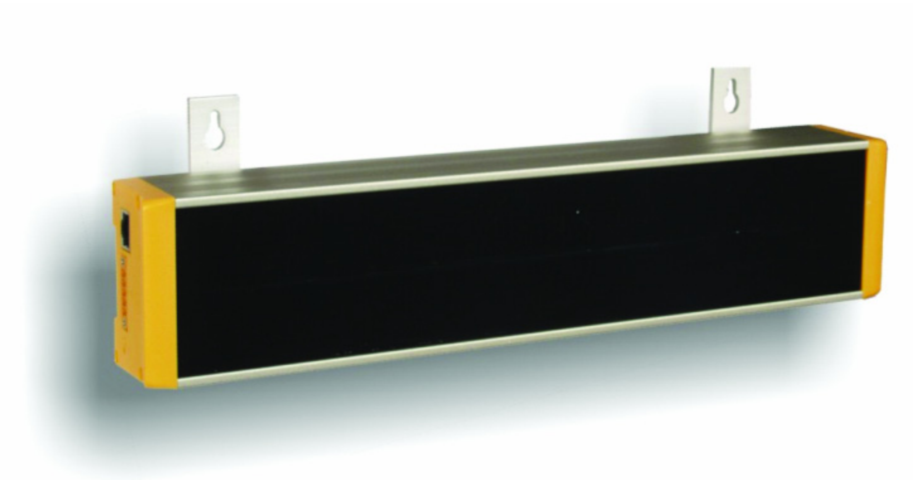
ModView Script Manual

EKAN ME-100M



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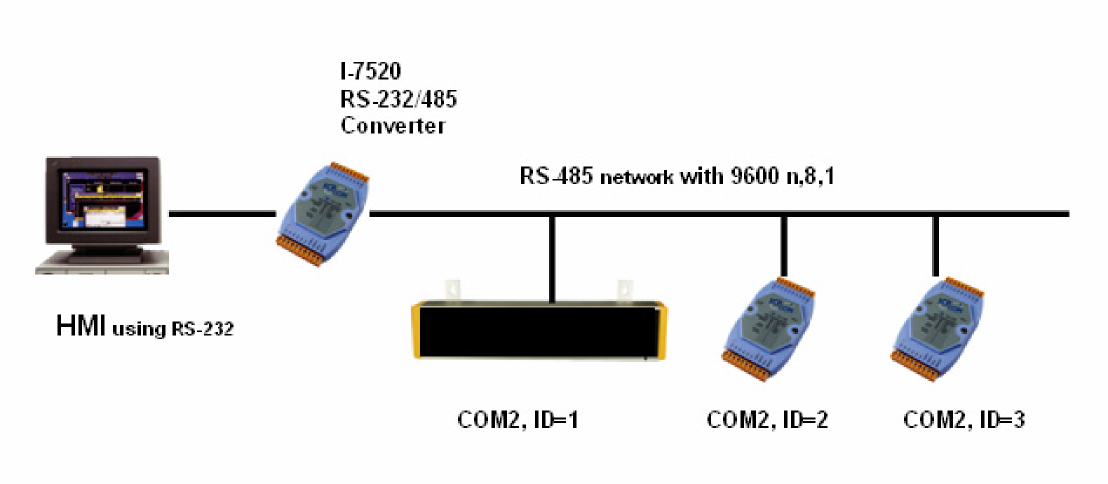
Chapter 1 ModView Script introduction

1-1 ModView Introduction

□ What is ModView?

All EKAN has built-in with ModView software. ModView support industry control protocol “Modbus”. Modbus is a communications protocol used for automation applications. It is often used in SCADA systems especially in substation automation. ModView support Modbus RTU and Modbus TCP/IP as standard control protocol. User could use Modbus protocol to control the EKAN display content.



□ What ModView could Do?

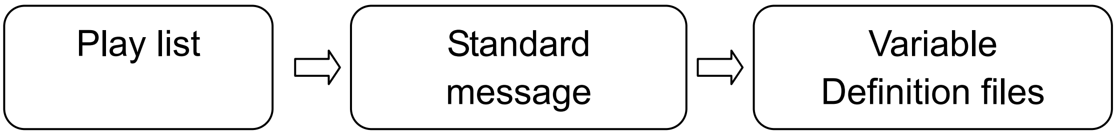
ModView lets EKAN could direct connect to PLC, HMI, and SCADA via Modbus protocol. You can create the message layout using message editor on Desktop PC, then download the message file into EKAN. With ModView software, EKAN acts as Modbus slave and accepts dynamic variables from PLC or other Modbus compatible controller through RS-485 or Ethernet network. The display behavior on EKAN will be decided by the logic of PLC, such as, when to refresh the real-time variables, interrupt, and trigger a specific message file… etc.

All EKAN ME-100M Series include ModView software.

1-2 How the ModView script works

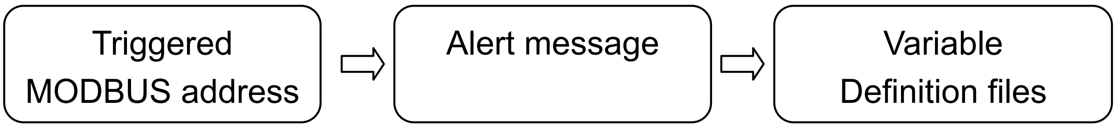
□ Original play list:

When configuration file was uploaded, EKAN ME100M will check the play list, file than play the designate standard message.



□ Alert message:

When a alert message is trigger, the triggered alert messages will replace originally play list.



When a standard message is triggered, the triggered messages will be replaced original play list, until triggered messages were turning off.

1-3 Message script syntax:

There are two types of command in the ModView script:

- □ **DISPLAY COMMAND**: Display text, variable, date, time
- □ **EFFECTS**: For screen effects, like SCROLL-UP/DOWN/LEFT/RIGHT/BLINK,STILL…etc

First part is display command, x and y are represent x and y coordinate of LED display, start from upper left corner:

* TEXT x y foreground background "text"
Display specify text with 8x16 font

* TEXTS x y foreground background "text"
Display specify text with 5x7 small font

* DATE x y foreground background
Display specify date with 8x16 font

* DATES x y foreground background
Display specify date with 5x7 small font

* TIME x y foreground background
Display specify time with 8x16 font

* TIMES x y foreground background
Display specify time with 5x7 small font

* CLEAR
Clear display content on EKAN ME-100M

* CLRECT x1 y1 x2 y2
Clear specify area on EKAN ME-100M

* FILLRECT x1 y1 x2 y2 color
Fill specify area with color on EKAN ME-100M

* LINE x1 y1 x2 y2 color
  Draw a line

* PIXEL x y color
  Draw a point

* IMG x y forergound background filename
  Display specify image files (1 bit BMP)

* DISPVAR x y foreground background VARIABLE NAME
  Display VARIABLE using 8x16 font

* DISPVARS x y foreground background VARIABLE NAME
  Display VARIABLE using 8x16 font

Second part is screen command:

* IN GO-LEFT move points move period in millisecond
Screen will move in from right to left
Example: IN GO-LEFT 1 100

* IN GO-RIGHT move points move period in millisecond
Screen will move in from left to right
Example: IN GO-RIGHT 1 100

* IN GO-UP move points move period in millisecond
Screen will move in from bottom side to upper side
Example: IN GO-UP 1 100

* IN GO-DOWN move points move period in millisecond
Screen will move from upper side to bottom side
Example: IN GO-DOWN 1 100

* OUT GO-LEFT move points move period in millisecond
Screen will move out from right to left
Example: OUT GO-LEFT 1 100

* OUT GO-RIGHT move points move period in millisecond
Screen will move out from left to right
Example: OUT GO-RIGHT 1 100

* OUT GO-DOWN move points move period in millisecond
Screen will move out from upper side to bottom side
Example: OUT GO-DOWN 1 100

* OUT GO-UP move points move period in millisecond
Screen will move out from bottom side to upper side
Example: OUT GO-UP 1 100

* IN FADE time period in millisecond
Screen text fade in
Example: IN FADE 300

* OUT FADE time period in millisecond
  Screen text fade out
  Example: OUT FADE 300

* ACT STILL stop time period in millisecond
  Still screen
  Example: ACT STILL 3000

* ACT BLINK times time period in millisecond
  Blink the screen
  Example: ACT BLINK 10 300

Following is a short example of ModView message script block:

```
DEFMSG E 5

    CLEAR
    TEXT 0 0 RED BLACK "Danger"
    DISPVARS 48 0 ORANGE BLACK RegVar1
    DISPVARS 66 8 GREEN BLACK CoilVar1
    IN GO-UP 1 50
    ACT STILL 1000
    OUT GO-UP 1 50

     CLEAR
    TEXT 0 0 RED BLACK "Danger"
    ACT BLINK 5 500

ENDMSG
```

Chapter 2 ModView configuration files

ModView need following configuration files in order to make message play correctly. All these file is plain text file format.

File name	Function
modbus.adr	MODBUS address setting file
default.pls	Play List file
stdmsg.ilm	Standard message configuration file
altmsg.ilm	Emergency message configuration
ilmvar.def	Boolean variable and float variable address and format definition file

In the following section, we will explain details of those files, and the syntax of message script.

2-1 MODBUS definition file

In EKAN ME100M with ModView firmware, we use 3 different section of MODBUS address. Including:

- 60 continuous address for emergency and regular messages
- 64 continuous address for float variable
- 32 continuous address for Boolean variable.

Here is the original address setting of ModView:

```
AnalogInput      00100
DigitalInput    00100
```

```
AlertMessage      00300
```

The analog input addresses are corresponded to float variable. The 64 address will be:

Float Variable	Address	Variable number	Address	Variable number	Address
Variable 1	40100	Variable 9	40116	Variable 17	40132
Variable 2	40102	Variable 10	40118	Variable 18	40134
Variable 3	40104	Variable 11	40120	Variable 19	40136
Variable 4	40106	Variable 12	40122	Variable 20	40138
Variable 5	40108	Variable 13	40124	Variable 21	40140
Variable 6	40110	Variable 14	40126	Variable 22	40142
Variable 7	40112	Variable 15	40128	Variable 23	40144
Variable 8	40114	Variable 16	40130	Variable 24	40146

Table – Float Variable continued

Float Variable	Address	Variable number	Address	Variable number	Address
Variable 25	40148	Variable 33	40164	Variable 41	40180
Variable 26	40150	Variable 34	40166	Variable 42	40182
Variable 27	40152	Variable 35	40168	Variable 43	40184
Variable 28	40154	Variable 36	40170	Variable 44	40186
Variable 29	40156	Variable 37	40172	Variable 45	40188
Variable 30	40158	Variable 38	40174	Variable 46	40190
Variable 31	40160	Variable 39	40176	Variable 47	40192
Variable 32	40162	Variable 40	40178	Variable 48	40194

Table – Float Variable continued

Float Variable	Address	Variable number	Address
Variable 49	40196	Variable 57	40212
Variable 50	40198	Variable 58	40214
Variable 51	40200	Variable 59	40216
Variable 52	40202	Variable 60	40218
Variable 53	40204	Variable 61	40220
Variable 54	40206	Variable 62	40222
Variable 55	40208	Variable 63	40224
Variable 56	40210	Variable 64	40226

The address will be changed, if the configuration files changes.

The digital input addresses are corresponded to Boolean variable. The 32 address will be:

Boolean Variable	Address	Boolean Variable	Address	Boolean Variable	Address
Variable 1	00100	Variable 9	00108	Variable 17	00116
Variable 2	00101	Variable 10	00109	Variable 18	00117
Variable 3	00102	Variable 11	00110	Variable 19	00118
Variable 4	00103	Variable 12	00111	Variable 20	00119
Variable 5	00104	Variable 13	00112	Variable 21	00120
Variable 6	00105	Variable 14	00113	Variable 22	00121

Variable 7	00106	Variable 15	00114	Variable 23	00122
Variable 8	00107	Variable 16	00115	Variable 24	00123

The Message addresses are corresponded to float variable. The 60 address will be:

Boolean Variable	Address	Boolean Variable	Address	Boolean Variable	Address
Emergency Message 1	00300	Emergency Message 9	00308	Emergency Message 17	00316
Emergency Message 2	00301	Emergency Message 10	00309	Emergency Message 18	00317
Emergency Message 3	00302	Emergency Message 11	00310	Emergency Message 19	00318
Emergency Message 4	00303	Emergency Message 12	00311	Emergency Message 20	00319
Emergency Message 5	00304	Emergency Message 13	00312	Regular Message 1	00120
Emergency Message 6	00305	Emergency Message 14	00313	Regular Message 2	00121
Emergency Message 7	00306	Emergency Message 15	00314	Regular Message 3	00122
Emergency Message 8	00307	Emergency Message 16	00315	Regular Message 4	00123

You could modify the MODBUS address setting in the modbus.adr to fit your system current configuration.

2-2 Variable definition files

Variable definition files include Float variable and Boolean variable definition. Float variable usually used for display numeric value, and mapped with 2 MODBUS registers (32 bit float). We used MODBUS function 16 to update register data.

For example, a float variable could display “12.11”, “123.111” types of number. And the float number length is limited to 7 characters and the float point is 3 character (For example: 1234.789).

Here is a sample of float variable

```
DEFVAR RegVar1

        type        float
        address     00100
        default    0.545
        width        7
        precision 2

ENDVAR
```

Please refer to the MODBUS setting file to set up the MODBUS address, all the address use 2 registers, and all numbers should be continuous odd number or even number. And the float variable will be set to default value when system startup.

Boolean variable usually used for display text value, and mapped with 1 MODBUS coil (1 bit Boolean). We used MODBUS function 5 to update coil data.

For example, a Boolean variable could display “ON”, “OFF” or similar types of text based data. And the text lengths better don’t exceed 10 characters.

```
DEFVAR CoilVar1

        type        bit
```

```
          address     00109
          default     1
          ON              "Switch 9 is ON"
          OFF             "Switch 9 is OFF"

ENDVAR
```

A Boolean type of variable could be used for display text based message. For example, You could use “0000” and “FFFF” string to represent the state of the Boolean variable. Or use “The Switch 1 is ON” and “The Switch 1 is OFF” to represent the I/O state.

2-3 Message files

There are 2 message files in the ModView firmware: “Regular message” and “Emergency message” ◦ Both message files use the same script syntax. Regular messages have 40 message groups, and the emergency message have 20 message groups.

The maximum display length is 48 characters (8x15 font) or 384 pixels, If the message is too long, EKAN ME-100M WILL NOT display full message content.

Here is the message group syntax sample:

```
DEFMSG Message01 1

    CLEAR
    TEXT 0 0 RED BLACK "Hello World!"
    IN GO-LEFT 1 50
    ACT STILL 5000
    OUT GO-LEFT 1 50

ENDMSG
```

Between the DEFMSG and the ENDMSG is the message script, you could put the message and variable inside the message description.

In this sample, message name is “Message01” and the message serial is 1 it’s will scroll-in a text “Hello World!” , hold still for 5 second, then scroll left out of screen.

You also could have multiple messages inside single message group, for example, we make a second message using same script.

```
DEFMSG Message01 1

    CLEAR
    TEXT 0 0 RED BLACK "Hello World!"
    IN GO-LEFT 1 50
    ACT STILL 5000
    OUT GO-LEFT 1 50
    CLEAR
    TEXT 0 0 RED BLACK "My First Message"
    IN GO-LEFT 1 50
    ACT STILL 5000
    OUT GO-LEFT 1 50
    CLEAR

ENDMSG
```

A message usually contains text, image, variable and special effects. The images should be 1 bit color BMP, and usually we could use the 96x16 pixel BMP to fix into the display, following is a simple example using BMP.

```
DEFMSG Message01 1

    CLEAR
    IMG 0 0 RED BLACK 1.bmp
    IN GO-UP 1 50
    ACT STILL 1000
    OUT GO-UP 1 50
    CLEAR

ENDMSG
```

You also could mix different types of text and variable to create complex message layout. Here is a message mix BMP and 2 different types of variable by using IMG tag. You could use the message editor

```
DEFMSG Message01 1

    IMG 0 0 RED BLACK 1.bmp
    DISPVARS 48 0 ORANGE BLACK RegVar1
    DISPVARS 66 8 GREEN BLACK CoilVar1
    IN GO-UP 1 50
    ACT STILL 1000
    OUT GO-UP 1 50
    CLEAR


ENDMSG
```

2-4 Play list files

When the message finished upload, EKAN ME100M will automatically use the play list file to play message, until specific regular message or emergency was triggered. Here is sample of play list files.

If you want to repeat some of the messages, you could use repeat and label command to repeat message display. Here is the brief sample:

```
DISPMSG Message01
DISPMSG Message02
DISPMSG Message03
DISPMSG Message04
```

If you want to display one message more than one time, you could use the label tag to display message. In following example, we will repeat Message 4 for 10 times.

```
DISPMSG Message01
DISPMSG Message02
DISPMSG Message03
LABEL Msg4

DISPMSG Message04
```

```
REPEAT 10 Msg4
```

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