1. Product Description

The QK2400 Gateway is a connection element between ALNET I and ALNET II communication networks, allowing PLCs connected on an ALNET II network to communicate with several systems that use RS-232C serial interface and are ALNET I protocol compatible.

With extreme compact design, the QK2000/MSP has integrated in only one plastic casing the CPU and power supply.

It has two serial ports, one RS-232C and one ALNET II EIA-485.

2. Integrating Parts

The following parts integrate the product:

- QK2400: Gateway
- QK2691: lithium battery ½ AA size
  Spare parts are available upon ordering.

3. Optional Parts

The following parts do not integrate the product and can be order in separate:

- QK1500/4: mounting rail to Catesway
- AL-2300: QK2000/MSP to AL-2600 network derivator/terminator
- AL-2301: RS-485 network cable
- AL-2600: ALNET II network derivator/terminator

Cables	Equipment to connect	
AL-1383	QK2400	IBM-PC® with RS-232C (DB25)
AL-1390	QK2400	IBM-PC® with RS-232C (DB9)
AL-1397	QK2400	AL-1413 RS-232C/RS-485 converter
AL-1397	QK2400	AL-1414 Modem
AL-2320	QK2400	AL-2410 Optic Modem

4. Specifications

4.1. General

- RS-232C serial interface with ALNET I Versions 1.00 and 2.00 network protocol.
- Integrated interface EIA RS-485 to high speed, multi-master, deterministic, communication network using ALNET II protocol
- CPU Status LEDs on the frontal panel
- Watch-dog-timer
- Intel® 80C152 microcontroller
- Clock frequency: 14,7456 MHz
- Operating temperature: 0 to 60°C (32 to 140°F)
  exceed IEC 1131 Norm
- Storage temperature: -25 a 75°C (-13 to 167°F)
  according to IEC 1131 Norm
- Operating air relative humidity: 5 to 95% without condensation
  according to IEC 1131 Norm Level RH2
- Weight:
  without packing: 1100 g (2.4lb)
  with packing: 1300 g (2.9lb)
- MTBF: 23.800 hours @ 40°C (104°F)
  calculated according to MIL-HDBK-217E Norm
- Protection: IP20, against accidental finger access and without water protection
  according to IEC Pub. 144 (1963) Norm, with product mounted

4.2. Electrical

- Operating voltage:
  93,5 to 253 VAC
  or
  95 to 250 VDC
- Operating frequency:
  47 to 63 Hz
- Input surge current:
  25 A (half cycle or 10 ms)
- Maximum Input Power Requirements:
  50 VA
- Power factor:
  75% (typical), with 127 VAC, nominal load
- Efficiency:
  65% (minimum), with 127 VAC, maximum load
- Protections:
  over-voltage and short-circuit, with intermittent power supply blocking
- Fuse:
  2 A (intern)
- Dielectric Withstand Voltage:
  2500 VDC / 1500 VAC between supply lines (L1 and L2) and protection ground (GND) and bus output
- Continuous operating up to 10 ms without power supply
- Maximum dissipation:
  3,5 W (1 W CPU + 2,5 W power supply)
- Battery life:

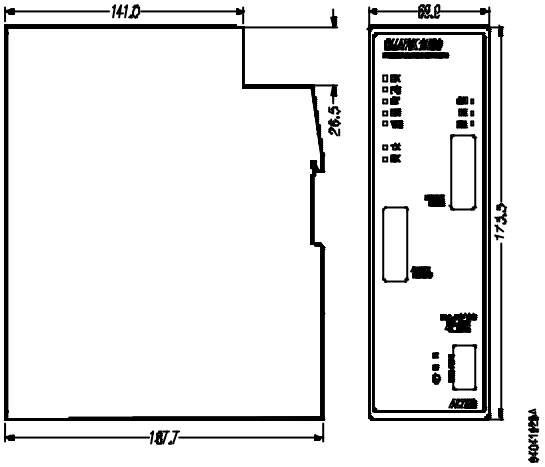
Operating Temperature	Life (years)
0 to 40°C (32 to 104°F)	5
0 to 60°C (32 to 140°F)	1,6

- Battery self-discharge time:
  5 years
- Static Discharge Protection (ESD):
  according to IEC Norm Level 4
- Electrical noise immunity (oscillating wave):
  according to IEC1131 Norm Severity Level A, and IEEE C37.90.1 (SWC)
- Irradiated electrical field immunity:10 V/m @ 140 MHz
  according to IEC 1131 Norm
- Protection against electrical shock:
  according to IEC 536 (1976) Norm, Class I

4.3. Software

- Basic operating system in EPROM (32 kbytes)
- CPU configuration parameters (configuration module) loaded in RAM; loadable by AL-3830 and AL3840 MASTERTOOL (programming tool for WINDOWS®).
- Maximum communication rate of 38400 bits/s on ALNET I serial port

5. Physical Dimensions



6. Handbooks

For detailed information the following handbooks should be consulted:

- Series Quark CPUs Utilization Handbook
- Programming Software AL-3830 Utilization Handbook
- Programming Software AL-3840 Mastertool Utilization Handbook
- ALNET II Network Utilization Handbook

9. Revisions

This document is valid to QK2400 Gateway revision A or greater.

The revision of this document is shown at the right upper corner, indicating changes.

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The following historic shows changes to each revision:

Revision: A	Date: 08/29/94
Approval: Júlio Sieczkowski - R&D	
Author: Ronald Luís Benvenutti - R&D	

Observations:

- Initial revision of this document

Revision: B	Date: 12/20/94
Approval: Júlio Sieczkowski - R&D	
Author: Andreas Ch. Hasenack - R&D	

Observations:

- MTBF characteristic change

Revision: C	Date: 01/20/95
Approval: Júlio Sieczkowski - R&D	
Author: Maria Helena Jaeger - R&D	

Observations:

- Installation t and Programming sections included

Revision: D	Date: 09/29/95
Approval: Júlio Sieczkowski - R&D	
Author: Parceria Ltda.	

Observations:

- WINWORD 6.0 document conversion

Revision: E	Date: 11/12/95
Approval: Júlio Sieczkowski - R&D	
Author: Cláudio Haussen - R&D	

Observations:

- Fuse value changed