MOTOR PROTECTION & CONTROL TECHNOLOGY

KD/KE-Relay Man Machine Interface 4x20 Display

(Explosion Proof)

User Manual

KE-MMI-420-EP
Version 01.01
(NE_KX-MMI-420_MAN_01_10_FN01)

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1. ABSTRACT

The KD-MMI-420-EP (KD-Relay Man Machine Interface 4x20 Character Display) is a portable, rechargeable battery powered unit, designed to function together with the KD or KE motor protection relays. It is advisable to read this manual in conjunction with KD and KE user manual. The display unit (MMI) is intrinsic safe and explosion proof certified, suitable for use in potential dangerous environments (for example: coal mines).

The purpose of this unit is to provide a front-end facility (man machine interface) between the operator and the motor protection relay. It is capable to monitor and adjust the motor protection relay data. The relay data consists of settings, faults, events and actual data. Settings can be adjusted as a batch or individually. Communication between the motor protection relay and the display unit (MMI) is galvanic isolated and achieved via an infrared (IrDA) serial link.

2. SPECIFICATIONS

2.1 Electrical Requirements of MMI

- The instrument is powered by a rechargeable Li-Ion battery pack
- Operating time between charges – 10 hours
- Battery charging time – 5 to 6 hours
- Charger requirements:
  - Input – 230Vac, 8 Watt.
  - Output – 12Vdc, 500mA
- Fuse – Slow blow 1 Ampere (5mm x 20mm).

2.2 Mechanical Properties of MMI

- Physical dimensions – 325mm x 175mm x 135mm
- Mass of unit – 1,85kg
- Size of display on unit – 50mm x 20mm (character height - 5mm)
- Display type – 4 lines by 20 characters liquid crystal display (LCD) with adjustable back lighting.
- Size of characters in display window – 5mm
- Keyboard – diaphragm type (6 keys – up, down, left, right, enter and reset/menu)
- Indication lights – Light emitting diodes (6 LEDs - relay communication, in service, trip, battery fault and charging)

2.3 Communication Link of MMI

- Infrared (IrDA)
- Communication speed – 19200 Baud (b/s)
- Maximum distance between units with no optical interference – Less then 1 meter.

2.4 Menu Structure with Unit Ranges of MMI

2.4.1 Main Menu (primary menu - 1st level)

- 1>Actual values
- 2>Relay settings
- 3>Faults
- 4>Events
- 5>MMI Settings
- 6>Relay Date Time (Real Time Clock)
- 7>Relay Info

2.4.2 Actual Values (2nd level)

- Load – Load current expressed in % (0 – 999%)
- TC level – Thermal capacity used expressed in % (0 – 100%)
- Vlev – Maximum Phase voltage (0 - 1200V), Vr – Red phase voltage (0 - 1200V)
- Vw – White phase voltage (0 – 1200V), Vb – Blue phase voltage (0 – 1200V)
- EL – Earth leakage (0 – 3000mA)
- Unbalance – Current unbalance (0 – 100%)

- Volt Sym – Voltage symmetry (0 – 50%)
- Power Factor – Power factor expressed as a % (0 – 100%)
- Iso. Lock – Isolation lockout expressed in k Ohm (0 – 200kOhm)
- Relay 1 – Relay 1 operation status (energized / de-energized)
- Relay 2 - Relay 2 operation status (energized / de-energized)

2.4.3 Relay Settings (2nd level)

- MMI Mem Slot
- Copy Slot → Slot
- DwnLd Slot → KX
- UpLoad KX → Slot
- DwnLd USB → KX
- UpLoad KX → USB

2.4.4 Faults – (2nd level)

Fault history retrieved from relay data base

- View [Nr] – Fault number x of 60 on display
- Status – Actual fault (caused by real current and voltage) or sim. fault caused during simulation of current, voltage, power factor and earth leakage current)
- Type – Trip condition (Any one of the trip flags which is applicable at the time of the trip)
- DT – Date and time stamp of fault record.
- Run hour – Motor running hours at the time of the trip expressed in hours.
- Current – Max current in % at the time the trip took place (0 – 999%).
- Voltage – Minimum phase voltage at the time of the trip (0 – 1200V)
- Contact R.T. - Contact release time or time to clear fault expressed in ms. (0 – 1000ms)

2.4.5 Events – (2nd level)

Event history retrieved from relay data base

- View [Nr] - Event number x of 2000 on display
- Status – Event type (alarm, trip or setting adjustment)
- DT – Date and time stamp of the event record.
- Alarm Flags – Alarm condition at the time of the recording of the event.
- Trip – Trip condition at the time of the event recording.
- Run hour – Motor running hours at the time of the recording of the event.
- Current – Maximum current at the time the event was recorded.
- Voltage – Minimum phase voltage at the time of the event recording.
- Contact R.T. - Contact release time or time to clear fault expressed in ms. (0 - 1000ms)

2.4.6 MMI Settings (2nd level)

System settings only for the MMI (not applicable for the relay)

- Auto scroll – Auto scroll the actual values after 5 minutes of no key activity (Enabled / Disabled).

- Back light auto on – Back light will be turned off after 5 minutes (Enabled / Disabled).
- Contrast – Contrast adjustment of the LCD images (0 - 100%).
- Brightness – Brightness adjustment of the LCD back light (0 – 100%).

2.4.7 Relay Data Time - (2nd level)

- Date – Relay date adjustment of the real time clock of the relay.
- Time – Relay time adjustment of the real time clock of the relay.

2.4.8 Relay Info (2nd level)

Statistical and user data to manage the drive:

- Start-up counter – Increment every when the motor starts up (0 - 65535).
- Trip counter – Increment every time when a trip occurs (0 – 65535).
- Running hours – Increment every hour the of motor operation (0 – 65535).
- Drive description – Description of drive (20 characters).
- Drive file ID – Unique file name associated with the drive regarding event, fault and setting files.

2.4.9 Settings (3rd level)

- TC Class Select – Thermal Curve Class (5 – 40sec)
- Maximum Load Set – Motor full load setting (10% - 100%)
- Voltage Select – Supply line voltage level (110V, 400V, 525V or 1050V)
- V Sym Trip Level – Voltage symmetry trip level (50% - 100%).
- Unbal Trip Level – Current unbalance trip level (0% - 50%)
- Unbal Trip Delay – Current unbalance trip delay (1 – 10 sec)
- U/C Trip Level – Undercurrent trip level (10 – 99%)
- U/C Restart Delay – Undercurrent restart delay (Manual, 10s, …, 1 h, 3h, 6h)
- U/C Trip Delay – Undercurrent trip delay (1 – 10 sec)
- EL Trip Level – Earth leakage trip level (0 – 3000 mA)
- EL Trip Delay – Earth leakage trip delay (100ms – 1sec, in steps of 50ms, IDT)
- EL Curve Select – Earth leakage curve select (Instantaneous Definite Time / Inverse Definite Minimum Time)
- Starts per hour – Starts per hour allowed (0 – 30);
- U/C Startup Delay – Undercurrent start-up delay, pump priming time (0 – 200s)
- Power Fact Level – Power factor trip level setting (0 – 100%)
- TC Reset Level – Thermal capacity reset level (10 – 100%, default = 70%)
- Consec Start Lim – Consecutive starts limit (1 – 3)
- Run Stall T Level – Run-stall Trip Level (110% - 300%)
- Run Stall H Time – Run-stall hold off time (1 – 200s)
- U/C Trip – Undercurrent trip (Enable / Disable)
- Under Volt Trip (Enable / Disable)
- Over volt Trip (Enable / Disable)
- Volt Symt Trip – Voltage symmetry trip (Enable / Disable)
- Fail Safe – (Enable / Disable)
- Auto TC Reset – (Enable / Disable)

- Unbalance Trip – Current unbalance trip (Enable / Disable)
- Phase Rot Trip – Voltage phase rotation trip (Enable / Disable)
- Short Circ Trip – Short circuit Trip (Enable / Disable)
- Single phase trip – (Enable / Disable)
- Running Stall T – Run-stall trip (Enable / Disable)
- Sel. U/C for Trip - Undercurrent / Power factor selected for trip (Enable / Disable)
- Earth leakage Trip – Earth Leakage Trip (Enable / Disable)
- Low Pass Filter – (Enable / Disable)
- Iso. Lockout T – Isolation lockout trip (Enable / Disable)
- Frequency Trip – Frequency monitoring (Enable / Disable)
- Auto TC Reset Cal – (Enable / Disable)
- Starts Per Hour – (Enable / Disable)
- Volt Phase Rev – (Enable / Disable)
- Vectorial Stall T – Vectorial stall trip (Enable / Disable)
- Table 1 Mask 0&1 – 000:X, 001:X (X=0/1)
- Table 1 Mask 2&3 – 010:X, 011:X (X=0/1)
- Table 1 Mask 4&5 – 100:X, 101:X (X=0/1)
- Table 1 Mask 6&7 – 110:X, 111:X (X=0/1)
- Table 1 Input A – (Input pointer – see 2.4.10)
- Table 1 Input B – (Input pointer – see 2.4.10)
- Table 1 Input C – (Input pointer – see 2.4.10)
- Table 2 Mask 0&1 – 000:X, 001:X (X=0/1)
- Table 2 Mask 2&3 – 010:X, 011:X (X=0/1)
- Table 2 Mask 4&5 – 100:X, 101:X (X=0/1)
- Table 2 Mask 6&7 – 110:X, 111:X (X=0/1)
- Table 2 Input A – (Input pointer – see 2.4.10)
- Table 2 Input B – (Input pointer – see 2.4.10)
- Table 2 Input C – (Input pointer – see 2.4.10)
- Table 3 Mask 0&1 – 000:X, 001:X (X=0/1)
- Table 3 Mask 2&3 – 010:X, 011:X (X=0/1)
- Table 3 Mask 4&5 – 100:X, 101:X (X=0/1)
- Table 3 Mask 6&7 – 110:X, 111:X (X=0/1)
- Table 3 Input A – (Input pointer – see 2.4.10)
- Table 3 Input B – (Input pointer – see 2.4.10)
- Table 3 Input C – (Input pointer – see 2.4.10)
- Timer A Time Out – (0 – 3000s)
- Timer A Start In – (Input pointer – see 2.4.10)
- Timer A Reset In – (Input pointer – see 2.4.10)
- Timer B Time Out – (0 – 3000s)
- Timer B Start In – (Input pointer – see 2.4.10)
- Timer B Reset In – (Input pointer – see 2.4.10)
- Start Motor – (hh:mm)
- Stop Motor – (hh:mm)
- Relay 2 Input Sig - (Input pointer – see 2.4.10)

2.4.10 Input Pointers

It is signals that can be routed to the inputs of the logic functions, timers and relay 2.

Zero ('0')	MinLoad_af	SinglePhase_tf	StartsPerHr_tf	LogicFunc_3
One ('1')	OverVolt_af	EarthFault_tf	Timer_A	! LogicFunc_3
InService	UnderVolt_af	EarthLeak_tf	! Timer_A	Restart
VoltPresentF	VoltSym_af	MinLoad_tf	Timer_B	FrozenContact
OverCrnt_af	HiFreq_af	OverVolt_tf	! Timer_B	PLC_Inp0
ShortCirc_af	LoFreq_af	UnderVolt_tf	RTClock	PLC_Inp1
RunStall_af	IsoLockOut_af	VoltSym_tf	! RTClock	Tcap> THold
I_Unbal_af	OverCrnt_tf	HiFreq_tf	LogicFunc_1	
SinglePhase_af	ShortCirc_tf	LoFreq_tf	! LogicFunc_1	
EarthFault_af	RunStall_tf	IsoLockOut_tf	LogicFunc_2	
EarthLeak_af	I_Unbal_tf	PhaseRot_tf	! LogicFunc_2	

2.5 Environmental Rating

- Explosion proof certified
- Temperature range – 0°C to 60°C
- Humidity - < 85%

3. DEFINITIONS AND TERMINOLOGY

EEPROM	Electrical Erasable Programmable Read Only Memory (non volatile)
Flash memory	Similar to EEPROM (only block write - non volatile)
Galvanic isolation	It is the principle of isolating functional sections of electrical system so that charge-carrying particles cannot move from one section to another, i.e. there is no electrical current flowing directly from one section to the next. Energy and/or information can still be exchanged between the sections by other means, however, such as by capacitance, inductance, electromagnetic waves, optical, acoustic, or mechanical means.
In service	When the current rise above 10% of full load current it is assumed that the motor is running.
Intrinsic safe	It is a protection technique for safe operation of electronic equipment in explosive atmospheres. The concept was developed for safe operation of process control instrumentation in hazardous areas. The theory behind intrinsic safety is to ensure that the available electrical and thermal energy in the system is always low enough that ignition of the hazardous atmosphere cannot occur.
IrDA	Infrared serial data transmission link.
LED	Light emitting diode (It is used as visual indicators)
MMI	Man machine interface – It is a tool to monitor actual values, fault and event records. It is also used to adjust the relay settings. In retrospect, it is a more robust alternative, although not as comprehensive, for a laptop computer with relay front-end software.
Motor protection relay	It is an intelligent (computerized) unit monitoring an electric motor's current and voltage supply. In case of overloading, phase lost etc. the power supply of the motor will be interrupted by the protection relay to prevent damage to the motor.
Slot	Memory space allocated to keep settings data for relay configuring purposes.
Thermal Capacity used	It is a value expressed as a percentage to indicate the thermal condition of the motor. It is based on the size, construction material, winding isolation and cooling properties of the motor. When thermal capacity reaches a value of 100%, it indicates that the motor has risen to it's maximum temperature and any further temperature rise will cause damage to the motor.
USB	Universal Serial Bus
USB drive	USB interface module for only the USB memory stick.

4. FUNCTIONAL DESCRIPTION

The KD-MMI-420-EP is packaged in a plastic toolbox and consists of the following function blocks:

- Rechargeable Li-Ion battery pack
- Micro-controller
- Keyboard
- Liquid crystal display unit (LCD)
- Infrared serial port (IrDA)
- USB drive

Rechargeable Li-Ion battery pack - It is the power source of the portable MMI display unit. The battery has to be charged with a NewElec Li-Ion battery charger before the MMI display unit could be used. Battery endurance and charging times are listed under specifications.

Micro-controller – It is the core of the system. It provides processing power and enables all the peripherals to function together as a unit. The micro-controller has on board memory for program code, settings and temporary data.

Keyboard - It consists of six keys. The operator uses it to select and adjust the data of the motor protection relay. Four keys are used for scrolling up, down, left and right respectively. The remaining two keys are used to select (enter) and reset (return to the menu) respectively.

Liquid Crystal Display unit - It is a four line by twenty character display with back lighting and contrast control. The display is used to display actual values and settings.

Infrared serial port (IrDA) - It is the serial communication interface between the relay and MMI. The intention of the IrDA interface is to provide galvanic isolation between the relay and the MMI. This enable the operator to download and upload data safely with minimal risk of an explosion in hazardous environments.

USB drive - It is an interfaces only to the USB memory stick which is used for mass data storage. The memory stick is plug-able and formatted according to the FAT32 file system. This feature allows data to be viewed and edited in the office on a PC or Laptop equipped with a USB port.

5. OPERATING INSTRUCTIONS

*Δ **Warning !** – Use only NewElec explosion proof certified devices to ensure safe and reliable operation.*

5.1 Getting Started

5.1.1 Charging the Battery

Before any operation could be performed ensure that the battery pack is properly charged. Use the Li-Ion battery charger to charge the battery pack. The following conditions can be indicated during the charge cycle by the battery fault and charging LEDs :

Battery Fault LED	Charging LED	Condition Description
Flashing	Off	Battery is overheated, no charging is performed.
Off	On / Flashing	Battery is busy charging.
Off	Off	Battery fully charge. (5 to 6 hours).

5.1.2 USB Memory Stick Preparation

Important notes regarding USB memory stick preparation for data exchange:

- Use only explosion proof certified NewElec memory sticks.
- The memory stick needs to be formatted according to the FAT32 system 512MB cache. Formatting is done on the USB port of the PC or the Laptop. Use Windows Explorer to perform the task.
- Insert or remove the memory stick only when the MMI is powered down. Removal of the memory stick while the MMI is busy may result in data corruption. A green flashing LED next to the USB connector of the MMI indicates read and write activity.
- Always ensure that the file names are not longer then eight characters for example 12345678.set
- The MMI has limited file functionality. The amount of file names is limited to 65535 names. No provision is made for renaming or deleting a file.
- Fault (filename.flt) and event (filename.evt) files can be viewed with MS Excel® or any other equivalent software.
- Settings (filename.set) files can be viewed with the front-end software of the KD or KE relay.

5.1.3 Connecting the MMI to the Relay

There are three connection points were the KD-Relay or KE-Relay can connect with the KD-MMI-420-EP.

- KD-I2C-FLED IrDA panel.
- KD-RDU-420 IrDA panel.
- KD-IrDA module.

The communication distance between the IrDA devices must be less then 1 meter. When communication is established, the relay communication LED on the MMI will be solid on. The in service LED indicates the motor's running status and the trip LED indicates the motor's fault status. The motor will be switched off in the event of a trip condition.

5.2 Navigating Through The Menus

Navigating though the menus is done by using the direction buttons, enter key and reset key:

- UP button - It will scroll up in a menu or when in edit mode increment the parameter value at the position of the cursor.
- DOWN button – It will scroll down in a menu or when in edit mode decrement a parameter value at the position of the cursor.
- LEFT button - It will allow in edit mode to go left when editing a parameter value.
- RIGHT button – It will allow in edit mode to go right when editing a parameter value.
- ENTER button - It will allow going into a sub menu or confirm a change that was done to a parameter value while in edit mode.
- RESET/MENU button - It will allow one level backwards in the menu structure or reset the value that was changed while in edit mode.

5.3 Monitoring Actual Data

When auto scrolling is enabled the MMI Settings menu the display will automatically return after five minutes of no keyboard interaction to the Actual menu.

5.4 Change or Viewing Settings

All features below can be found under the settings menu of the MMI. Range checking of settings is done during editing.

5.4.1 Change in MMI memory slots

After selecting 'MMI memory', the MMI will prompt the operator to select a memory slot (1 to 4). After the selection has been made, the MMI will display all the settings of the selected memory slot. When finding the setting to be altered, the enter-key has to be pressed in order to alter the setting. A flashing cursor indicates that the setting is ready to be altered. The enter-key must be pressed to confirm the change, while the reset key will restore the previous value.

5.4.2 Copy MMI memory slot to MMI memory slot

MMI memory slot 5 is by default the memory slot where the relay settings will be uploaded to when the MMI connects with the relay. When selecting copying memory slot the MMI will prompt the operator to select from which memory slot (1 to 5) the data must be copied from. After the operator selects a memory slot, the MMI will then prompt the operator to select a destination memory slot (1 to 4). After selecting a memory slot the MMI will prompt the operator for confirmation to overwrite destination memory slot.

5.4.3 Upload relay settings to MMI memory slot

When the operator selects to upload relay settings the MMI will prompt the operator to select the destination memory slot (1 to 4). The MMI will then prompt the operator to confirm the the overwriting of the designated memory slot. The MMI will then proceed to upload the relay settings.

5.4.4 Download MMI memory slot to relay

When the operator selects to download MMI setting to the relay. The MMI will prompt the operator to select the memory slot (1 to 4) to be downloaded. The MMI will then prompt the operator to confirm the the overwriting of the settings in the relay. The MMI will then proceed with download of the relay settings.

5.4.5 Upload relay settings to USB stick

When the operator selects to upload the relay settings to the USB memory stick, the MMI will start uploading the relay settings to the MMI (memory slot 5). The MMI will then after-wards download the relay settings to the USB memory stick. The unique relay ID or serial number will be used as the file name what ever is available. The file extension will be 'filename.set'.

5.4.6 Download USB memory stick to relay

When the operator selects to download the relay settings from the USB memory stick, the MMI will display a list of files that are available on the USB memory stick. After the operator selected a file the MMI will ensure that the file is valid. The MMI will prompt the operator to confirm the overwriting of the settings of the relay. The MMI will the proceed with downloading of the relay settings.

5.5 Retrieve and Uploading Event / Fault Records

To retrieve event records the operator has to go to events menu. When arriving at the events menu the operator has to select the amount of events required [10 – 2000]. When the enter key is pressed the MMI will begin to upload events to MMI memory. After events are uploaded an attempt will be made by the MMI to download the events data to the USB memory stick.

Fault records are retrieved and uploaded in a similar way except for the fact that all the faults [60] will be retrieved and uploaded on request.

The unique relay ID or serial number will be used as the file name what ever is available. The file extension will be 'filename.flt' for faults and 'filename.evt' for events.

5.6 Trouble Shooting (Frequently Asked Questions)

Why does the KD-MMI-420-EP get stuck on the welcome screen ?

- It could be that the USB drive is not functioning properly.

Why does the "**COMMS**" Green LED not come on ?

- Make sure the green light is on at both IrDA boxes.
- Make sure that there is a clear path between the IrDA devices.
- Make sure that the distance is shorter than a meter.

Why does the KD-MMI-420-EP struggle to read the files ?

- Make sure the file name being read is not longer than 8 characters.
- Make sure that the USB memory stick is formatted with the FAT32 format 512MB cache.
- Cycle the KD-MMI-420-EP power and try again.
- Make sure that the green LED is on next to the USB memory stick.
- If still failing it could mean that the USB stick is not working properly.

Can faults / events be downloaded from KD-MMI-420-EP to the USB memory stick without being connected to the relay ?

- Only when faults or events have been successfully uploaded from relay to the KD-MMI-420-EP. If so, follow the next four steps.
- Break the connection between the Relay and the KD-MMI-420-EP.
- Go into events / faults again.
- Say yes to load the last events / faults loaded from a relay.
- The writing procedure will start again and the file will be saved to the last FILED ID loaded from a relay.

Can the data be saved under a custom user file name (different file name) ?

- Due to limited memory space in the micro-controller, a fully functional DOS could not be implemented to give the facility to delete, rename and create files.
- Future devices might have these features.

Why does KD_MMI-420-EP not seeing all the files ?

- The KD-MMI-420-EP is limited in the amount of files it can see on the USB drive. It is due to code memory limitation.
- Only a total of 65535 files can be viewed.
- Feature devices will be looked at, to overcome this limitation.

Why is the screen not reading clearly ?

- Adjust the brightness in the MMI SETTINGS menu.

Why is the PC not detecting or reading any files on the USB memory stick ?

- The USB stick could have got corrupted when removing the USB stick while the KD-MMI-420-EP was still busy with the drive.
- Format the USB memory stick according to the FAT32 file system 512 MB cache. Always insert or remove USB memory stick when KD-MMI-420-EP is powered down.

Why does it take a such long time to upload the events ?

- Due to the amount of events and the board rate of 19200 bits per second.

- Future devices will be looked at to improve the rate of data exchange.

What steps have to be taken to open the event or fault file in a spreadsheet or word-processing application ?

- Find the file ID or serial number you are looking for on the USB memory stick.
- Right click on the file
- Go down to “Open With”.
- Select “Choose Program”
- Select your favorite spreadsheet or word-processing application.
- Click “OK”.
- Windows will remember the last application that you used to open the file.
- You can still open the file with a different application in the same way.

Can the file be viewed in a LINUX environment ?

- Yes, the file can be viewed in LINUX with a text editor or spreadsheet application.

Will a LINUX format works on the USB memory stick ?

- As long as the USB memory stick is formatted with a FAT32 file system, the KD-MMI-420-EP USB driver will pick up the USB memory stick.

Can the USB memory stick be unplugged at any time ?

- No. Turn off the KD-MMI-420-EP before inserting or removing the USB memory stick. This could lead to damage of the file system of the USB memory stick.
- If the USB memory stick becomes corrupted, it has to be again formatted (FAT32).

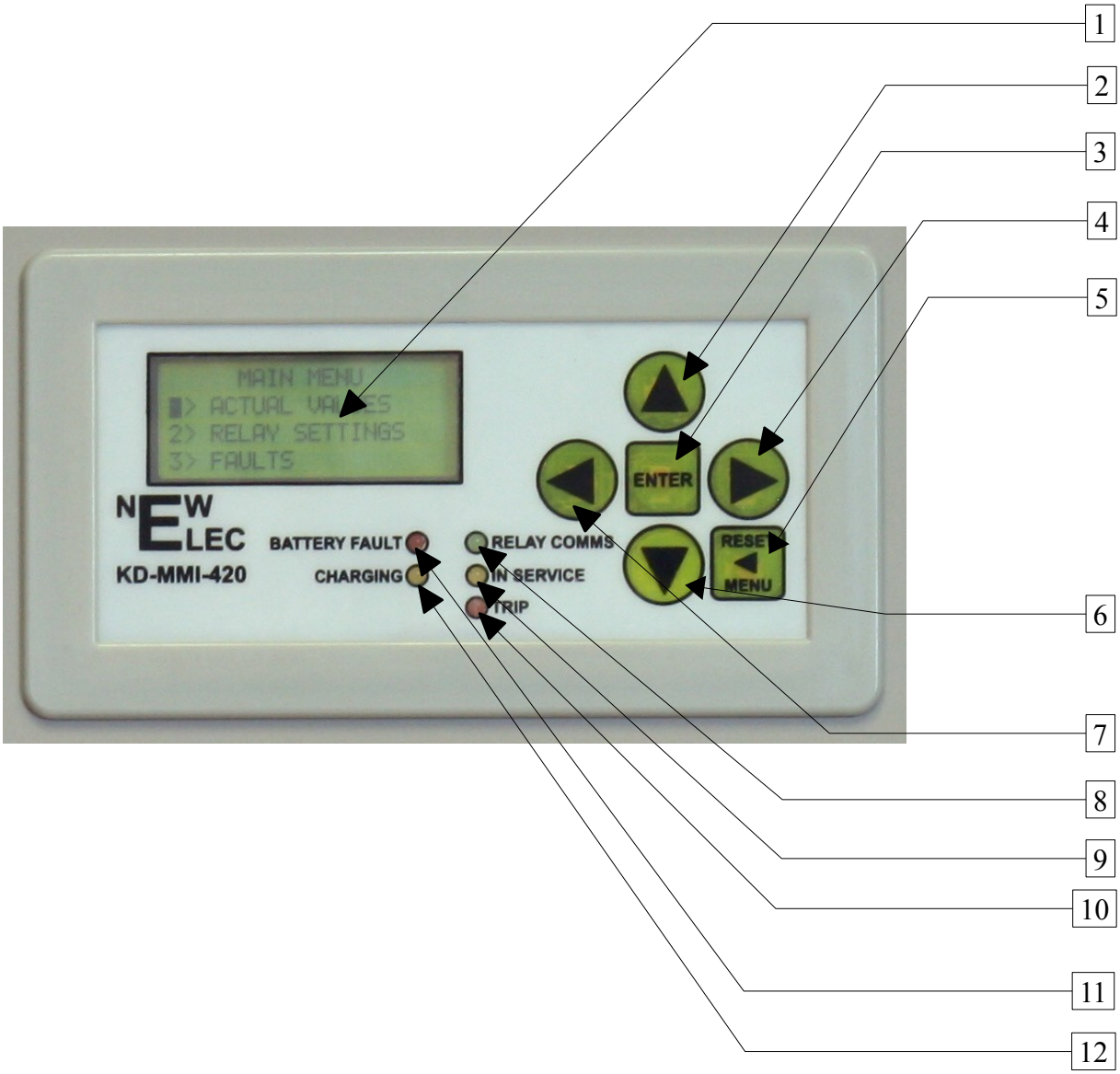
6. DIAGRAMS

6.1 Physical Layout of the Complete Instrument

(Order number: FPR0220)

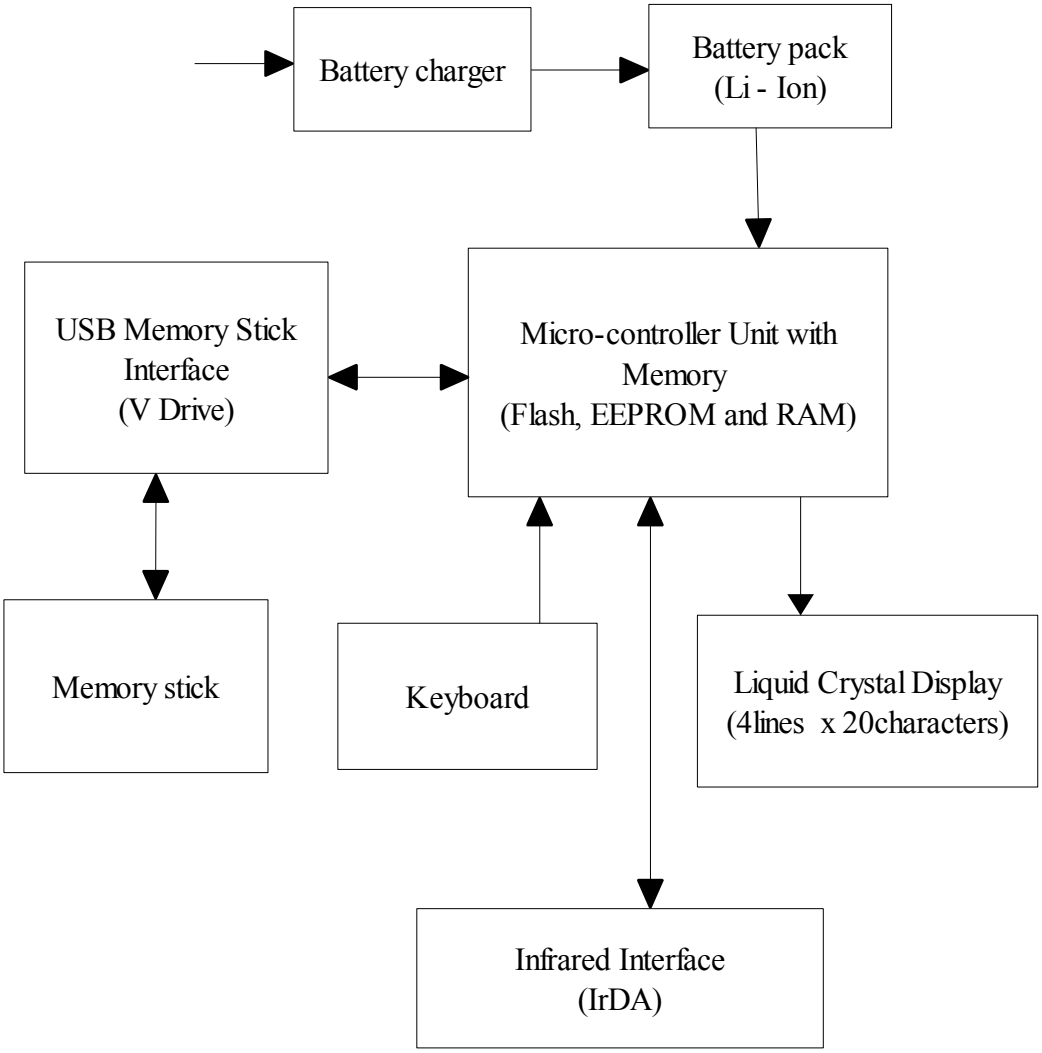
1	Liquid crystal display (4 x 20)	5	Fuse (Slow blow 1 Ampere)
2	Keyboard	6	Infrared interface unit (IrDA)
3	Indication lights (LED)	7	USB Memory stick
4	On / Off switch	8	Li-Ion battery charger

6.2 Layout of the MMI Front Panel.

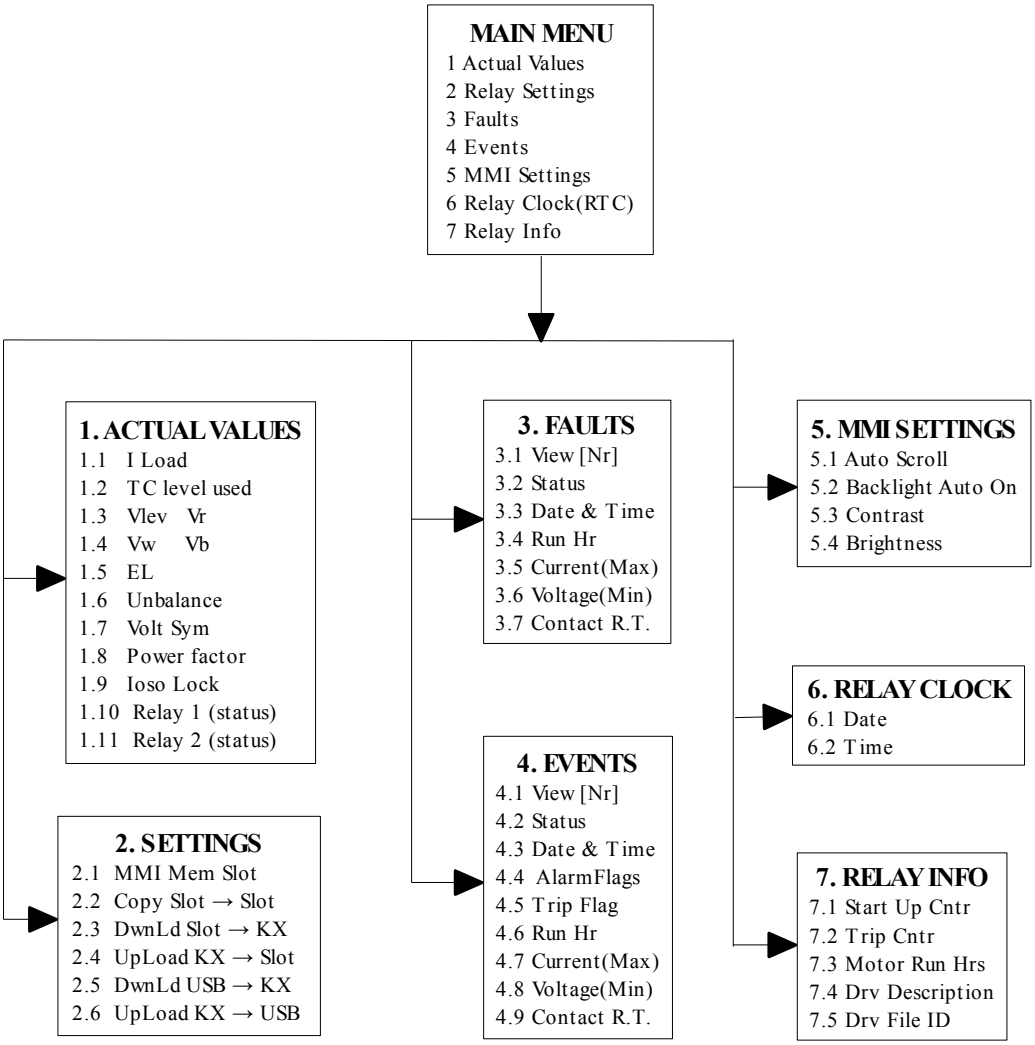


1	Liquid display unit (4 x 20)	7	Left key
2	Up key	8	Communication indication
3	Enter key	9	In service (motor run) indication
4	Right key	10	Trip indication
5	Reset / Menu key	11	Faulty battery indication
6	Down key	12	Charge indication

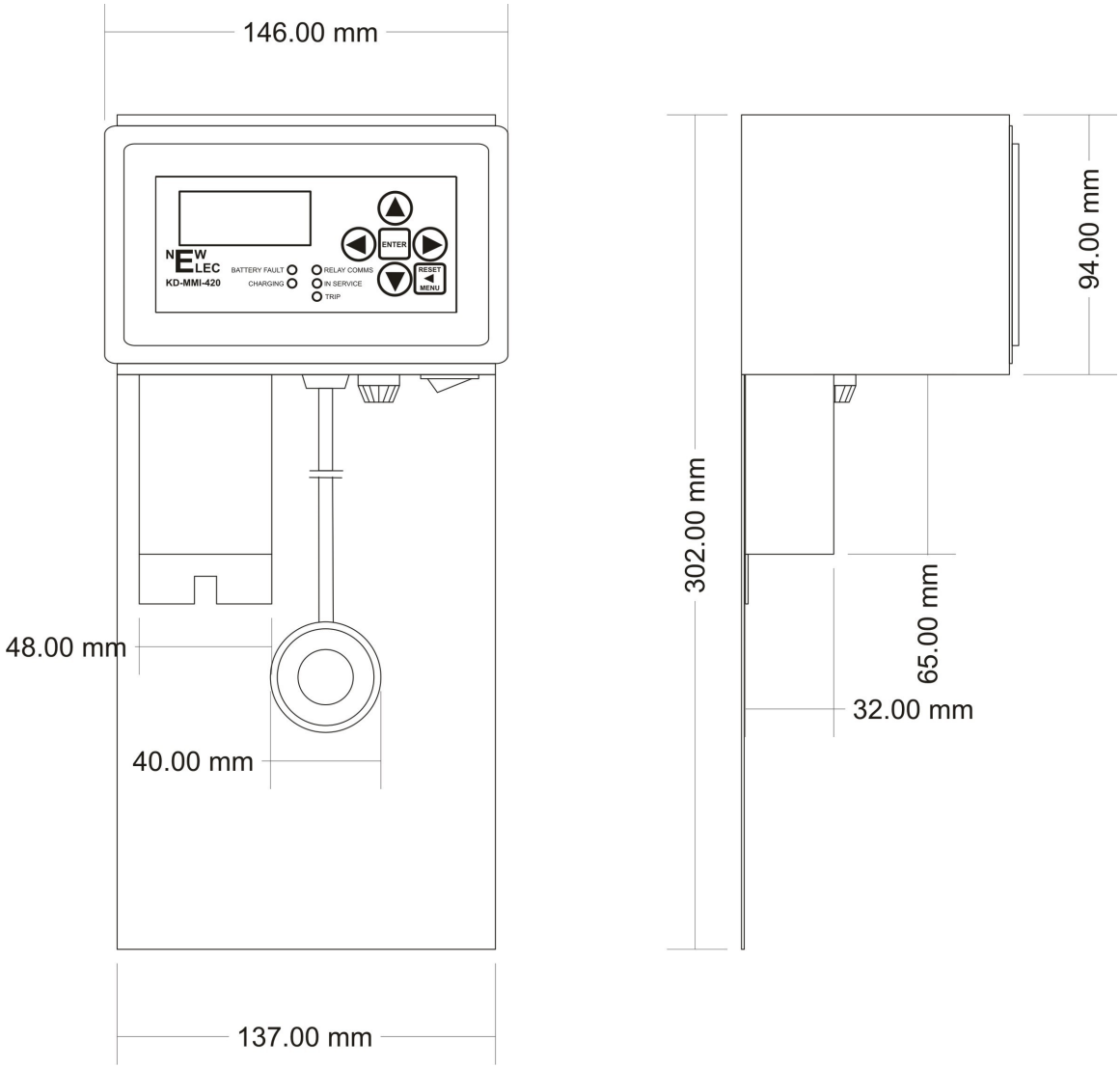
6.3 Block diagram of MMI display unit



6.4 Menu Layout



6.5 Mechanical Drawing



7. ACCESSORIES

All accessories are explosion proof certified and it is compulsory to be used for safety reasons and reliable operation. All accessories are included when a new KD-MMI-420-EP is purchased. In case of lost or damage accessories can be reordered separately.

7.1 NewElec Li-Ion battery charger

Order information: NewElec Li-Ion battery charger (BAT0007)

7.2 NewElec USB memory stick

Order information: NewElec USB Memory Stick (CAB0028)

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