

ACCULOAD BLC MODULE

The AccuLoad BLC has been purpose designed by Diamond Key International as an integrated load controller and driver display for installation in fuel loading terminals.

The concept behind the DKI AccuLoad BLC is to provide a fully integrated module that is mechanically and electrically optimised for direct installation in the loading bay while simultaneously providing all of the latest diverse and extensive global features required to meet the current and future needs for rack automation and load control.

OVERVIEW

The DKI AccuLoad BLC is created from a number of standard, proven modules:

- 'Best of Breed' AccuLoad III Rack Automation Controller from FMC Energy Systems – Smith Meter
- Dedicated Driver Interface for TAS functionality
- Integral optic fibre components for connection to existing links
- Proven Omega TAS interface
- Large electrical termination enclosures to facilitate ease of interfacing with existing gantry wiring schemes
- Lectern for supporting driver instructions and folders
- Galvanised, free standing support structure

The complete module is pre assembled, configured and tested at DKI works before shipment to site for installation.

At the heart of the DKI AccuLoad BLC is the world leading AccuLoad III rack automation controller from FMC. This third generation rack automation controller from Smith – FMC provides the widest range of functions and flexibility to meet all global road and rail loading demands including additive control and all varieties of blending techniques.

AccuLoad rack automation controllers are already installed throughout the world controlling tens of thousands of loading arms. The latest AccuLoad III model now provides the most extensive range of features and functions of any load rack controller and is expandable up to six loading arms.

The driver interface provides a large display, conveniently located for ease of reading and entering load information. All loading operations are interfaced through this display with full text prompts for the driver.

A Rack Transaction Controller interfaces (AccuLoad & Driver Interface) the field controllers with the Terminal Automation Systems. It integrates communication functions and provides the AccuLoad BLC to operate "stand alone" whilst maintaining product security if the TAS system is off line for any reason.

PHYSICAL OUTLINE

The AccuLoad BLC has been purpose designed to meet minimum spatial constraints and ergonomics of use.

The design takes into consideration the physical mounting limitations of typical existing equipment such as protective weatherproof shelters and surrounding gantry pipework and structures.



A detailed study carried out by DKI has highlighted the variety of limitations that exist on different sites.

Electrical

The AccuLoad BLC comes completely pre wired with a universal, stainless steel Ex e electrical termination enclosure.

The termination enclosure is pre configured with all terminal strips laid out in a standard wiring configuration that allows for various gantry variations. It includes universal gland plates on three faces to facilitate interfacing with existing gantry wiring.

Mechanical

The AccuLoad BLC is free standing with mounting holes to securely fix the unit to the terminal apron.

Ergonomics

Industrial design expertise has been employed by DKI to ensure that the layout and functioning of the Driver interface is as optimum as possible.

Ergonomic considerations included:

- Ease of viewing for all displays – viewing angles, range of daylight and night lighting conditions, arrangement and size
- Keypads
Layout and use of dedicated buttons for key functions
- ID media – optimum angle and operating envelope for swipe card readers
- Driver position – maintain or improve proximity to equipment to maximise effectiveness of existing driver enclosures
- Driver documentation
Integrated lectern capable of supporting standard clip boards and printouts.

ONE SIZE FITS ALL

The flexibility and configurability of the Accuload III means that the one, standard Accuload BLC can meet a wide variety of requirements 'straight out of the box'.

The significant benefits that this provides are:

- Commonality of Driver and Operator interface
- Standardised training
- Simplified and standardised supportability
- Ease of future upgrades by eliminating custom modifications
- Common spares

Configurability

The family of Accuload III products means a unit can be selected to suit the site to which it will be applied. Scalable from one thru six arms allows a replacement unit to fit exactly with the gantry configuration at site and also provides for arm expansion should the need arise in the future.

A wide variety of functions and features all configured from the same software "Accumate" means a single family of products can be applied across terminal installations without the need for local "customisation". The standard Accuload product can be configured to the needs of the majority of terminals.

Use of the Accumate software also means users have access parameters such as K factors, arm configurations, blending recipes and many other parameters from a remote location ¹ - provided suitable password access rights are met. Of course any changes made are logged in the extensive array of logging archives within the unit.

Similarly, in a situation where Omega may be off line for a particular reason, Accuload III is able to log in excess of three hundred transactions then upload these to Omega once communications are re-established.

Integrated Logic

The Accuload III includes inbuilt logic Boolean logic functions which can be performed on any of the I/O points.

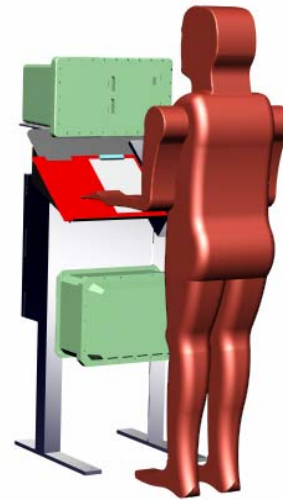
This feature means that differences in gantry wiring schemes and interlock functionality and logic can be met by simple software configuration of the basic unit if required.

COMMUNICATIONS

The Accuload BLC communicates with terminal automation systems such as the DK1 Omega TAS

Connectivity

Interfacing between the TAS and Accuload BLC utilises serial communications over fibre optic cable. Fibre cable with ST connections negates the problems of conduction during lightning strikes and electromagnetic interference as with copper cables. Existing terminal fibre cable can be used with appropriate end connectors.



Omega Interface

The Accuload III has a proven track record for use in conjunction with DK1's Omega Terminal Automation System. Accuload units have been used with Omega since 1991 and have been the standard rack controller adopted by DK1 for installation throughout S.E. Asia over the last two years.

UPGRADE SUPPORT HISTORY

Support

DK1 offer ongoing support services for products and systems. The Accuload BLC unit will be supported locally by DK1. Additionally FMC have a strong, proven history of product support for previous generations of equipment and previous models.

Spare parts or conversions are available for all Accuload products including those over 20 years old.

Upgrades

DK1 will continue to develop the Accuload BLC concept to take advantage of modern technology or product advances. In conjunction with the major components suppliers of the unit, specifically FMC, have a stated policy and proven history of offering product support for previous generations of equipment and in offering cost effective upgrades for previous models.

FMC have a stated policy of developing and providing continual upgrade paths for all previous and current models of Acculoads.

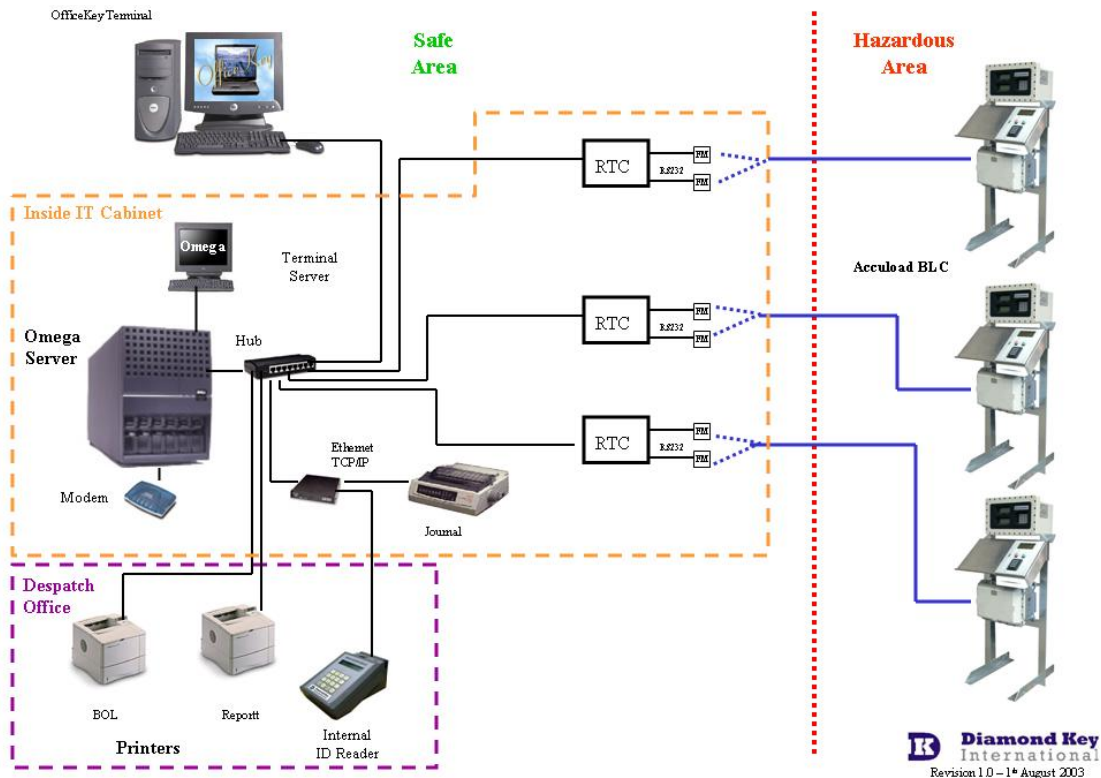
For example, customers who have been using Acculoads since the initial release in 1980 are able to upgrade their units (Accuload I) to provide most of the modern functionality of a new Accuload III.

This provides significant long term savings in infrastructure re-investment.

¹ with appropriate cabling and communication requirements in place

TYPICAL TOPOLOGY

A typical topology of a terminal using an AccuLoad BLC is shown below. Although the diagram shows two AccuLoad BLC's it is possible to expand the architecture to cater for the largest of loading terminals.



RELIABILITY

The AccuLoad BLCs are designed for the highest reliability in the specialist application of Rack Automation controllers.

FMC AccuLoad III are based on purpose built industrial electronics and offer an outstanding component reliability of 0.1% failures per 10 years.

The benefits of this significant advance in equipment reliability over older generations of equipment are:

- Increase in gantry availability time
- Reduction of spares holding
- Reduction in module repair costs
- Elimination of requirement to have trained BLC 'board exchange' personnel at sites
- Improved site efficiencies

The environmental specification of the AccuLoad product is extremely wide due to its global market application. It easily caters for the extremes of heat and cold anticipated throughout Australian terminal installations.

REFERENCES

Further information on the FMC AccuLoad III can be found at: http://63.174.18.220/literature/accuload_manuals.html

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SUMMARY OF KEY FEATURES

General

- Global "Best of Breed" Supplier – FMC
- Large Installed Base
- Flexible & Configurable
- Fully Featured
- Extensive Additive & Blending Features
- Backward Compatibility
- DK1 Support - 24 x 7 x 365
- Accommodates 1 to 6 Arms
- 4 Additive Injectors as standard– upgradeable to 24 per bay
- Based on proven AccuLoad Rack Automation

BLC 80 Upgrades

- Economic space envelope and footprint
- Integrated lectern for driver folders
- Uses Fibre Optic core communication (Two operable pairs required - ST Connections)
- Pre-assembled and configured at DK1 – ready to fit
- Common software for all functionality & range
- One product configurable for majority of applications
- Ergonomically integrated design for ease of use