# Appendix A – Command overview

### *Client to Z21*

These messages can be sent from a client to a Z21 or zLink device.

| Header | Data | | | Name | LAN | | zLink | |
|---|---|---|---|---|---|---|---|---|
| | X-Header | DB0 | Parameter | | Z21<br>Z21 XL | z21<br>z21start | Booster<br>10806<br>10807<br>10869 | Decoder<br>10836<br>10837 |
| 0x10 | - | | | LAN_GET_SERIAL_NUMBER | ✓ | ✓ | ✓ | ✓ |
| 0x18 | - | | | LAN_GET_CODE | ✓ | ✓ | × | × |
| 0x1A | - | | | LAN_GET_HWINFO | ✓ | ✓ | ✓ | ✓ |
| 0x30 | - | | | LAN_LOGOFF | ✓ | ✓ | ✓ | ✓ |
| 0x40 | 0x21 | 0x21 | - | LAN_X_GET_VERSION | ✓ | ✓ | ✓ | ✓ |
| 0x40 | 0x21 | 0x24 | - | LAN_X_GET_STATUS | ✓ | ✓ | ✓ | ✓ |
| 0x40 | 0x21 | 0x80 | - | LAN_X_SET_TRACK_POWER_OFF | ✓ | ✓ | ✓ | ✓ |
| 0x40 | 0x21 | 0x81 | - | LAN_X_SET_TRACK_POWER_ON | ✓ | ✓ | ✓ | ✓ (4) |
| 0x40 | 0x22 | 0x11 | Register | LAN_X_DCC_READ_REGISTER | ✓ | ✓ | × | × |
| 0x40 | 0x23 | 0x11 | CV-Address | LAN_X_CV_READ | ✓ | ✓ | × | ✓ |
| 0x40 | 0x23 | 0x12 | Register, Value | LAN_X_DCC_WRITE_REGISTER | ✓ | ✓ | × | × |
| 0x40 | 0x24 | 0x12 | CV-Address, Value | LAN_X_CV_WRITE | ✓ | ✓ | × | ✓ |
| 0x40 | 0x24 | 0xFF | Register, Value | LAN_X_MM_WRITE_BYTE | ✓ | ✓ | × | × |
| 0x40 | 0x43 | Turnout address | | LAN_X_GET_TURNOUT_INFO | ✓ | ✓ | × | ✓ |
| 0x40 | 0x44 | Accessory decoder address | | LAN_X_GET_EXT_ACCESSORY_INFO | ✓ | ✓ | × | ✓ (3) |
| 0x40 | 0x53 | Turnout address, command | | LAN_X_SET_TURNOUT | ✓ | ✓ (1) | × | ✓ |
| 0x40 | 0x54 | Accessory decoder address, State | | LAN_X_SET_EXT_ACCESSORY | ✓ | ✓ (1) | × | ✓ |
| 0x40 | 0x80 | - | | LAN_X_SET_STOP | ✓ | ✓ | × | ✓ (5) |
| 0x40 | 0x92 | Loco address | | LAN_X_SET_LOCO_E_STOP | ✓ | ✓ | × | × |
| 0x40 | 0xE3 | 0x44 | Loco address | LAN_X_PURGE_LOCO | ✓ | ✓ | × | × |
| 0x40 | 0xE3 | 0xF0 | Loco address | LAN_X_GET_LOCO_INFO | ✓ | ✓ | × | × |
| 0x40 | 0xE4 | 0x1s | Loco address, Speed | LAN_X_SET_LOCO_DRIVE | ✓ | ✓ (1) | × | × |
| 0x40 | 0xE4 | 0xF8 | Loco address, Function | LAN_X_SET_LOCO_FUNCTION | ✓ | ✓ (1) | × | × |
| 0x40 | 0xE4 | Group | Loco address, Function group | LAN_X_SET_LOCO_FUNCTION_GROUP | ✓ | ✓ (1) | × | × |
| 0x40 | 0xE4 | 0x5F | Loco address, Binary state | LAN_X_SET_LOCO_BINARY_STATE | ✓ | ✓ | × | × |
| 0x40 | 0xE6 | 0x30 | POM-Param, Option 0xEC | LAN_X_CV_POM_WRITE_BYTE | ✓ | ✓ | × | ✓ |
| 0x40 | 0xE6 | 0x30 | POM-Param, Option 0xE8 | LAN_X_CV_POM_WRITE_BIT | ✓ | ✓ | × | × |
| 0x40 | 0xE6 | 0x30 | POM-Param, Option 0xE4 | LAN_X_CV_POM_READ_BYTE | ✓ | ✓ | × | ✓ |
| 0x40 | 0xE6 | 0x31 | POM-Param, Option 0xEC | LAN_X_CV_POM_ACCESSORY_WRITE_BYTE | ✓ | ✓ | × | ✓ |
| 0x40 | 0xE6 | 0x31 | POM-Param, Option 0xE8 | LAN_X_CV_POM_ACCESSORY_WRITE_BIT | ✓ | ✓ | × | × |
| 0x40 | 0xE6 | 0x31 | POM-Param, Option 0xE4 | LAN_X_CV_POM_ACCESSORY_READ_BYTE | ✓ | ✓ | × | ✓ |
| 0x40 | 0xF1 | 0x0A | - | LAN_X_GET_FIRMWARE_VERSION | ✓ | ✓ | ✓ | ✓ |
| 0x50 | Broadcast-Flags | | | LAN_SET_BROADCASTFLAGS | ✓ | ✓ | ✓ | ✓ |
| 0x51 | - | | | LAN_GET_BROADCASTFLAGS | ✓ | ✓ | ✓ | ✓ |
| 0x60 | Loco address | | | LAN_GET_LOCOMODE | ✓ | ✓ | × | × |
| 0x61 | Loco address, Mode | | | LAN_SET_LOCOMODE | ✓ | ✓ | × | × |
| 0x70 | Accessory decoder address | | | LAN_GET_TURNOUTMODE | ✓ | ✓ | × | × |
| 0x71 | Accessory decoder address, Mode | | | LAN_SET_TURNOUTMODE | ✓ | ✓ | × | × |
| 0x81 | Group index | | | LAN_RMBUS_GETDATA | ✓ | ✓ | × | × |
| 0x82 | Address | | | LAN_RMBUS_PROGRAMMODULE | ✓ | ✓ | × | × |
| 0x85 | - | | | LAN_SYSTEMSTATE_GETDATA | ✓ | ✓ | × | × |
| 0x89 | Address | | | LAN_RAILCOM_GETDATA | ✓ | ✓ | ✓ | × |
| 0xA2 | LocoNet message | | | LAN_LOCONET_FROM_LAN | ✓ | ✓ (1)(2) | × | × |
| 0xA3 | Loco address | | | LAN_LOCONET_DISPATCH_ADDR | ✓ | × | × | × |
| 0xA4 | Type, Report address | | | LAN_LOCONET_DETECTOR | ✓ | ✓ (2) | × | × |
| 0xC4 | Type, NId | | | LAN_CAN_DETECTOR | ✓ | × | × | × |
| 0xC8 | NetID | | | LAN_CAN_DEVICE_GET_DESCRIPTION | ✓ | × | × | × |
| 0xC9 | NetID, Name | | | LAN_CAN_DEVICE_SET_DESCRIPTION | ✓ | × | × | × |
| 0xCB | NetID, PowerState | | | LAN_CAN_BOOSTER_SET_TRACKPOWER | ✓ | × | × | × |
| 0xCC | Fastclock Start/Stop/Get/Set Command | | | LAN_FAST_CLOCK_CONTROL | ✓ | ✓ | × | × |
| 0xCE | Len | | | LAN_FAST_CLOCK_SETTINGS_GET | ✓ | ✓ | × | × |
| 0xCF | Fastclock Settings | | | LAN_FAST_CLOCK_SETTINGS_SET | ✓ | ✓ | × | × |
| 0xB2 | BoosterPort, BoosterPowerState | | | LAN_BOOSTER_SET_POWER | × | × | ✓ | × |
| 0xB8 | - | | | LAN_BOOSTER_GET_DESCRIPTION | × | × | ✓ | × |
| 0xB9 | String | | | LAN_BOOSTER_SET_DESCRIPTION | × | × | ✓ | × |
| 0xBB | - | | | LAN_BOOSTER_SYSTEMSTATE_GETDATA | × | × | ✓ | × |
| 0xD8 | - | | | LAN_DECODER_GET_DESCRIPTION | × | × | × | ✓ |
| 0xD9 | String | | | LAN_DECODER_SET_DESCRIPTION | × | × | × | ✓ |
| 0xDB | - | | | LAN_DECODER_SYSTEMSTATE_GETDATA | × | × | × | ✓ |
| 0xE8 | 0x06 | - | | LAN_ZLINK_GET_HWINFO | × | × | ✓ (6) | ✓ (6) |

**Table 1: Messages from Client to Z21**

(1) z21start: fully functional only with activation code (order number 10814 or 10818)
(2) z21, z21start: virtual LocoNet stack (for example GBM16XN with XPN interface)
(3) from decoder FW V1.11
(4) Decoder: Turn on signal lamps again (10837 only)
(5) Decoder: shows stop aspect if the second bit (0x02) is set in CV38 (10837 only)
(6) Answered by the 10838 Z21 pro LINK, not by its terminal device (booster or decoder)

### *Z21 to Client*

These messages can be sent to a client from a Z21 or zLink device.

| Header | Data | | | Name | LAN | | zLink | |
|---|---|---|---|---|---|---|---|---|
| | X-Header | DB0 | Daten | | Z21<br>Z21 XL | z21<br>z21start | Booster<br>10806<br>10807<br>10869 | Decoder<br>10836<br>10837 |
| 0x10 | Serialnumber | | | Reply to LAN_GET_SERIAL_NUMBER | ✓ | ✓ | ✓ | ✓ |
| 0x18 | Code | | | Reply to LAN_GET_CODE | ✓ | ✓ | × | × |
| 0x1A | HWType, FW Version (BCD) | | | Reply to LAN_GET_HWINFO | ✓ | ✓ | ✓ | ✓ |
| 0x40 | 0x43 | Turnout information | | LAN_X_TURNOUT_INFO | ✓ | ✓ (1) | × | ✓ |
| 0x40 | 0x44 | Accessory state information | | LAN_X_EXT_ACCESSORY_INFO | ✓ | ✓ (1) | × | ✓ (3) |
| 0x40 | 0x61 | 0x00 | - | LAN_X_BC_TRACK_POWER_OFF | ✓ | ✓ | ✓ | × |
| 0x40 | 0x61 | 0x01 | - | LAN_X_BC_TRACK_POWER_ON | ✓ | ✓ | ✓ | × |
| 0x40 | 0x61 | 0x02 | - | LAN_X_BC_PROGRAMMING_MODE | ✓ | ✓ | × | × |
| 0x40 | 0x61 | 0x08 | - | LAN_X_BC_TRACK_SHORT_CIRCUIT | ✓ | ✓ | × (4) | × (4) |
| 0x40 | 0x61 | 0x12 | - | LAN_X_CV_NACK_SC | ✓ | ✓ | × | × |
| 0x40 | 0x61 | 0x13 | - | LAN_X_CV_NACK | ✓ | ✓ | × | ✓ |
| 0x40 | 0x61 | 0x82 | - | LAN_X_UNKNOWN_COMMAND | ✓ | ✓ | ✓ | ✓ |
| 0x40 | 0x62 | 0x22 | State | LAN_X_STATUS_CHANGED | ✓ | ✓ | ✓ | ✓ |
| 0x40 | 0x63 | 0x21 | XBus Version, ID | Reply to LAN_X_GET_VERSION | ✓ | ✓ | ✓ | ✓ |
| 0x40 | 0x64 | 0x14 | CV-Result | LAN_X_CV_RESULT | ✓ | ✓ | × | ✓ |
| 0x40 | 0x81 | - | | LAN_X_BC_STOPPED | ✓ | ✓ | × | × |
| 0x40 | 0xEF | Loco information | | LAN_X_LOCO_INFO | ✓ | ✓ (1) | × | × |
| 0x40 | 0xF3 | 0x0A | Version (BCD) | Reply to LAN_X_GET_FIRMWARE_VERSION | ✓ | ✓ | ✓ | ✓ |
| 0x51 | Broadcast-Flags | | | Reply to LAN_GET_BROADCASTFLAGS | ✓ | ✓ | ✓ | ✓ |
| 0x60 | Loco address, Mode | | | Reply to LAN_GET_LOCOMODE | ✓ | ✓ | × | × |
| 0x70 | Accessory decoder address, Mode | | | Reply to LAN_GET_TURNOUTMODE | ✓ | ✓ | × | × |
| 0x80 | Group index, Feedback status | | | LAN_RMBUS_DATACHANGED | ✓ | ✓ | × | × |
| 0x84 | SystemState | | | LAN_SYSTEMSTATE_DATACHANGED | ✓ | ✓ | × | × |
| 0x88 | RailCom data | | | LAN_RAILCOM_DATACHANGED | ✓ | ✓ | ✓ | × |
| 0xA0 | LocoNet-Meldung | | | LAN_LOCONET_Z21_RX | ✓ | × | × | × |
| 0xA1 | LocoNet-Meldung | | | LAN_LOCONET_Z21_TX | ✓ | ✓ (2) | × | × |
| 0xA2 | LocoNet-Meldung | | | LAN_LOCONET_FROM_LAN | ✓ | ✓ (2) | × | × |
| 0xA3 | Loco address, Ergebnis | | | LAN_LOCONET_DISPATCH_ADDR | ✓ | × | × | × |
| 0xA4 | Type, Feedback address,Info | | | LAN_LOCONET_DETECTOR | ✓ | ✓ (2) | × | × |
| 0xC4 | Occupancy message | | | LAN_CAN_DETECTOR | ✓ | × | × | × |
| 0xC8 | NetID, Name | | | Reply to LAN_CAN_DEVICE_GET_DESCRIPTION | ✓ | × | × | × |
| 0xCA | CANBoosterSystemState | | | LAN_CAN_BOOSTER_SYSTEMSTATE_CHGD | ✓ | × | × | × |
| 0xCD | Fastclock Time | | | LAN_FAST_CLOCK_DATA | ✓ | ✓ | × | × |
| 0xCE | Fastclock Settings | | | LAN_FAST_CLOCK_SETTINGS_GET | ✓ | ✓ | × | × |
| 0xB8 | String | | | Reply to LAN_BOOSTER_GET_DESCRIPTION | × | × | ✓ | × |
| 0xBA | BoosterSystemState | | | LAN_BOOSTER_SYSTEMSTATE_DATACHANGED | × | × | ✓ | × |
| 0xD8 | String | | | Reply to LAN_DECODER_GET_DESCRIPTION | × | × | × | ✓ |
| 0xDA | DecoderSystemState | | | LAN_DECODER_SYSTEMSTATE_DATACHANGED | × | × | × | ✓ |
| 0xE8 | 0x06 | Z_Hw_Info | | Reply to LAN_ZLINK_GET_HWINFO | × | × | ✓ (5) | ✓ (5) |

**Table 2: Messages from Z21 to Clients**

(1) z21start: fully functional only with activation code (order number 10814 or 10818)
(2) z21, z21start: virtual LocoNet stack (for example GBM16XN with XPN interface)
(3) from decoder FW V1.11
(4) Short-circuit is reported in the corresponding booster/decoder system state.
(5) Answered by the 10838 Z21 pro LINK, not by its terminal device (booster or decoder)