

PANASONIC FIRE ALARM SOLUTIONS TECHNICAL DESCRIPTION



EBL TALK PROTOCOL IN WEB-SERVER / GATEWAY



DOCUMENT INFORMATION

DOCUMENT NAME:	TECHNICAL DESCRIPTION EBL TALK PROTOCOL IN WEB-SERVER / GATEWAY
DOCUMENT NUMBER:	MEW02060
DATE OF ISSUE:	2016-11-07
REV:	3
DATE OF REVISION:	2020-10-05

Panasonic Fire & Security Europe AB
Jungmansgatan 12
SE-211 11 Malmö
Sweden
Tel: +46 (0)40 697 70 00
Internet: www.panasonic-fire-security.com

TABLE OF CONTENTS

- 1 INTRODUCTION..... 3
- 2 GENERAL DESCRIPTION 4
- 3 PROTOCOL 5
 - 3.1 CHARACTER DESCRIPTION 5
 - 3.1.1 CHARACTER STRUCTURE..... 5
 - 3.1.2 CHARACTER SET 5
 - 3.2 PROTOCOL DEFINITION..... 5
 - 3.2.1 POLLING..... 5
 - 3.2.2 SELECTING..... 5
 - 3.2.3 TERMINATION..... 6
 - 3.2.4 POLL & SELECT SEQUENCE..... 6
 - 3.3 DATA BLOCK DESCRIPTION 7
 - 3.3.1 HEADERS 8
 - 3.3.2 RECORDS 8
 - 3.3.3 BLOCKS..... 13
 - 3.4 EXAMPLES OF TRANSACTIONS..... 15
 - 3.5 MORE EXAMPLES 15
- 4 TECHNICAL DATA 17
- 5 REVISIONS..... 17
 - 5.1 Revision 1 17

1 INTRODUCTION

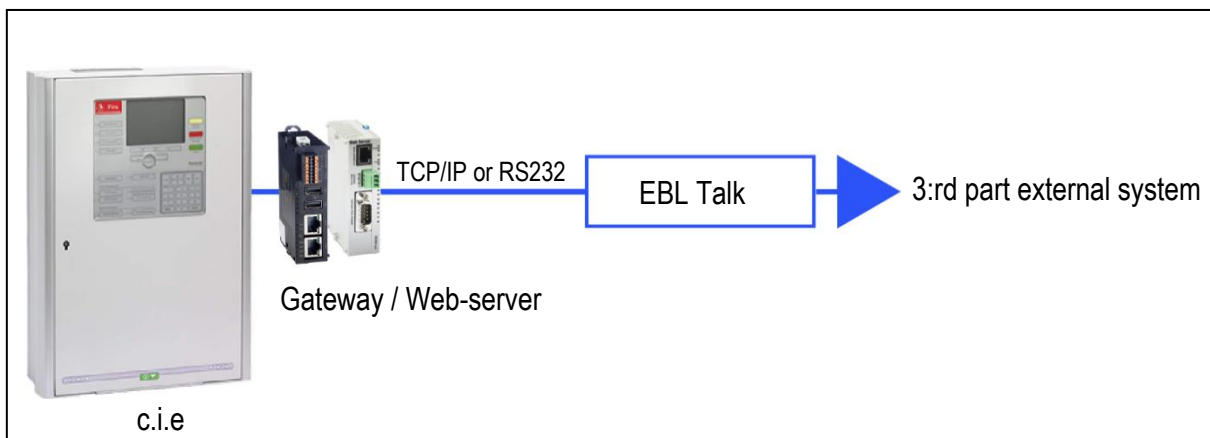
This document describes the EBL Talk protocol in Web-server 1598 and Gateway 5088.

The document is meant to be distributed to second parts that need an interface to the EBL512 G3 system using the Web-server / Gateway or to the EBL512 and EBL128 systems using the Web-server.

2 GENERAL DESCRIPTION

2 GENERAL DESCRIPTION

The EBL Talk provides a serial interface using a well-defined protocol that can be used for any external equipment that should handle information from EBL512 G3, EBL512 or EBL128.



3 PROTOCOL

3.1 CHARACTER DESCRIPTION

3.1.1 CHARACTER STRUCTURE

The data communication is a serial, bit synchronous, character asynchronous format as defined by ISO 1177, utilizing one start bit, seven information bits, one even parity bit and two stop bits.

3.1.2 CHARACTER SET

The character set conforms to the international alphabet number 5 (CCITT V3 & ISO 646).

3.2 PROTOCOL DEFINITION

The protocol used conforms to International Standard ISO 1745 "Information processing - Basic mode control procedures for data communication systems". It is a multi-drop protocol. The external equipment, the Fire Alarm Control and Indicating Equipment (c.i.e.) acts as control station. The c.i.e. has the address "1" and the receiving system has the address "2".

3.2.1 POLLING

The Control Station polls a device on the communication line with the sequence <address> ENQ. On receipt of this sequence, the polled device becomes Temporary Master Station.

A polling sequence always follows an EOT.

<address> is the address of the device being polled.

3.2.2 SELECTING

The polled device sends <address> ENQ, to select the device to which it has data to transfer, or EOT to indicate that it does not have any data to transfer. When the polled device sends <address> ENQ, the selected device sends ACK if it is ready to receive data. The temporary Master Station may now communicate with the selected device which now has become Slave station. If the selected device is not ready to receive data it sends NAK with an appropriate prefix followed by an EOT from the Temporary Master Station.

A selecting sequence never follows an EOT.

<address> is the address of the device being polled.

3 PROTOCOL

3.2.3 TERMINATION

Upon completion of its transaction(s), the Master Station sends EOT, which both indicates to the Slave Station that the transactions are completed and returns control to the Control Station. If the Control Station does not detect valid transactions within 10 seconds, it sends EOT to terminate the communication.

3.2.4 POLL & SELECT SEQUENCE

An example, when data is to be transferred:

Control Station	Code	Polled Station	Code	Code	Selected Station
Poll seq.	<address> → ENQ →	Becomes Temporary Master Select seq.	Address → ENQ →	←ACK	Becomes Temporary Slave

3 PROTOCOL

3.3 DATA BLOCK DESCRIPTION

Character	Value (Hex)
SOH	0x01
STX	0x02
ETX	0x03
EOT	0x04
ENQ	0x05
ACK	0x06
US	0x0F
RS	0x0E
NAK	0x15

A data block uses the following special characters:

Record Separator	RS
Unit Separator	US
Start of text	STX
End of text	ETX
Start of Header	SOH

Data identifier US Data = Record

The structure is as follows:

SOH Header STX Data identifier US Data [for each record: RS Data identifier US Data] ETX BCC

BCC is a simple checksum computed on from Header to ETX with the following algorithm.

```

unsigned char ChkSum( char *Str, int Len ) {
    unsigned char ChkSum;
    unsigned i;
    ChkSum = 0;
    for ( i = 0; i < Len; i++ )
        ChkSum ^= Str[i];
    if(Use7bitChksum)
        return (ChkSum & 0x7F);
    else
        return (ChkSum);
}

```

The checksum is returned as **ChkSum & 0x7F** when using 7 bits checksum, otherwise it will be returned as **ChkSum** only.

3 PROTOCOL

3.3.1 HEADERS

Headers could be one of the following:

"1"	Fire alarm information
"2"	Fire reset information
"3"	Status information
"4"	Error information
"5"	Disable/Re-enable information
"6"	Faults information
"7"	Pre-warning alarm information
"8"	Pre-warning reset information
"a"	Co-occurrence alarm information
"b"	Co-occurrence reset information

3.3.2 RECORDS

Records consist of printable ASCII characters. The following records are used in the protocol.

Data Id	Record	Data	Note
1	Alarmpoint	ZZZAA	
2	Time	HHMM	
3	Text	SS...S	Variable length < 80 characters
4	Status	BBBBB.....	Variable length of bytes.
5	Error	E	Error code
6	Alarmpoint disablement status	F	
7	Zone disablement status	F	
8	Loop disablement status	F	
9	Output disablement status	F	
0	Interlocking output disablement status	F	
a	Device type disablement status	F	
b	Disablement reason	R	
c	Auto re-enable flag	F	
d	NMAST loop data	CCL	
e	BS4 loop data	CCBBL	
f	DET8 zone line input data	CCBBL	
g	Loopunit zone line input data	CCLAAA	
h	Output on control unit	CCOodd	
i	Output on loop unit	CCLAAABTOodd	
j	Output on expansion board	CCEEodd	
k	Device type on control unit	CCDD	
l	Fault status	U	0 = normal 1 = serviced 2 = acknowledged
m	NMAST sub-loop data	CCLS	

3 PROTOCOL

3.3.2.1 ALARMPPOINT RECORD

ZZZ Zone, "001" to "999" or "NYC" where the latter indicates alarm from key cabinet.

AA Address, i.e. "01" to "99" or "AA" to indicate a zone alarm.

3.3.2.2 TIME RECORD

HH Hour, "00" – "23"

MM Minute, "00" – "59"

3.3.2.3 TEXT RECORD

SS...S A string of printable characters. Max length is 80 bytes.

3.3.2.4 STATUS RECORD

The status record is of variable bytes long. The bits in the bytes corresponds to LEDs on the Fire Brigade Panel according to the following.

NOTE! X bits are reserved for future use.

byte 1 01xxxabc

a **Disturbance** =LED "Disturbance" , i.e. general disablement in the system and/or general fault in the system. (This LED is not used today).

b **Fault** =LED "Fault tx activated", i.e. not acknowledged fault(s) in the system.

c **Door open**

byte 2 01xxtdef

t **General Fire**

d **Extinguishing (system) activated**

e **Alarm transmitter (Fire brigade tx) activated**

f **Alarm devices silenced**

byte 3 01xxghij

g **Fault transmitter activated** = relay output "Fault tx" activated, i.e. not acknowledged fault(s) in the system and relay output "Fault tx" not disabled.

h **Control OFF**

i **Zone/Detector not reset** ("encapsulated")

j (Fire) **Ventilation activated**

3 PROTOCOL

These status indicators correspond to LEDs on the front.

byte 4 01xuklmn

u Alarm devices disabled

k **Extinguish (system) disabled**

l **Fault transmitter disabled**, i.e. output "Fault tx" disabled

m **Alarm transmitter disabled**, i.e. output "Fire brigade tx" disabled

n **General disablement**

byte 5 01xopqrs

o **Service signal**

p **Test mode**

q **Power supply fault**

r **Alarm devices (Sounder) fault**

s **General Fault** =LED "General fault" activated, i.e. general fault in the system.

3.3.2.5 ERROR RECORD

The error record is one byte long, and the only error defined is internal communication problem, indicating that Web-server / Gateway cannot communicate with the c.i.e.

E "1" means internal communication problem

NOTE! This is not the same as the fault status record described below.

3.3.2.6 ALARMPPOINT/ZONE/LOOP/OUTPUT/INTERLOCKING/DEVICE TYPE DISABLEMENT STATUS RECORD

This is a flag that indicates whether the alarmpoint/zone/etcetera is disabled or not.

F "0" = disabled, "1" = Enabled

3.3.2.7 DISABLEMENT REASON RECORD

There can be a few different reasons that something has been disabled.

R "0" Disablement by menu

"1" Disablement by time channel

"2" Disablement by open door

"4" Disablement by key pressed

"5" Disablement by encapsulation

NOTE! "3" is intentionally left out, this is an obsolete reason of disablement.

3 PROTOCOL

3.3.2.8 AUTO RE-ENABLE FLAG RECORD

When an alarmpoint or a zone is disabled by menu the user have an option to re-enable automatically at a certain time.

F "0" = automatic re-enablement is not used, "1" = automatic re-enabling is used.

3.3.2.9 NMAST LOOP DATA RECORD

To specify a certain NMAST loop we use three characters, CCL.

CC Control unit, "00" to "29"

L Loop, "0" to "3"

3.3.2.10 BS4 LOOP DATA RECORD

To specify a certain BS4 loop we need 5 characters, CCBBL.

CC Control unit, "00" to "29"

BB Expansion board, "00" to "07"

L Loop, "0" to "3"

3.3.2.11 DET8 ZONE LINE INPUT DATA RECORD

Specifying a certain zone line input on a DET8 board is similar to the BS4 loop data record.

CC Control unit, "00" to "29"

BB Expansion board, "00" to "07"

L Zone line input, "0" to "7"

3.3.2.12 LOOP UNIT ZONE LINE INPUT DATA RECORD

Some loop units have one zone line input. To specify a certain zone line input on a loop unit we need the loop units technical number. This is made up of 6 characters, CCLAAA.

CC Control unit, "00" to "29"

L Loop, "0" to "3".

AAA Address of the loop unit. "000" to "127".

We don't specify the zone line input itself since loop units can have at most one zone line input so that in this case the zone line input number is always 0, and this goes without saying.

3.3.2.13 OUTPUT ON CONTROL UNIT RECORD

The c.i.e. is equipped with relay outputs and supervised voltage outputs. We specify an output with the string CCOODD.

CC Control unit, "00" to "29"

OO One of "R0" or "R1", that is, one of the relay outputs, or one of "S0" to "S3".

DD Device type. "00" to "07" from the table below.

"00"	Control
"01"	Ventilation
"02"	Extinguisher
"03"	Alarm device

3 PROTOCOL

"04"	ATR
"05"	Neutral
"06"	Interlocking
"07"	FTR

3.3.2.14 OUTPUT ON LOOP UNIT RECORD

The string CCLAAABTOODD specifies an output on a loop unit, where the character groups have the following meaning.

CCLAAA This is a technical number and is described in [3.3.2.12 LOOP UNIT ZONE LINE INPUT DATA RECORD](#).

B Reserved for future use.

T Reserved for future use.

OO Output number, "00" to "03".

DD Device type as described in [3.3.2.13 OUTPUT ON CONTROL UNIT RECORD](#).

3.3.2.15 OUTPUT ON EXPANSION BOARD RECORD

The RE8 expansion board can have up to 8 relay outputs programmed. We specify such an output with the string CCBBOODD.

CC The now so familiar control unit, "00" to "29".

BB The address of the expansionboard, "00" to "07".

OO The output number, "00" to "07".

DD Device type as described in [3.3.2.13 OUTPUT ON CONTROL UNIT RECORD](#).

3.3.2.16 DEVICE TYPE ON CONTROL UNIT RECORD

Device types can be disabled for each control unit or for all control units. To specify that a certain device type has been disabled on a certain control unit we use the string CCDD. However, device types can also be disabled globally, that is, a certain device type can be disabled on all control units in the system. When this is the case we use "AA"

CC Control unit, "00" to "29", or "AA"

DD Device type as described in [3.3.2.13 OUTPUT ON CONTROL UNIT RECORD](#).

3.3.2.17 FAULT STATUS RECORD

The EBL Talk protocol transmits data about faults in the EBL system. These faults can be in one of three states.

U "0" = activated

"1" = serviced

"2" = acknowledged

3.3.2.18 NMAST SUB-LOOP DATA RECORD

To specify a certain NMAST loop we use four characters, CCLS.

CC Control unit, "00" to "29"

L Loop, "0" to "3"

S Sub-loop, "0" to "3"

3 PROTOCOL

3.3.3 BLOCKS

A block consist of one or more of the above data beginning with a header with other data in any sequence separated by a record separator. The following blocks are used.

3.3.3.1 FIRE ALARM

SOH "1" STX "1" US **ZZZAA** RS "2" US **HHMM** RS "3" US SS...S ETX BCC

or

SOH "1" STX "1" US **ZZZAA** RS "2" US **HHMM** ETX BCC

3.3.3.2 FIRE ALARM RESET

SOH "2" STX "1" US **ZZZAA** ETX BCC

3.3.3.3 C.I.E. STATUS LEDs

SOH "3" STX "4" US **BBBBB** ETX BCC

3.3.3.4 INTERNAL COMMUNICATION ERROR

SOH "4" STX "5" US **E** ETX BCC

3.3.3.5 ALARMPPOINT DISABLED

SOH "5" STX "6" US "0" RS "1" US **ZZZAA** RS "2" US **HHMM** RS "b" US **R** RS "c" US **F** ETX BCC

3.3.3.6 ALARMPPOINT RE-ENABLED

SOH "5" STX "6" US "1" RS "1" US **ZZZAA** RS "b" US **R** RS "c" US **F** ETX BCC

3.3.3.7 ZONE DISABLED

SOH "5" STX "7" US "0" RS "1" US **ZZZAA** RS "2" US **HHMM** RS "b" US **R** RS "c" US **F** ETX BCC

3.3.3.8 ZONE RE-ENABLED

SOH "5" STX "7" US "1" RS "1" US **ZZZAA** RS "b" US **R** RS "c" US **F** ETX BCC

3.3.3.9 NMAST LOOP DISABLED

SOH "5" STX "8" US "0" RS "d" US **CCL** ETX BCC

3.3.3.10 NMAST LOOP RE-ENABLED

SOH "5" STX "8" US "1" RS "d" US **CCL** ETX BCC

3.3.3.11 BS4 LOOP DISABLED

SOH "5" STX "8" US "0" RS "e" US **CCBBL** ETX BCC

3.3.3.12 BS4 LOOP RE-ENABLED

SOH "5" STX "8" US "1" RS "e" US **CCBBL** ETX BCC

3.3.3.13 DET8 ZONE LINE INPUT DISABLED

SOH "5" STX "8" US "0" RS "f" US **CCBBL** ETX BCC

3.3.3.14 DET8 ZONE LINE INPUT RE-ENABLED

SOH "5" STX "8" US "1" RS "f" US **CCBBL** ETX BCC

3 PROTOCOL

3.3.3.15 LOOP UNIT ZONE LINE INPUT DISABLED

SOH "5" STX "8" US "0" RS "g" US **CCLAAA** ETX BCC

3.3.3.16 LOOP UNIT ZONE LINE INPUT RE-ENABLED

SOH "5" STX "8" US "1" RS "g" US **CCLAAA** ETX BCC

3.3.3.17 OUTPUT ON CONTROL UNIT DISABLED

SOH "5" STX "9" US "0" RS "h" US **CCOODD** ETX BCC

3.3.3.18 OUTPUT ON CONTROL UNIT RE-ENABLED

SOH "5" STX "9" US "1" RS "h" US **CCOODD** ETX BCC

3.3.3.19 OUTPUT ON LOOP UNIT DISABLED

SOH "5" STX "9" US "0" RS "i" US **CCLAAABTOODD** ETX BCC

3.3.3.20 OUTPUT ON LOOP UNIT RE-ENABLED

SOH "5" STX "9" US "1" RS "i" US **CCLAAABTOODD** ETX BCC

3.3.3.21 OUTPUT ON EXPANSION BOARD DISABLED

SOH "5" STX "9" US "0" RS "j" US **CCEEOODD** ETX BCC

3.3.3.22 OUTPUT ON EXPANSION BOARD RE-ENABLED

SOH "5" STX "9" US "1" RS "j" US **CCEEOODD** ETX BCC

3.3.3.23 INTERLOCKING OUTPUT DISABLED

SOH "5" STX "0" US "0" RS "1" US **ZZZAA** ETX BCC

3.3.3.24 INTERLOCKING OUTPUT RE-ABLED

SOH "5" STX "0" US "1" RS "1" US **ZZZAA** ETX BCC

3.3.3.25 DEVICE TYPE DISABLED

SOH "5" STX "a" US "0" RS "k" US **CCDD** RS "b" US **R** ETX BCC

3.3.3.26 DEVICE TYPE RE-ENABLED

SOH "5" STX "a" US "1" RS "k" US **CCDD** RS "b" US **R** ETX BCC

3.3.3.27 FAULTS

SOH "6" STX "1" US U RS "3" US SS...S RS "2" US **HHMM** ETX

(Note that the "1" is the letter "1", not the digit "1")

3.3.3.28 PREWARNING

SOH "7" STX "1" US ZZZAA RS "2" US **HHMM** RS "3" US SS...S ETX BCC

3.3.3.29 PREWARNING RESET

SOH "8" STX "1" US **ZZZAA** ETX BCC

3.3.3.30 NMAST SUB-LOOP DISABLED

SOH "5" STX "8" US "0" RS "m" US **CCLS** ETX BCC

3 PROTOCOL

3.3.3.31 NMAST SUB-LOOP RE-ENABLED

SOH "5" STX "8" US "1" RS "m" US **CCLS** ETX BCC

3.3.3.32 COINCIDENCE ALARM

SOH "a" STX "1" US ZZZAA RS "2" US **HHMM** RS "3" US SS...S ETX BCC

3.3.3.33 COINCIDENCE ALARM RESET

SOH "b" STX "1" US **ZZZAA** ETX BCC

3.4 EXAMPLES OF TRANSACTIONS

EBL c.i.e.		Receiving PC
Termination		
EOT	→	
Poll sequence		
"1" ENQ		
Select sequence		
"2" ENQ	→	
	←	Positive reply to selecting ACK
Sending one block. SOH "1" STX "1" US "20035" RS "2" US "1435" RS "3" US "Fire in room 20, Main Building" ETX BCC	→	
	←	Acknowledge ACK
Transmission complete.		
EOT	→	

3.5 MORE EXAMPLES

Alarm point disabled and re-enabled

The complete message is as follows.

SOH "5" STX "6" US F RS "1" US ZZZAA RS "2" US **HHMM** RS "b" US R RS "c" US F ETX BCC

Zone-address 010-90 has been disabled by time channel at 6:30 in the morning:

SOH "5" STX "6" US "0" RS "1" US "01090" RS "2" US "0630" RS "b" US "1" RS "c" US "0" ETX BCC

Example:

SOH "5" STX "6" US "1" RS "1" US "01090" RS "2" US "0630" RS "b" US "1" RS "c" US "0" ETX BCC

Zone-address 010-90 has been re-enabled.

Fire alarm and reset

Fire alarm:

3 PROTOCOL

SOH "1" STX "1" US "20035" RS "2" US "1435" ETX BCC

The first "1" says it is a fire alarm message. The second "1" specifies that the following block is an alarm point 200-35. The last block is time of fire alarm.

Reset of the alarm on 200-35:

SOH "2" STX "1" US "20035" ETX BCC

4 TECHNICAL DATA

1598 - Web-server II

EBL-system	EBL128 ≤2.0.X	EBL512	EBL512 G3 ≤2.0.X	EBL128/EBL512 G3 ≥2.0.X
Web-server software:	Web128	Web512	WebG3	EBLWeb
Configuration	Web128II Config Tool	Web512II Config Tool	WebG3 Config Tool	EBLWin

5088 - Gateway

EBL-system	EBL512 G3 ≥2.9.X
Gateway software:	EBLWeb
Configuration	EBLWin

5 REVISIONS

5.1 Revision 1

Changes related to sub-loop support in EBLTalk protocol.

3.3.2 Added new record type: 'm'

3.3.2.18 Added description of new record data CCLS

3.3.3.30 Added example block for sub-loop disabled

3.3.3.31 Added example block for sub-loop re-enabled

3.3.1 Added new header for co-incidence alarm: 'a', 'b'

3.3.3.32 Added example block for co-incidence alarm

3.3.3.33 Added example block for co-incidence alarm reset

5.2 Revision 2

Changed company name

5.3 Revision 3

Added Gateway 5088 to the document