⊞ CUBIC

Pearl®
Ticket Issuing System

Data Sheet 001
Issue 1 05|08

Neil Briscoe
Managing Director
Shere

❝ *After the decision to integrate Oyster® capability in March 2007, Shere had the first successful trial of the product within six months and less than one year later had 59 units operational in the field. Our engineers had regular interaction with the Cubic support services which was key to ensuring a seamless integration in minimal time.* ❞

Pearl® at-a-glance:

- Cubic TriReader® Technology for ISO 14443 Type A and B and Cubic GO Card®

- Oyster® Retail Capability* with simplified back office messaging for ease of integration

- Can be customised to support transparent mode, enabling integration with legacy and third party applications (e.g. ITSO, 'Verband Deutscher Verkehrsunternehmen' VDV)

- Simple application programming interface

- Host library supplied for windows/x86 host platforms

- 2 Secure Access Module (SAM) slots

- For other applications please consult Cubic

* Note: Participation in the Oyster® scheme is subject to agreement with Transport for London (TfL) and TranSys

Pearl® **is a modular device which provides Contactless Smartcard capability for retail outlets processing Oyster® "products", alongside other items of sale.**

By incorporating software processing capabilities, Pearl® enables integration into a range of different host devices, such as Cubic's x-PERT® retail terminal.

In turn, host equipment manufacturers can add Contactless ticketing to existing supplied equipment, or incorporate the technology into new equipment before delivery. This allows transport operators and agencies to update their existing infrastructure, using this module as the interface between Contactless Smartcards and their current equipment. The Pearl® enables participation in any required Contactless Smartcard scheme e.g. Oyster®, Integrated Transport Smartcard Organisation (ITSO) or any other scheme; assuming appropriate agreements have been reached between all relevant parties.

How it works
Pearl® is the active component between the Smartcard reader and the host system. It enables Oyster® "products" such as stored value travel or ticketing to be sold or checked in addition to enabling third party functions:-

- Adding Pearl® to a ticket-vending machine or a counter-based ticket office with a suitable host system server will enable Smartcard retailing to be integrated into existing systems.

- With the addition of a simple off-the-shelf POS (Point of Sale) terminal such as a Verifone dial up module (see Cubic datasheet Compact POS terminal 3000), Smartcard sales can be implemented into retail outlets.

Cubic has incorporated biometric technology into its systems – Cubic GO CARD® – which has Contactless Smartcard capabilities. In conjunction with Cubic Tri-Reader®, which reads and writes ISO 14443 Type A & B cards, Cubic GO CARD offers an truly flexible, open system and highly secure approach to monitoring and controlling border and transportation access.

Specifications:

Modern Design
The module incorporates the smartcard reader with a processor PCB so that an efficient interchange between card and host is affected. This combines the functionality previously carried out by a separate large processor card.

Features
2 SAM slots
ITSO/Oyster® Capability

Temperature & Humidity Range
Operating:
-20°C to +60°C   20 to 90% Relative Humidity

Storage:
-30°C to +75°C   10 to 90% Relative Humidity
                                  (non-condensing).

Shock & Vibration
Shock: MIL810D, 20.0g, 11mS
Vibration: MIL810D, Method 514.3, category 8: 2.0g

Electromagnetic & Safety
EMC Directive 89/336/EEC
LVD Directive 73/23/EEC
by application of the standards:
CISPR 61000-6-3, 1996-12 (formerly EN 50081-1)
Electromagnetic Compatibility-Generic Emission Standard,
Part 1: Residential, Commercial and Light Industry.
IEC 61000-6-2, 1999-01 (formerly EN 50081-2)
Electromagnetic Compatibility-Generic Immunity Standard,
Part 2: Industrial Environment. EN 50121-4 Railway
Applications-Electromagnetic Compatibility, Part 4: Emission
and Immunity of the Signalling and Telecommunications
Apparatus.

The Pearl® also meets: ETSI 300 330 Telecommunications
Standard, Radio Equipment Operating in the Range of 9 kHz to
25 MHz.

BS EN60950-1: 2002
Information Technology Equipment - Safety

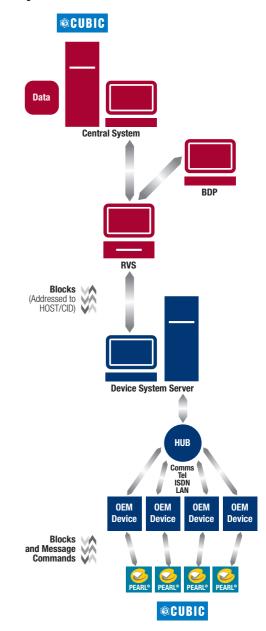### Interface Connections
Input voltage 5 to 24V dc
Power Requirement: 5 Watts minimum PSU requirement
Operating power : 0.7 Watts
Pearl® External Connections – 4RJ45 for DC power, RS 232
and a separate DC socket

Pearl® System Interfaces

Cubic Transportation Systems Ltd
European Headquarters
AFC House
Honeycrock Lane
Salfords
Redhill
Surrey
RH1 5LA

Telephone: +44 (0) 1737 782200
Fax: +44 (0) 1737 789759

In the interests of product improvement Cubic reserves the right to change the above specification without notice.