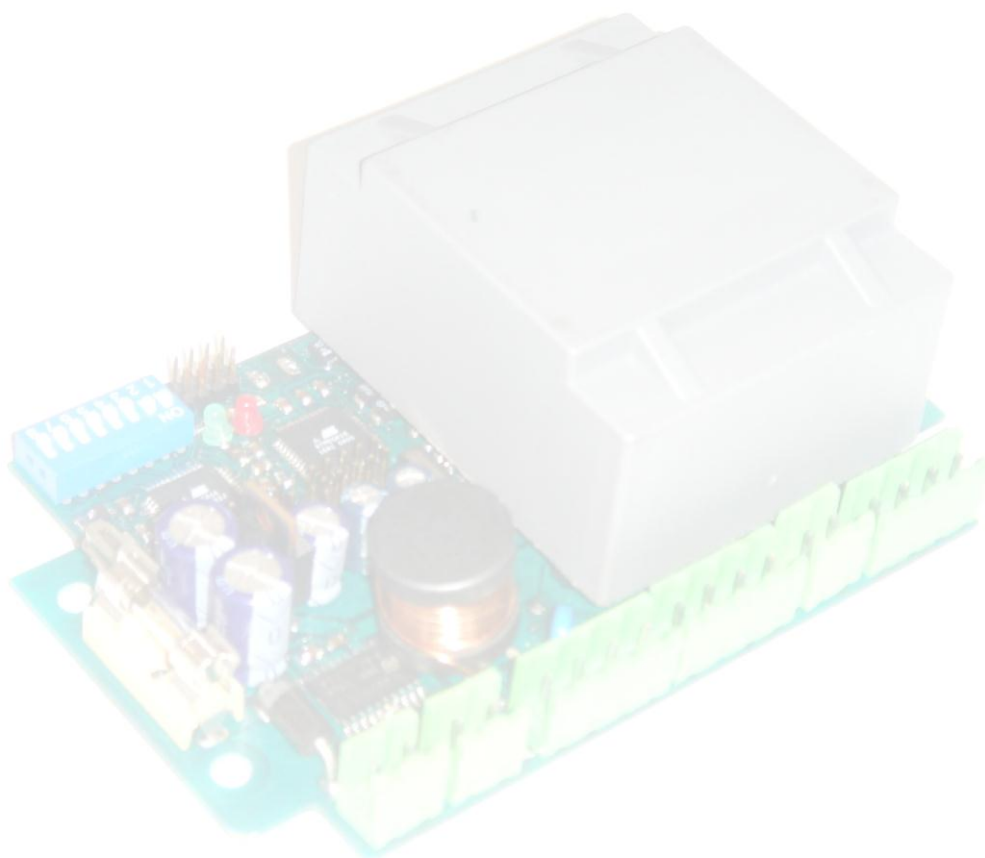


DIGITAL CONTROLLERS

COMMUNICATION PROTOCOL

- version 6.1 -
07/05/2010



INTRODUCTION

INTRODUCTION

The communication protocol is a Master/Slave protocol where the Master sends a train of data to the regulator and it returns the answers depends of received command.

General parameters:

Type	RS485
Baud Rate	9600
Data Length	8 bit
Stop Bits	1 bit
Parity	No
Error Checking	CRC

Master data send:

Start_Byte	Address [HI]	Address [LO]	Commmmand [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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Start_Byte	Character “#” for indicate start of command string
Address	Address of slave [0..99] (0 = ALL)
Command	Command [0..99] (Look command table)
Value	Value of send command [0..9999]
CRC	Sum of string values (if greater of 99 use only last two digits)
End_Byte	Character “CR” / 0x0D / 13 for indicate the end of command string

[HI]	Tenth of number in ASCII format
[LO]	Unit of number in ASCII format
[Digit 3/2/1/0]	Digits of command value in ASCII format

Command table:

Command	Description	Page
01	Switch (ON/OFF)	5
02	not used	
03	Set Amplitude	6
04	Set Frequency	7
05	Set Ramp	8
06	Save parameters	9
07	Load parameters	10
10	Interogation	11
20	Set Time Feeder/Hopper Start	14
21	Set Time Feeder/Hopper Stop	15
22	Set Time Air Start	16
23	Set Time Air Stop	17
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39	Set Logic State of I/O	20
40	Set Min. Amplitude for Electromagnetic	21
41	Set Max. Amplitude for Electromagnetic	22
42	Set Mode (3000/6000 vib/min) for Electromagnetic	23
50	Set Time ON for Hopper	24
51	Set Time OFF for Hopper	25
52	Set Mode (Direct/Impulse) for Hopper	26
70	Set Serial Number : regulator TYPE	
71	Set Serial Number : YEAR + LOT NUMBER	
72	Set Serial Number : PROGRESSIVE NUMBER OF LOT	
80	Set proportional gainPID (KP)	
81	Set integral gain PID (KI)	
82	Enable procedure find frequency and accelerometer min. /max value	
90	Reset	27
91	Reset WatchDog Counter	28
99	Set Preset Values	29

Answer from regulator to Master:
A. Answer with good result:

Ack_Byte	Address [HI]	Address [LO]	Commmand [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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Ack_Byte	Character “a” for indicate start of an answer string
Address	Same as address in received string
Command	Same as command in received string
Value	Answare value
CRC	Sum of string values (if greater of 99 use only last two digits)
End_Byte	Carattere “CR” / 0x0D / 13 per indicare la fine di un Command

B. Answer with wrong CRC:

nAck_Byte	Address [HI]	Address [LO]	Commmand [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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nAck_Byte	Character “n” for indicate start of an answer string
Address	Same as address in received string
Command	Same as command in received string
Value	0000
CRC	Sum of string values (if greater of 99 use only last two digits)
End_Byte	Carattere “CR” / 0x0D / 13 per indicare la fine di un Command

EXAMPLE:

Set frequency 120,0Hz on slave nr. 5

#	0	5	0	4	1	2	0	0	1	2	CR
---	---	---	---	---	---	---	---	---	---	---	----

Answer:

a	0	5	0	4	1	2	0	0	1	2	CR
---	---	---	---	---	---	---	---	---	---	---	----

Interogation for frequency slave nr. 12

#	1	2	1	0	0	0	0	2	0	6	CR
---	---	---	---	---	---	---	---	---	---	---	----

Answer: F=123,4 Hz

a	1	2	1	0	1	2	3	4	1	4	CR
---	---	---	---	---	---	---	---	---	---	---	----

SWITCH ON/OFF

Syntax:

Start_Byte	Address	Address	Command	Command	Value	Value	Value	Value	CRC	CRC	End_Byte
	[HI]	[LO]	[HI]	[LO]	[Digit 3]	[Digit 2]	[Digit 1]	[Digit 0]	[HI]	[LO]	

Parameter	Values
Start_Byte	'#'
Address	00..31
Command	01
Value	0000 = OFF 0001 = ON 0002 = Change state
CRC	00..99

$CRC = Address[HI] + Address[LO] + Command[HI] + Command[LO] + Value[3] + Value[2] + Value[1] + Value[0]$

Answer OK:

Ack_Byte	Address	Address	Command	Command	Value	Value	Value	Value	CRC	CRC	End_Byte
	[HI]	[LO]	[HI]	[LO]	[Digit 3]	[Digit 2]	[Digit 1]	[Digit 0]	[HI]	[LO]	

Answer NOK:

nAck_Byte	Address	Address	Command	Command	Value	Value	Value	Value	CRC	CRC	End_Byte
	[HI]	[LO]	[HI]	[LO]	[Digit 3]	[Digit 2]	[Digit 1]	[Digit 0]	[HI]	[LO]	

AMPLITUDE

Syntax:

Start_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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Parameter	Values
Start_Byte	'#'
Address	00..31
Command	03
Value	0000...0100
CRC	00..99

$CRC = Address[HI] + Address[LO] + Command[HI] + Command[LO] + Value[3] + Value[2] + Value[1] + Value[0]$

Answer OK:

Ack_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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Answer NOK:

nAck_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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FREQUENCY

Syntax:

Start_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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Parameter	Values
Start_Byte	'#'
Address	00..31
Command	04
Value	0600...4000
CRC	00..99

$CRC = Address[HI] + Address[LO] + Command[HI] + Command[LO] + Value[3] + Value[2] + Value[1] + Value[0]$

Answer OK:

Ack_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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Answer NOK:

nAck_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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RAMP

Syntax:

Start_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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Parameter	Values
Start_Byte	'#'
Address	00..31
Command	05
Value	0000...0099
CRC	00..99

$CRC = Address[HI] + Address[LO] + Command[HI] + Command[LO] + Value[3] + Value[2] + Value[1] + Value[0]$

Answer OK:

Ack_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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Answer NOK:

nAck_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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SAVE PARAMETERS

Syntax:

Start_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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Parameter	Values
Start_Byte	'#'
Address	00..31
Command	06
Value	0000...0015
CRC	00..99

$CRC = Address[HI] + Address[LO] + Command[HI] + Command[LO] + Value[3] + Value[2] + Value[1] + Value[0]$

Answer OK:

Ack_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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Answer NOK:

nAck_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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LOAD PARAMETERS

Syntax:

Start_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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Parameter	Values
Start_Byte	'#'
Address	00..31
Command	07
Value	0000...0015
CRC	00..99

$CRC = Address[HI] + Address[LO] + Command[HI] + Command[LO] + Value[3] + Value[2] + Value[1] + Value[0]$

Answer OK:

Ack_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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Answer NOK:

nAck_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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INTEROGATION

Syntax:

Start_Byte	Address	Address	Command	Command	Value	Value	Value	Value	CRC	CRC	End_Byte
	[HI]	[LO]	[HI]	[LO]	[Digit 3]	[Digit 2]	[Digit 1]	[Digit 0]	[HI]	[LO]	

Parameter	Values
Start_Byte	'#'
Address	00..31
Command	10
Value	0000 = State and Program 0001 = Amplitude 0002 = Frequency 0003 = Voltage 0004 = Current (only 20W controllers) 0005 = Ramp 0008 = WatchDog Conter 0009 = Type and Version of Firmware 0020 = Time Feeder Start 0021 = Time Feeder Stop 0022 = Time Air Start 0023 = Time Air Stop 0024 = Time Alarm Start 0025 = Time Alarm Stop 0030 = I/O State 0031 = Dip-Switch State 0039 = Logic State of I/O 0040 = Min. Vibration [for electromagnetic] 0041 = Max. Vibration [for electromagnetic] 0042 = Vibration Mode [for electromagnetic] 0050 = Time impulse ON [for hopper] 0051 = Time impulse OFF [for hopper] 0052 = Operation Mode [for hopper] 0070 = Serial Number : regulator TYPE 0071 = Serial Number : YEAR + LOT NUMBER 0072 = Serial Number : PROGRESSIVE NUMBER OF LOT 0080 = Proportional gain PID (KP) 0081 = Integral gain PID (KI) 0082 = Enable procedure find frequency and accelerometer min. /max value

Parameter	Values
CRC	00..99

$CRC = Address[HI] + Address[LO] + Command[HI] + Command[LO] + Value[3] + Value[2] + Value[1] + Value[0]$

Answer OK:

Ack_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte

Answer NOK:

nAck_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte

0000 - State and Program

Digits 1 and 0 represents state of regulator

00 OFF
 01 ON
 02 Error: Reserved – not used
 03 Error: Wrong data
 04 Error: EEprom error
 05 Error: Output supply error

Digits 3 and 2 represents actual program of regulator:

0009 - Type and version of Firmware

Digits 1 and 0 represents version of firmware (example: 63 = ver 6.3)

Digits 3 and 2 represents type of controller

01 Piezo 20W Controller
 02 Piezo 40W Controller
 03 Electromagnetic Controller
 04 Hopper Controller

0030 –I/O State

Digit 0 represents Input

MSB					LSB		
x	x	x	x	x	I3	I2	I1

Digit 1 represents Outputs

MSB					LSB		
x	x	x	x	x	O3	O2	O1

Digits 3 and 2 represents Status number (*see 0000 – State and Program*)

0031 –DIP Switch State

Digit 0 rapresents Dip switch

MSB				LSB			
8	7	6	5	4	3	2	1

Digit 1 is free.

 Digits 3 and 2 rapresents Status number (*see 0000 – State and Program*)

0039 –Logic state of I/O

Digit 3 rapresents Logical state of OUT2 state

Digit 2 rapresents Logical state of OUT1 state

Digit 1 rapresents Logical state of IN2 state

Digit 0 rapresents Logical state of IN1 state

0 = direct (active if 24V present)
1 = inverted (active if 0V present)
0042 – Vibration Mode [for electromagnetic controller]

Value rapresents vibration mode

0000 = 3000 vib/min (100Hz/120Hz)

0000 = 6000 vib/min (50Hz/60Hz)

0052 – Operation Mode [for hopper controller]

Value rapresents operation mode

0000... Direct

0001... Impulse

0070 – Serial Number : Controller TYPE

Value rapresents controller type of SN

0240 = 024 (Remote control)

0241 = 024A

2302 = 230B

2303 = 230C

2304 = 230D

0245 = 024E

1106 = 110F

0071 – Serial Number : YEAR + LOT NUMBER

Value rapresents year + lot number of SN

Digit 1/2

00....99 (Year)

Digit 3/4

00....99 (Lot number)

0072 – Serial Number : PROGRESSIVE NUMBER OF LOT

Value rapresents progressive number of lot of

0000....9999

SN

0080 – PID: Proportional gain (KP)

Value represents PID proportional gain 000....255

0081 – PID: Integral gain (KI)

0082 – PID: Enable find frequency and Min./Max accelerometer value

Value represents find procedure state **0 = Search not active**
 1 =

|

TIME FEEDER/HOPPER START

Syntax:

Start_Byte	Address	Address	Command	Command	Value	Value	Value	Value	CRC	CRC	End_Byte
	[HI]	[LO]	[HI]	[LO]	[Digit 3]	[Digit 2]	[Digit 1]	[Digit 0]	[HI]	[LO]	

Parameter	Values
Start_Byte	'#'
Address	00..31
Command	20
Value	0000...0250
CRC	00..99

Value is in 0,1sec (example: 123 = 12,3sec | 250 = 25,0 sec)

$CRC = Address[HI] + Address[LO] + Command[HI] + Command[LO] + Value[3] + Value[2] + Value[1] + Value[0]$

Answer OK:

Ack_Byte	Address	Address	Command	Command	Value	Value	Value	Value	CRC	CRC	End_Byte
	[HI]	[LO]	[HI]	[LO]	[Digit 3]	[Digit 2]	[Digit 1]	[Digit 0]	[HI]	[LO]	

Answer NOK:

nAck_Byte	Address	Address	Command	Command	Value	Value	Value	Value	CRC	CRC	End_Byte
	[HI]	[LO]	[HI]	[LO]	[Digit 3]	[Digit 2]	[Digit 1]	[Digit 0]	[HI]	[LO]	

TIME FEEDER/HOPPER STOP

Syntax:

Start_Byte	Address	Address	Command	Command	Value	Value	Value	Value	CRC	CRC	End_Byte
	[HI]	[LO]	[HI]	[LO]	[Digit 3]	[Digit 2]	[Digit 1]	[Digit 0]	[HI]	[LO]	

Parameter	Values
Start_Byte	'#'
Address	00..31
Command	21
Value	0000...0250
CRC	00..99

Value is in 0,1sec (example: 123 = 12,3sec | 250 = 25,0 sec)

$CRC = Address[HI] + Address[LO] + Command[HI] + Command[LO] + Value[3] + Value[2] + Value[1] + Value[0]$

Answer OK:

Ack_Byte	Address	Address	Command	Command	Value	Value	Value	Value	CRC	CRC	End_Byte
	[HI]	[LO]	[HI]	[LO]	[Digit 3]	[Digit 2]	[Digit 1]	[Digit 0]	[HI]	[LO]	

Answer NOK:

nAck_Byte	Address	Address	Command	Command	Value	Value	Value	Value	CRC	CRC	End_Byte
	[HI]	[LO]	[HI]	[LO]	[Digit 3]	[Digit 2]	[Digit 1]	[Digit 0]	[HI]	[LO]	

TIME AIR START

Syntax:

Start_Byte	Address	Address	Command	Command	Value	Value	Value	Value	CRC	CRC	End_Byte
	[HI]	[LO]	[HI]	[LO]	[Digit 3]	[Digit 2]	[Digit 1]	[Digit 0]	[HI]	[LO]	

Parameter	Values
Start_Byte	'#'
Address	00..31
Command	22
Value	0000...0250
CRC	00..99

Value is in 0,1sec (example: 123 = 12,3sec | 250 = 25,0 sec)

$CRC = Address[HI] + Address[LO] + Command[HI] + Command[LO] + Value[3] + Value[2] + Value[1] + Value[0]$

Answer OK:

Ack_Byte	Address	Address	Command	Command	Value	Value	Value	Value	CRC	CRC	End_Byte
	[HI]	[LO]	[HI]	[LO]	[Digit 3]	[Digit 2]	[Digit 1]	[Digit 0]	[HI]	[LO]	

Answer NOK:

nAck_Byte	Address	Address	Command	Command	Value	Value	Value	Value	CRC	CRC	End_Byte
	[HI]	[LO]	[HI]	[LO]	[Digit 3]	[Digit 2]	[Digit 1]	[Digit 0]	[HI]	[LO]	

TIME AIR STOP

Syntax:

Start_Byte	Address	Address	Command	Command	Value	Value	Value	Value	CRC	CRC	End_Byte
	[HI]	[LO]	[HI]	[LO]	[Digit 3]	[Digit 2]	[Digit 1]	[Digit 0]	[HI]	[LO]	

Parameter	Values
Start_Byte	'#'
Address	00..31
Command	23
Value	0000...0250
CRC	00..99

Value is in 0,1sec (example: 123 = 12,3sec | 250 = 25,0 sec)

$CRC = Address[HI] + Address[LO] + Command[HI] + Command[LO] + Value[3] + Value[2] + Value[1] + Value[0]$

Answer OK:

Ack_Byte	Address	Address	Command	Command	Value	Value	Value	Value	CRC	CRC	End_Byte
	[HI]	[LO]	[HI]	[LO]	[Digit 3]	[Digit 2]	[Digit 1]	[Digit 0]	[HI]	[LO]	

Answer NOK:

nAck_Byte	Address	Address	Command	Command	Value	Value	Value	Value	CRC	CRC	End_Byte
	[HI]	[LO]	[HI]	[LO]	[Digit 3]	[Digit 2]	[Digit 1]	[Digit 0]	[HI]	[LO]	

TIME ALARM START

Syntax:

Start_Byte	Address	Address	Command	Command	Value	Value	Value	Value	CRC	CRC	End_Byte
	[HI]	[LO]	[HI]	[LO]	[Digit 3]	[Digit 2]	[Digit 1]	[Digit 0]	[HI]	[LO]	

Parameter	Values
Start_Byte	'#'
Address	00..31
Command	24
Value	0000...0250
CRC	00..99

Value is in 0,1sec (example: 123 = 12,3sec | 250 = 25,0 sec)

$CRC = Address[HI] + Address[LO] + Command[HI] + Command[LO] + Value[3] + Value[2] + Value[1] + Value[0]$

Answer OK:

Ack_Byte	Address	Address	Command	Command	Value	Value	Value	Value	CRC	CRC	End_Byte
	[HI]	[LO]	[HI]	[LO]	[Digit 3]	[Digit 2]	[Digit 1]	[Digit 0]	[HI]	[LO]	

Answer NOK:

nAck_Byte	Address	Address	Command	Command	Value	Value	Value	Value	CRC	CRC	End_Byte
	[HI]	[LO]	[HI]	[LO]	[Digit 3]	[Digit 2]	[Digit 1]	[Digit 0]	[HI]	[LO]	

TIME ALARM STOP

Syntax:

Start_Byte	Address	Address	Command	Command	Value	Value	Value	Value	CRC	CRC	End_Byte
	[HI]	[LO]	[HI]	[LO]	[Digit 3]	[Digit 2]	[Digit 1]	[Digit 0]	[HI]	[LO]	

Parameter	Values
Start_Byte	'#'
Address	00..31
Command	25
Value	0000...0250
CRC	00..99

Value is in 0,1sec (example: 123 = 12,3sec | 250 = 25,0 sec)

$CRC = Address[HI] + Address[LO] + Command[HI] + Command[LO] + Value[3] + Value[2] + Value[1] + Value[0]$

Answer OK:

Ack_Byte	Address	Address	Command	Command	Value	Value	Value	Value	CRC	CRC	End_Byte
	[HI]	[LO]	[HI]	[LO]	[Digit 3]	[Digit 2]	[Digit 1]	[Digit 0]	[HI]	[LO]	

Answer NOK:

nAck_Byte	Address	Address	Command	Command	Value	Value	Value	Value	CRC	CRC	End_Byte
	[HI]	[LO]	[HI]	[LO]	[Digit 3]	[Digit 2]	[Digit 1]	[Digit 0]	[HI]	[LO]	

LOGICAL STATE OF I/O

Syntax:

Start_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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Parameter	Values
Start_Byte	'#'
Address	00..31
Command	39
Value	0000 – 1111
CRC	00..99

$CRC = Address[HI] + Address[LO] + Command[HI] + Command[LO] + Value[3] + Value[2] + Value[1] + Value[0]$

Answer OK:

Ack_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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Answer NOK:

nAck_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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Digit 3 represents Logical state of OUT2 state
 Digit 2 represents Logical state of OUT1 state
 Digit 1 represents Logical state of IN2 state
 Digit 0 represents Logical state of IN1 state

0 = direct (active if 24V present)
1 = inverted (active if 0V present)

SET MINIMUM VIBRATION [FOR ELECTROMAGNETIC CONTROLLER]

Syntax:

Start_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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Parameter	Values
Start_Byte	'#'
Address	00..31
Command	40
Value	0000...0100
CRC	00..99

$CRC = Address[HI] + Address[LO] + Command[HI] + Command[LO] + Value[3] + Value[2] + Value[1] + Value[0]$

Answer OK:

Ack_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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Answer NOK:

nAck_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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SET MAXIMUM VIBRATION [FOR ELECTROMAGNETIC CONTROLLER]

Syntax:

Start_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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Parameter	Values
Start_Byte	'#'
Address	00..31
Command	41
Value	0000...0100
CRC	00..99

$CRC = Address[HI] + Address[LO] + Command[HI] + Command[LO] + Value[3] + Value[2] + Value[1] + Value[0]$

Answer OK:

Ack_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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Answer NOK:

nAck_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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SET VIBRATION MODE [FOR ELECTROMAGNETIC CONTROLLER]

Syntax:

Start_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte

Parameter	Values
Start_Byte	'#'
Address	00..31
Command	42
Value	0000 = 3000 vib/min 0001 = 6000 vib/min
CRC	00..99

$CRC = Address[HI] + Address[LO] + Command[HI] + Command[LO] + Value[3] + Value[2] + Value[1] + Value[0]$

Answer OK:

Ack_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte

Answer NOK:

nAck_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte

SET TIME IMPULSE ON [FOR HOPER CONTROLLER]

Syntax:

Start_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte

Parameter	Values
Start_Byte	'#'
Address	00..31
Command	50
Value	0000...0250
CRC	00..99

Value is in 0,1sec (example: 123 = 12,3sec | 250 = 25,0 sec)

CRC = Address[HI] + Address[LO] + Command[HI] + Command[LO] + Value[3] + Value[2] + Value[1] + Value[0]

Answer OK:

Ack_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte

Answer NOK:

nAck_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte

SET TIME IMPULSE OFF [FOR HOPER CONTROLLER]

Syntax:

Start_Byte	Address	Address	Command	Command	Value	Value	Value	Value	CRC	CRC	End_Byte
	[HI]	[LO]	[HI]	[LO]	[Digit 3]	[Digit 2]	[Digit 1]	[Digit 0]	[HI]	[LO]	

Parameter	Values
Start_Byte	'#'
Address	00..31
Command	42
Value	0000...0100
CRC	00..99

$CRC = Address[HI] + Address[LO] + Command[HI] + Command[LO] + Value[3] + Value[2] + Value[1] + Value[0]$

Answer OK:

Ack_Byte	Address	Address	Command	Command	Value	Value	Value	Value	CRC	CRC	End_Byte
	[HI]	[LO]	[HI]	[LO]	[Digit 3]	[Digit 2]	[Digit 1]	[Digit 0]	[HI]	[LO]	

Answer NOK:

nAck_Byte	Address	Address	Command	Command	Value	Value	Value	Value	CRC	CRC	End_Byte
	[HI]	[LO]	[HI]	[LO]	[Digit 3]	[Digit 2]	[Digit 1]	[Digit 0]	[HI]	[LO]	

SET MODE [FOR ELECTROMAGNETIC CONTROLLER]

Syntax:

Start_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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Parameter	Values
Start_Byte	'#'
Address	00..31
Command	42
Value	0000 = Direct 0001 = Impulse
CRC	00..99

$CRC = Address[HI] + Address[LO] + Command[HI] + Command[LO] + Value[3] + Value[2] + Value[1] + Value[0]$

Answer OK:

Ack_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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Answer NOK:

nAck_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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RESET

Syntax:

Start_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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Parameter	Values
Start_Byte	'#'
Address	00..31
Command	90
Value	xxxx
CRC	00..99

$CRC = Address[HI] + Address[LO] + Command[HI] + Command[LO] + Value[3] + Value[2] + Value[1] + Value[0]$

Answer OK:

Ack_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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Answer NOK:

nAck_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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RESET WDOG COUNTER

Syntax:

Start_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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Parameter	Values
Start_Byte	'#'
Address	00..31
Command	91
Value	xxxx
CRC	00..99

$CRC = Address[HI] + Address[LO] + Command[HI] + Command[LO] + Value[3] + Value[2] + Value[1] + Value[0]$

Answer OK:

Ack_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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Answer NOK:

nAck_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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PRESET VALUES

Syntax:

Start_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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Parameter	Values
Start_Byte	'#'
Address	00..31
Command	99
Value	xxxx
CRC	00..99

$CRC = Address[HI] + Address[LO] + Command[HI] + Command[LO] + Value[3] + Value[2] + Value[1] + Value[0]$

Answer OK:

Ack_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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Answer NOK:

nAck_Byte	Address [HI]	Address [LO]	Command [HI]	Command [LO]	Value [Digit 3]	Value [Digit 2]	Value [Digit 1]	Value [Digit 0]	CRC [HI]	CRC [LO]	End_Byte
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