fluorescent lamps The standardised interfaces "1–10 V" and "DALI" are used for this purpose. Coupled with sensors, electronic ballasts fitted with a "1–10 V" interface make it easy to create intelligent luminaires and room lighting systems, whereby the luminaires are "programmed" via the wiring to the control units, i.e. via the hardware.



The digital interface "DALI" (Digital Addressable Lighting Interface) constitutes a further development of the "1–10 V" analogue interface. This digital interface was jointly developed by leading manufacturers of electronic ballasts in order to create a uniform standard for the lighting industry. The uniform interface and telegram definition dictates the function of a DALI operating device or DALI consumer and ensures exchangeability of operating devices made by various manufacturers.

Each VS DALI ballast is additionally fitted with the so-called PUSH function. The data input DA (DALI & PUSH) is used as a control input for both signal structures, with the exception of devices featuring separate inputs. When used as a DALI ballast, control is effected via the DALI protocol; when used as a PUSH ballast, control is effected via a push key and is achieved via current flow times of differing duration.

VS DALI electronic ballasts provide the convenience of a bus system that is both easy to install and operate.

Due to the working principle involved, dimming compact fluorescent lamps causes a negligible drop in colour temperature. However, sudden larger changes in the dimmer setting can temporarily cause greater variation in colour temperature. The dimmer function is optimised to minimise this subjective visual change in colour temperature when the dimmer setting is suddenly subjected to larger change.

VS DALI electronic ballasts are characterised by the following performance feature

- Two-strand, potential-free, polarity-independent control input
- Dimmer curve analogue to the light sensitivity of the human eye
- Addressing options: total system, group-wise or individually
- Scene memory
- Feedback in the event of defective lamps

These features ensure a number of advantages for lighting systems

- No group wiring needed
- Each DALI ballast can be individually addressed
- No need for scene memory modules
- Synchronised scene transitions
- Operating devices provide reports on lamp status
- Simple integration into facility management systems

DALI and PUSH must not be used at the same time!

Switching mains voltage to the DALI conductors within a DALI system will lead to the destruction of both the DALI power supply and the DALI master!

PUSH function characteristic

- Just one key for dimming and ON/OFF
- Polarity- and phase-independent control
- Control input with large working voltage range
- Suitable for multi-layer control
- Fully DC-compatible – no functional restrictions during DC operation
- After disconnection from the primary voltage the ballast will reproduce the last stored lighting level
- Soft start
- Automatic recognition of DALI and PUSH signals

PUSH operating voltage ranges during control signal input

EB type	ELXd 117.715, ELXd 217.717, ELXd 118.705, ELXd 218.707, ELXd 142.709, ELXd 242.711	All other DALI/PUSH ballasts
AC	220–240 V ±10%	10–230 V
DC	198–264 V	–
	Failing to observe these working voltage ranges can lead to non-recognition of the signals; exceeding the maximum voltages can lead to the destruction of the data inputs.	

PUSH control signals (key activation)

Short push	(80 ms < t < 460 ms)	(0 ms < t < 500 ms)
	Is used to switch between ON/OFF lighting states. After the device is switched on, the last selected lighting level is restored and the next dimming direction will be upwards.	
Long push	(460 ms < t < 10 s)	(500 ms < t < ∞)
	Is used to dim upwards or downwards; a long push will change the dimming direction. Thus, a long push will reverse the dimming direction until the upper or lower limit is reached. If the light was off, a long push will switch it on and the dimmer will start at the lowest light intensity.	
Push to synchronise	(t > 10 s)	long – short – long
	Light is dimmed to the preset factory level and the next dimming direction will be upwards.	Starting situation: luminaires are switched off. The "long – short – long" combination first switches the lamp on, then off and finally on again, after which it gets gradually brighter. The EBs will be synchronised again after this procedure.
Synchronisation	Any 1-key dimmer that does not feature a central control module (as each ballast will have its own controls) can develop asynchronous behaviour (e.g. children might play with the key). The system will then be out of sync, i.e. some lamps will be on, others off or the dimming direction will differ from lamp to lamp.	
	Two methods of synchronisation can be used: • Push the key for more than 10 seconds, after which the light will be dimmed to a preset level and the next dimming direction will be upwards. • Start with a long push of the key so that all lamps are switched on. Follow with a short push to turn the system off. The system will now be resynchronised.	

Wiring examples for PUSH function

Note **Not permissible**: N-type conductors must not be used as PUSH potentials for multi-phase systems. Example: if the PUSH key is not activated, the series connection of the internal resistors of the DA inputs will approach the delta voltage of 400 V (voltage between L2 and L3) (Fig. 1).

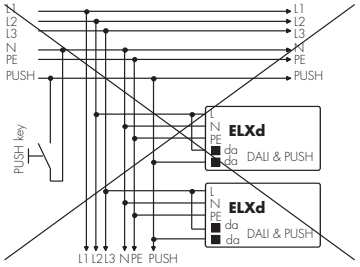


Fig. 1
N conductor must not be used as a PUSH potential

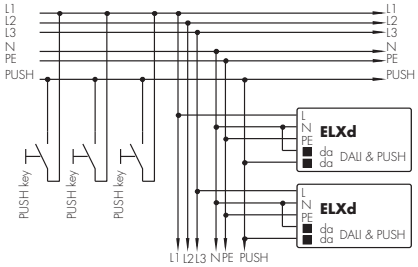


Fig. 2
Standard application for T5 and T8 lamps

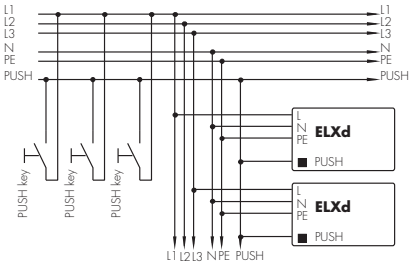


Fig. 3
Standard application for TC lamps

General information on PUSH and DALI

Mains voltage and interface conductors must not be wired in parallel to the lamp conductors so as to avoid capacitive bridging of the mains filter.

If more than one device is operated with a single key during PUSH operation, asynchronous behaviour can occur, which will require manual resynchronisation using the method described. Should this be unacceptable, a DALI control module will have to be used instead. It is recommended not to control more than four devices using a single key.

When using dimmable devices, new lamps should generally be burnt in for at least 100 hours at full brightness before they are dimmed. This process can become necessary again should the lamps be physically relocated 0(e.g. transport).

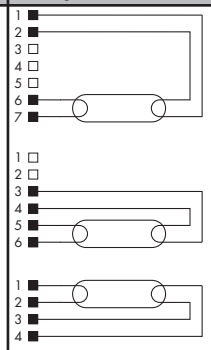
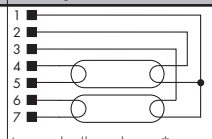
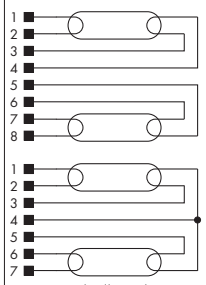
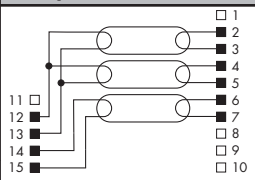
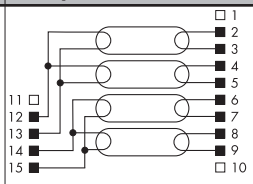
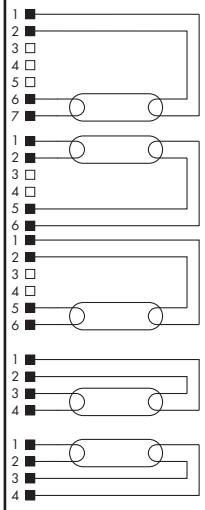
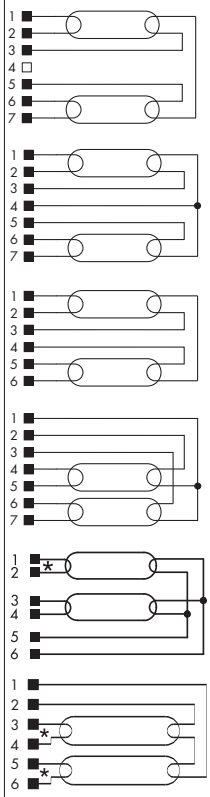
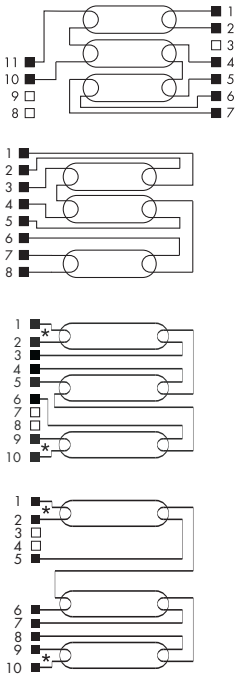
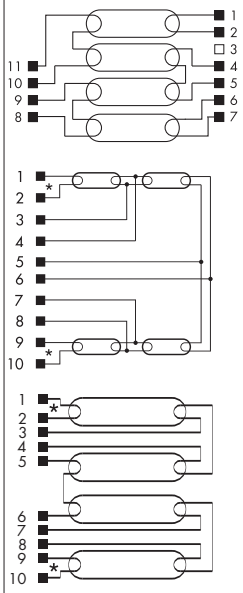
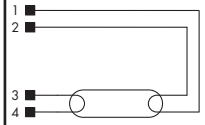
After initial operation of a DALI system (address assignment, luminaire allocation, group formation, scene settings) it is recommended to disconnect the primary voltage of the DALI control units at the circuit breaker for at least 3 seconds and then to reconnect it. The devices will detect this disconnection from the mains and store the settings.

DALI devices with a PUSH function must be operated with a control module (DALI control module or key pad with PUSH function). DALI devices with a PUSH function must not be operated with an open or bridged DALI/PUSH input.

To ensure the ballast does not distort and misinterpret signals when operated in PUSH mode, connected PUSH buttons must not feature a control lamp.

Circuit diagrams for Vossloh-Schwabe electronic ballasts

The circuit diagrams shown here are wiring examples for Vossloh-Schwabe electronic ballasts, whereby the number and configuration of the contacts differ. See the table on page 256–259 for details.

EB	1 lamp	2 lamps	3 lamps	4 lamps
ELXd		 Linear ballast shape*  Compact ballast shape		
ELXc				
ELXs				

* ELXc devices can also be wired under observation of the circuit diagram on the ballast.

Explanation of circuit diagrams for Vossloh-Schwabe electronic ballasts (see page 255)

Electronic ballasts		Lamp	Electronic ballasts															Max. lead length		Operation	Output	THD	Possible quantity of EB/automatic cut-outs			
Ref. No.	Type	Quantity	Terminals															hot*	cold	frequency	voltage		B	B	C	C
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15				U_{OUT}					
																		(m/pf)	(m/pf)	kHz	V	%	(10A)	(16A)	(10A)	(16A)
ELXc																										
183039	ELXc 424.223	3	x*	x*	–	x	x	x	x	–	–	x	x	–	–	–	–	1/100	2/200	44	400	< 10	9	14	14	22
		4	x*	x*	–	x	x	x	x	x	x	x	x	–	–	–	–	1/100	2/200	44	400	< 10	9	14	14	22
183040	ELXc 226.878	1	x	x	–	–	x*	x*	–	–	–	–	–	–	–	–	–	1/100	1.5/150	45	300	< 10	11	18	18	30
		2	x	x	x	x	x*	x*	–	–	–	–	–	–	–	–	–	1/100	1.5/150	45	300	< 10	11	18	18	30
183094	ELXc 328.224	3	x*	x*	x	x	x	x	x*	x*	x	x	–	–	–	–	–	1/100	1.5/150	43	250	< 10	10	16	17	28
183103	ELXc 135.225	1	x*	x*	x	x	–	–	–	–	–	–	–	–	–	–	–	1/100	2/200	48	250	< 10	11	18	18	30
183104	ELXc 136.226	1	x*	x*	x	x	–	–	–	–	–	–	–	–	–	–	–	1/100	2/200	44	250	< 10	11	18	18	30
183108	ELXc 226.878	1	x	x	–	–	x*	x*	–		–	–	–	–	–	–	–	1/100	1.5/150	45	300	< 10	11	18	18	30
		2	x	x	x	x	x*	x*	–	–	–	–	–	–	–	–	–	1/100	1.5/150	45	300	< 10	11	18	18	30
183109	ELXc 414.227	3	x*	x*	x	x	x	x	x	x	x*	x*	–	–	–	–	–	1/100	2/200	45	350	< 15	7	12	12	20
		4	x*	x*	x	x	x	x	x	x	x*	x*	–	–	–	–	–	1/100	2/200	45	350	< 15	7	12	12	20
183110	ELXc 424.228	3	x*	x*	x	x	x	x	x	x	x*	x*	–	–	–	–	–	1/100	2/200	47	350	< 15	7	12	12	20
		4	x*	x*	x	x	x	x	x	x	x*	x*	–	–	–	–	–	1/100	2/200	47	350	< 15	7	12	12	20
183111	ELXc 228.229	1	x*	x*	x	x	x	x	–	–	–	–	–	–	–	–	–	1/100	2/200	47	350	< 15	9	15	15	25
		2	x*	x*	x	x	x	x	–	–	–	–	–	–	–	–	–	1/100	2/200	47	350	< 20	9	15	15	25
183112	ELXc 328.230	2	x*	x*	x	x	x	x	x	x	x*	x*	–	–	–	–	–	1/100	2/200	45	350	< 15	7	12	12	20
		3	x*	x*	x	x	x	x	x	x	x*	x*	–	–	–	–	–	1/100	2/200	45	350	< 15	7	12	12	20
183113	ELXc 135.231	1	x*	x*	x	x	–	–	–	–	–	–	–	–	–	–	–	1/100	2/200	47	400	< 15	11	18	18	30
183114	ELXc 235.232	2	x	x	x*	x*	x*	x*	–	–	–	–	–	–	–	–	–	1/100	2/200	46	400	< 15	9	15	15	25
183115	ELXc 239.233	1	x*	x*	x	x	x	x	–	–	–	–	–	–	–	–	–	1/100	2/200	47	350	< 15	7	12	12	20
		2	x*	x*	x	x	x	x	–	–	–	–	–	–	–	–	–	1/100	2/200	47	350	< 15	7	12	12	20
183116	ELXc 149.234	1	x*	x*	x	x	–	–	–	–	–	–	–	–	–	–	–	1/100	2/200	47	250	< 15	9	15	15	25
183117	ELXc 249.235	2	x	x	x*	x*	x*	x*	–	–	–	–	–	–	–	–	–	1/100	2/200	47	350	< 15	7	12	12	20
183118	ELXc 254.236	1	x*	x*	x	x	x	x	–	–	–	–	–	–	–	–	–	1/100	2/200	48	350	< 15	7	12	12	20
		2	x*	x*	x	x	x	x	–	–	–	–	–	–	–	–	–	1/100	2/200	48	350	< 15	7	12	12	20
183119	ELXc 180.237	1	x*	x*	x	x	–	–	–	–	–	–	–	–	–	–	–	1/100	2/200	46	350	< 15	9	15	15	25
183122	ELXc 114.238	1	x*	x*	x	x	–	–	–	–	–	–	–	–	–	–	–	1/100	2/200	45	380	< 20	8	17	17	28
183123	ELXc 128.239	1	x*	x*	x	x	–	–	–	–	–	–	–	–	–	–	–	1/100	2/200	45	380	< 20	8	17	17	28
183124	ELXc 214.240	2	x	x	x	x	x*	x*	x*	–	–	–	–	–	–	–	–	1/100	2/200	45	380	< 20	8	17	17	28
183125	ELXc 228.241	2	x	x	x	x	x*	x*	x*	–	–	–	–	–	–	–	–	1/100	2/200	45	380	< 20	4	7	7	12
183126	ELXc 414.242	4	x*	x*	x	x	x	x	x	x	x*	x*	–	–	–	–	–	1/100	2/200	45	430	< 20	4	7	7	12
183127	ELXc 118.243	1	x*	x*	x	x	–	–	–	–	–	–	–	–	–	–	–	1/100	2/200	45	390	< 20	8	17	17	28
183128	ELXc 136.244	1	x*	x*	x	x	–	–	–	–	–	–	–	–	–	–	–	1/100	2/200	45	390	< 20	8	17	17	28
183129	ELXc 158.245	1	x*	x*	x	x	–	–	–	–	–	–	–	–	–	–	–	1/100	2/200	45	390	< 20	4	7	7	12
183130	ELXc 218.246	2	x*	x*	x	x	x	x	–	–	–	–	–	–	–	–	–	1/100	2/200	45	390	< 20	8	17	17	28
183131	ELXc 236.247	2	x*	x*	x	x	x	x	–	–	–	–	–	–	–	–	–	1/100	2/200	45	390	< 20	4	7	7	12
183132	ELXc 258.248	2	x*	x*	x	x	x*	x*	x	–	–	–	–	–	–	–	–	1/100	2/200	45	390	< 20	2	5	5	8
183133	ELXc 418.249	4	x*	x*	x	x	x	x	x	x	x*	x*	–	–	–	–	–	1/100	2/200	45	390	< 20	4	7	7	12
183134	ELXc 118.879	1	x*	x*	x	x	–	–	–	–	–	–	–	–	–	–	–	1/100	2/200	45	380	< 20	8	17	17	28
183135	ELXc 126.880	1	x*	x*	x	x	–	–	–	–	–	–	–	–	–	–	–	1/100	2/200	45	380	< 20	8	17	17	28
183136	ELXc 218.881	2	x*	x*	x	x	x*	x*	–	–	–	–	–	–	–	–	–	1/100	2/200	45	380	< 20	4	7	7	12
183137	ELXc 226.882	2	x*	x*	x	x	x*	x*	–	–	–	–	–	–	–	–	–	1/100	2/200	45	380	< 20	4	7	7	12
183150	ELXc 118.879	1	x*	x*	x	x	–	–	–	–	–	–	–	–	–	–	–	1/100	2/200	45	380	< 20	8	17	17	28
183151	ELXc 126.880	1	x*	x*	x	x	–	–	–	–	–	–	–	–	–	–	–	1/100	2/200	45	380	< 20	8	17	17	28
183152	ELXc 218.881	2	x*	x*	x	x	x*	x*	–	–	–	–	–	–	–	–	–	1/100	2/200	45	380	< 20	4	7	7	12
183153	ELXc 226.882	2	x*	x*	x	x	x*	x*	–	–	–	–	–	–	–	–	–	1/100	2/200	45	380	< 20	4	7	7	12
188093	ELXc 135.856	1	x*	x*	x	x	–	–	–	–	–	–	–	–	–	–	–	1/100	2/200	44	330	< 10	11	18	18	30
188094	ELXc 235.857	2	x*	x*	x	x	x	x*	x*	–	–	–	–	–	–	–	–	1/100	2/200	45	330	< 10	9	15	15	25
188095	ELXc 149.858	1	x*	x*	x	x	–	–	–	–	–	–	–	–	–	–	–	1/100	2/200	28	330	< 10	11	18	18	30
188140	ELXc 140.862	1	x*	x*	x	x	–	–	–	–	–	–	–	–	–	–	–	1/100	2/200	45	250	< 10	11	18	18	30
188142	ELXc 154.864	1	x*	x*	x	x	–	–	–	–	–	–	–	–	–	–	–	1/100	2/200	34	300	< 10	9	15	15	25
188144	ELXc 180.866	1	x*	x*	x	x	–	–	–	–	–	–	–	–	–	–	–	1/100	2/200	45	300	< 10	9	15	15	25
188400	ELXc 257.836	2	x*	x*	x	x	x	x*	x*	–	–	–	–	–	–	–	–	1/100	1.5/150	47	350	< 10	7	12	12	20
188438	ELXc 414.868	3	x*	x*	–	x	x	x	x	–	–	x	x	–	–	–	–	1/100	2/200	45	400	< 10	7	12	12	20
		4	x*	x*	–	x	x	x	x	x	x	x	x	–	–	–	–	1/100	2/200	45	400	< 10	7	12	12	20
188589	ELXc 128.869	1	x*	x*	x	x	–	–	–	–	–	–	–	–	–	–	–	1/100	1.5/150	54	450	< 10	11	18	18	30
188590	ELXc 128.869	1	x*	x*	x	x	–	–	–	–	–	–	–	–	–	–	–	1/100	1.5/150	54	450	< 10	11	18	18	30
188595	ELXc 336.214	3	x	x	x	x	x	x	x*	x*	–	–	–	–	–	–	–	1/100	2/200	70	370	< 10	6	11	11	18
188616	ELXc 240.863	2	x*	x*	x	–	x	x	x	–	–	–	–	–	–	–	–	1/100	2/200	46	360	< 15	7	12	12	20
188617	ELXc 249.859	2	x*	x*	x	x	x	x*	x*	–	–	–	–	–	–	–	–	1/100	2/200	43	480	< 10	7	12	12	20

Electronic ballasts		Lamp	Electronic ballasts															Max. lead length		Operation	Output	THD	Possible quantity of			
Ref. No.	Type	Quantity	Terminals															hot*	cold	frequency	voltage		EB/automatic cut-outs			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15				U_{OUT}		B	B	C	C
ELXc																										
188618	ELXc 254.865	2	x*	x*	x	–	x	x	x	–	–	–	–	–	–	–	–	1/100	2/200	43	390	< 10	7	12	12	20
188619	ELXc 280.538	2	x*	x*	x	x	x	x*	x*	–	–	–	–	–	–	–	–	1/100	2/200	50	420	< 10	–	10	–	10
188643	ELXc 242.837	2	x	x	x	x	x*	x*	–	–	–	–	–	–	–	–	–	1/100	1.5/150	43	440	< 15	7	12	12	20
188680	ELXc 155.378	1	x	x	x*	x*	–	–	–	–	–	–	–	–	–	–	–	1/100	1.5/150	47	250	< 15	7	12	12	20
188681	ELXc 155.378	1	x	x	x*	x*	–	–	–	–	–	–	–	–	–	–	–	1/100	1.5/150	47	250	< 15	7	12	12	20
188682	ELXc 170.833	1	x*	x*	–	–	–	x	x	–	–	–	–	–	–	–	–	1/100	1.5/150	44	350	< 10	7	12	12	20
188683	ELXc 170.833	1	x*	x*	–	–	–	x	x	–	–	–	–	–	–	–	–	1/100	1.5/150	44	350	< 10	7	12	12	20
188687	ELXc 242.837	2	x	x	x	x	x*	x*	–	–	–	–	–	–	–	–	–	1/100	1.5/150	43	440	< 15	7	12	12	20
188698	ELXc 213.870	1	x	x	–	–	x*	x*	–	–	–	–	–	–	–	–	–	1/100	1.5/150	42	250	< 20	11	18	18	30
		2	x	x	x	x	x*	x*	–	–	–	–	–	–	–	–	–	1/100	1.5/150	42	250	< 20	11	18	18	30
188699	ELXc 218.871	1	x	x	–	–	x*	x*	–	–	–	–	–	–	–	–	–	1/100	1.5/150	35	350	< 12	11	18	18	30
		2	x	x	x	x	x*	x*	–	–	–	–	–	–	–	–	–	1/100	1.5/150	35	350	< 12	11	18	18	30
188700	ELXc 142.872	1	x	x	–	–	x*	x*	–	–	–	–	–	–	–	–	–	1/100	1.5/150	44	480	< 15	11	18	18	30
		2	x	x	x	x	x*	x*	–	–	–	–	–	–	–	–	–	1/100	1.5/150	44	480	< 15	11	18	18	30
188704	ELXc 136.207	1	x	x	–	–	x*	x*	–	–	–	–	–	–	–	–	–	–	–	48	350	< 20	11	18	18	30
188705	ELXc 236.208	2	x	x	x	x	x*	x*	–	–	–	–	–	–	–	–	–	–	–	45	250	< 20	11	18	18	30
188706	ELXc 158.209	1	x	x	–	–	x*	x*	–	–	–	–	–	–	–	–	–	–	–	33	250	< 20	9	15	15	25
188707	ELXc 258.210	2	x	x	x	x	x*	x*	–	–	–	–	–	–	–	–	–	–	–	48	350	< 20	7	12	12	19
188708	ELXc 136.207	1	x	x	–	–	x*	x*	–	–	–	–	–	–	–	–	–	–	–	48	350	< 20	11	18	18	30
188709	ELXc 236.208	2	x	x	x	x	x*	x*	–	–	–	–	–	–	–	–	–	–	–	45	250	< 20	11	18	18	30
188710	ELXc 158.209	1	x	x	–	–	x*	x*	–	–	–	–	–	–	–	–	–	–	–	33	250	< 20	9	15	15	25
188711	ELXc 258.210	2	x	x	x	x	x*	x*	–	–	–	–	–	–	–	–	–	–	–	48	350	< 20	7	12	12	19
188712	ELXc 213.870	1	x	x	–	–	x*	x*	–	–	–	–	–	–	–	–	–	1/100	1.5/150	42	250	< 20	11	18	18	30
		2	x	x	x	x	x*	x*	–	–	–	–	–	–	–	–	–	1/100	1.5/150	42	250	< 20	11	18	18	30
188713	ELXc 218.871	1	x	x	–	–	x*	x*	–	–	–	–	–	–	–	–	–	1/100	1.5/150	35	350	< 12	11	18	18	30
		2	x	x	x	x	x*	x*	–	–	–	–	–	–	–	–	–	1/100	1.5/150	35	350	< 12	11	18	18	30
188714	ELXc 142.872	1	x	x	–	–	x*	x*	–	–	–	–	–	–	–	–	–	1/100	1.5/150	44	480	< 15	11	18	18	30
		2	x	x	x	x	x*	x*	–	–	–	–	–	–	–	–	–	1/100	1.5/150	44	480	< 15	11	18	18	30
188744	ELXc 418.204	3	x*	x*	–	x	x	x	x	–	–	x	x	–	–	–	–	1/100	2/200	44	480	< 10	7	12	12	20
		4	x*	x*	–	x	x	x	x	x	x	x	x	–	–	–	–	1/100	2/200	44	480	< 10	7	12	12	20
188868	ELXc 136.216	1	x	x	–	–	x*	x*	–	–	–	–	–	–	–	–	–	1/75	1.5/100	47,5	430	< 20	17	28	28	46
188869	ELXc 236.217	2	x*	x*	x	x	x*	x*	–	–	–	–	–	–	–	–	–	1/75	1.5/100	45	430	< 10	8	13	13	21
188870	ELXc 158.218	1	x	x	–	–	x*	x*	–	–	–	–	–	–	–	–	–	1/75	1.5/100	34	430	< 10	12	19	19	31
188871	ELXc 258.219	2	x*	x*	x	x	x*	x*	–	–	–	–	–	–	–	–	–	1/75	1.5/100	52	430	< 10	8	13	13	21
188886	ELXc 213.874	1	x	x	–	–	x*	x*	–	–	–	–	–	–	–	–	–	1/75	1.5/100	44	250	< 10	11	18	18	30
		2	x	x	x	x	x*	x*	–	–	–	–	–	–	–	–	–	1/75	1.5/100	44	250	< 10	11	18	18	30
188887	ELXc 218.875	1	x	x	–	–	x*	x*	–	–	–	–	–	–	–	–	–	1/75	1.5/100	37	350	< 10	11	18	18	30
		2	x	x	x	x	x*	x*	–	–	–	–	–	–	–	–	–	1/75	1.5/100	37	350	< 10	11	18	18	30
188888	ELXc 142.876	1	x	x	–	–	x*	x*	–	–	–	–	–	–	–	–	–	1/75	1.5/100	44	480	< 10	11	18	18	30
		2	x	x	x	x	x*	x*	–	–	–	–	–	–	–	–	–	1/75	1.5/100	44	480	< 10	11	18	18	30
188889	ELXc 242.877	1	x	x	–	–	x*	x*	–	–	–	–	–	–	–	–	–	1/75	1.5/100	45	480	< 10	7	12	12	20
		2	x	x	x	x	x*	x*	–	–	–	–	–	–	–	–	–	1/75	1.5/100	45	480	< 10	7	12	12	20
188912	ELXc 136.216	1	x	x	–	–	x*	x*	–	–	–	–	–	–	–	–	–	1/75	1.5/100	47,5	430	< 20	17	28	28	46
188913	ELXc 236.217	2	x*	x*	x	x	x*	x*	–	–	–	–	–	–	–	–	–	1/75	1.5/100	45	430	< 10	17	28	28	46
188914	ELXc 158.218	1	x	x	–	–	x*	x*	–	–	–	–	–	–	–	–	–	1/75	1.5/100	34	430	< 10	17	28	28	46
188915	ELXc 258.219	2	x*	x*	x	x	x*	x*	–	–	–	–	–	–	–	–	–	1/75	1.5/100	52	430	< 10	17	28	28	46
188921	ELXc 135.220	1	x*	x*	x	x	–	–	–	–	–	–	–	–	–	–	–	1/100	2/150	41	300	<10	11	18	18	30
188922	ELXc 235.221	2	x	x	x	x	x	x*	x*	–	–	–	–	–	–	–	–	1/100	2/150	41	300	< 10	11	18	18	30
188945	ELXc 139.632	1	x	x	x*	x*	–	–	–	–	–	–	–	–	–	–	–	1/75	2/150	42-85	330	< 15	17	28	29	47
188946	ELXc 149.633	1	x	x	x*	x*	–	–	–	–	–	–	–	–	–	–	–	1/75	2/150	42-85	330	< 10	17	28	29	47
188947	ELXc 180.634	1	x	x	x*	x*	–	–	–	–	–	–	–	–	–	–	–	1/75	2/150	42-85	330	< 10	8	13	13	22
188948	ELXc 239.635	2	x	x	x	x*	x*	x*	x*	–	–	–	–	–	–	–	–	1/75	2/150	42-85	330	< 10	8	13	13	22
188949	ELXc 249.636	2	x	x	x	x*	x*	x*	x*	–	–	–	–	–	–	–	–	1/75	2/150	42-85	330	< 7	8	13	13	22
188950	ELXc 280.637	2	x	x	x	x*	x*	x*	x*	–	–	–	–	–	–	–	–	1/75	2/150	45-70	330	< 10	5	9	9	15
ELXd																										
183059	ELXd 235.735	2	x*	x+	x	x	x	x*	x*	–	–	–	–	–	–	–	–	1/100	2/200	42	300	< 5	10	17	18	28
188276	ELXd 170.808	1	x*	x*	x	x	–	–	–	–	–	–	–	–	–	–	–	0.5/50	0.75/75	50-90	470	< 10	7	12	12	20
188329	ELXd 124.600	1	x	x	–	–	–	x*	x*	–	–	–	–	–	–	–	–	1/100	1.5/150	76-120	430	< 10	17	28	28	46
188330	ELXd 224.601	2	x	x	x	x*	x*	x*	x*	–	–	–	–	–	–	–	–	1/100	1.5/150	53-120	430	< 10	17	28	28	46
188331	ELXd 139.602	1	x	x	–	–	–	x*	x*	–	–	–	–	–	–	–	–	1/100	1.5/150	85-120	430	< 10	17	28	28	46
188332	ELXd 154.603	1	x	x	–	–	–	x*	x*	–	–	–	–	–	–	–	–	1/100	1.5/150	83-120	430	< 10	17	28	28	46
188333	ELXd 254.604	2	x	x	x	x*	x*	x*	x*	–	–	–	–	–	–	–	–	1/100	1.5/150	44-120	430	< 10	8	13	13	21
188334	ELXd 180.605	1	x	x	–	–	–	x*	x*	–	–	–	–	–	–	–	–	1/100	1.5/150	91-120	430	< 10	12	19	19	31