3 Command overview of information and responses sent to XpressNet devices (including a PC) from the command station

The following table summarizes the various responses sent to XpressNet devices. The precise meaning of the respective data bytes is described in the appropriate section within section 2.1 above. In the following tables, N in the header byte indicates the number of data bytes that follow.

V3	Instruction	Call Byte	Header	Data Byte 1	Data Byte 2	Date Byte 3	Data Byte 4	Data Byte 5	Data Byte 6	Data Byte 7
x	Normal inquiry	P+0x40+GA								
x	Request Acknowledgement from Device	P+0x00+GA								
x	TBD (Future Command)	P+0x20+GA								
x	Normal operation resumed	0x60	0x61	0x01	0x60					
x	Track power Off	0x60	0x61	0x00	0x61					
x	Emergency Stop	0x60	0x81	0x00	0x81					
x	Service Mode entry	0x60	0x61	0x02	0x63					
x	Feedback Broadcast	0xA0	0x40 + N	ADR_1	DATA_1	ADR_2	DATA_2	etc.	etc.	X-Or
x	Programming info. " short-circuit "	P+0x60+GA	0x61	0x12	X-Or					
x	Programming info. "Data byte not found"	P+0x60+GA	0x61	0x13	X-Or					
x	Programming info. "Command station busy"	P+0x60+GA	0x61	0x1F	X-Or					
x	Programming info. "Command station ready "	P+0x60+GA	0x61	0x11	X-Or					
x	Service Mode response for Register and Paged Mode	P+0x60+GA	0x63	0x10	EE	DATA	X-Or			
x	Service Mode response for Direct CV mode	P+0x60+GA	0x63	0x14	CV	DATA	X-Or			
	Software-version(X-Bus V1 and V2)	P+0x60+GA	0x62	0x21	DATA	X-Or				
x	Software-version (XpressNet only)	P+0x60+GA	0x63	0x21	DATA_1	DATA_2	X-Or			
x	Command station status indication response	P+0x60+GA	0x62	0x22	DATA	X-Or				
x	Transfer Errors	P+0x60+GA	0x61	0x80	X-Or					
x	Command station busy response	P+0x60+GA	0x61	0x81	X-Or					
x	Instruction not supported by command station	P+0x60+GA	0x61	0x82	X-Or					

V3	Instruction	Call Byte	Header	Data Byte 1	Data Byte 2	Date Byte 3	Data Byte 4	Data Byte 5	Data Byte 6	Data Byte 7
x	Accessory Decoder information response	P+0x60+GA	0x42	Addr	DATA	X-Or				
	Locomotive is available for operation	P+0x60+GA	0x83	Loco addr	Loco data 1	Loco data 2	X-Or			
	Locomotive is being operated by another device	P+0x60+GA	0xA3	Loco addr	Loco data 1	Loco data 2	X-Or			
	Locomotive is available for operation	P+0x60+GA	0x84	Loco addr	Loco data 1	Loco data 2	ModSel	X-Or		
	Locomotive is being operated by another device	P+0x60+GA	0xA4	Loco addr	Loco data 1	Loco data 2	ModSel	X-Or		
x	Locomotive information normal locomotive	P+0x60+GA	0xE4	Identification	Speed	FKTA	FKTB	X-Or		
x	Locomotive information for a locomotive in a multi-unit	P+0x60+GA	0xE5	Identification	Speed	FKTA	FKTB	MTR	X-Or	
x	Locomotive information for the Multi-unit address	P+0x60+GA	0xE2	Identification	Speed	X-Or				
x	Locomotive information for a locomotive in a Double Header	P+0x60+GA	0xE6	Identification	Speed	FKTA	FKTB	Addr High	Addr Low	X-Or
x	Locomotive is being operated by another device response (XpressNet only)	P+0x60+GA	0xE3	0x40	Addr High	Addr Low	X-Or			
x	Function status response (XpressNet only)	P+0x60+GA	0xE3	0x50	STAT 0	STAT 1	X-Or			
x	Locomotive information response for address retrieval requests (XpressNet only)	P+0x60+GA	0xE3	0x30 + K	Addr High	Addr Low	X-Or			
	Double Header available	P+0x60+GA	0xC5	0x04	Loco addr 1	Loco data 1	Loco data 2	Loco addr 2	X-Or	
	Double Header occupied	P+0x60+GA	0xC5	0x05	Loco addr 1	Loco data 1	Loco data 2	Loco addr 2	X-Or	
	Double Header available	P+0x60+GA	0xC6	0x04	Loco addr 1	Loco data 1	Loco data 2	Loco addr 2	ModSel	X-Or
	Double Header occupied	P+0x60+GA	0xC6	0x05	Loco addr 1	Loco data 1	Loco data 2	Loco addr 2	ModSel	X-Or
x	Double Header error response (X-Bus V1 and V2)	P+0x60+GA	0x61	0x80 + F	X-Or					
x	XpressNet MU+DH error message response	P+0x60+GA	0xE1	0x80 + F	X-Or					

4 Command overview of requests transmitted sent from XpressNet devices (including a PC) to the command station

The following table summarizes the various requests sent by the PC to the command station through the LI100. The precise meaning of the respective data bytes is described in the appropriate section within section 2.2 above. In the following tables, N in the header byte indicated the number of data bytes that follow.

V3	Instruction	Header	Identi-fication	Data Byte 1	Data Byte 2	Data Byte 3	Data Byte 4	Data Byte 6	Data Byte 6
	Acknowledgement Response	0x20	0x20						
x	Resume operations request	0x21	0x81	0xA0					
x	Stop operations request (emergency off)	0x21	0x80	0xA1					
x	Stop all locomotives request (emergency stop)	0x80	0x80						
	Emergency stop a locomotive (X-Bus V1 and V2)	0x91	Loco addr	X-Or					
x	Emergency stop a locomotive (XpressNet)	0x92	Addr High	Addr Low	X-Or				
	Emergency stop selected locomotives (X-Bus V1 and V2)	0x90 + N	Loco addr 1	Loco addr 2	etc.	Loco addr N	X-Or		
x	Register Mode read request (Register Mode)	0x22	0x11	REG	X-Or				
x	Direct Mode CV read request (CV mode)	0x22	0x15	CV	X-Or				
x	Paged Mode read request (Paged Mode)	0x22	0x14	CV	X-Or				
x	Request for Service Mode results	0x21	0x10	0x31					
x	Register Mode write request (Register Mode)	0x23	0x12	REG	DATA	X-Or			
x	Direct Mode CV write request (CV mode)	0x23	0x16	CV	DATA	X-Or			
x	Paged Mode write request (Paged mode)	0x23	0x17	CV	DATA	X-Or			

V3	Instruction	Header	Identi-fication	Data Byte 1	Data Byte 2	Data Byte 3	Data Byte 4	Data Byte 6	Data Byte 6
x	Command station software-version request	0x21	0x21	0x00					
x	Command station status request	0x21	0x24	0x05					
	Set command station power-up mode	0x22	0x22	00000M00	X-Or				
x	Accessory Decoder information request	0x42	Addr	Nibble	X-Or				
x	Accessory Decoder operation request	0x52	Addr	DAT	X-Or				
	Locomotive information requests (X-Bus V1)	0xA1	Loco addr	X-Or					
	Locomotive information requests (X-Bus V1 and V2)	0xA2	Loco addr	ModSel	X-Or				
x	Locomotive information requests (XpressNet only)	0xE3	0x00	Addr High	Addr Low	X-Or			
x	Function status request (XpressNet only)	0xE3	0x07	Addr High	Addr Low	X-Or			
	Locomotive operations (X-Bus V1)	0xB3	Loco addr	Loco data 1	Loco data 2	X-Or			
	Locomotive operations (X-Bus V2)	0xB4	Loco addr	Loco data 1	Loco data 2	ModSel	X-Or		
x	Locomotive speed and direction operations (XpressNet only)	0xE4	0x10 0x11 0x12 0x13	Addr High	Addr Low	Speed	X-Or		
x	Function operation instructions (XpressNet only)	0xE4	0x20 0x21 0x22	Addr High	Addr Low	Group	X-Or		
x	Set function state (XpressNet only)	0xE4	0x24 0x25 0x26	Addr High	Addr Low	Group	X-Or		
	Establish Double Header	0xC3	0x05	Loco addr 1	Loco addr 2	X-Or			
	Dissolve Double Header	0xC3	0x04	Loco addr 1	Loco addr 2	X-Or			
x	Establish Double Header	0xE5	0x43	ADR1 H	ADR1 L	ADR2 H	ADR2 L	X-Or	
x	Dissolve Double Header	0xE5	0x43	ADR1 H	ADR1 L	0x00	0x00	X-Or	

V3	Instruction	Header	Identi-fication	Data Byte 1	Data Byte 2	Data Byte 3	Data Byte 4	Data Byte 6	Data Byte 6
x	Operations Mode Programming byte mode write request	0xE6	0x30	Addr High	Addr Low	0xEC + C	CV	DATA	X-Or
x	Operations Mode programming bit mode write request	0xE6	0x30	Addr High	Addr Low	0xE8 + C	CV	DATA	X-Or
x	Add a locomotive to a multi-unit request	0xE4	0x40 + R	Addr High	Addr Low	MTR	X-Or		
x	Remove a locomotive from a Multi-unit request	0xE4	0x42	Addr High	Addr Low	MTR	X-Or		
x	Address inquiry member of a Multi-unit request	0xE4	0x01 + R	MTR	Addr High	Addr Low	X-Or		
x	Address inquiry Multi-unit request	0xE2	0x03 + R	MTR	X-Or				
x	Address inquiry locomotive at command station stack request	0xE3	0x05 + R	Addr High	Addr Low	X-Or			
x	Delete locomotive from command station stack request	0xE3	0x44	Addr High	Addr Low	X-Or			