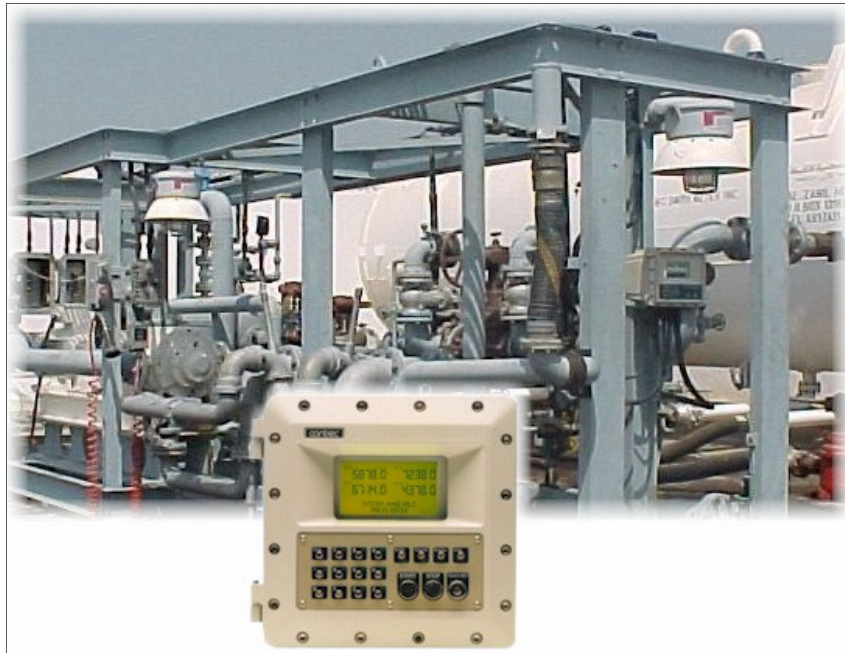


Model 1010A Reference Manual



Honeywell Enraf

Honeywell Enraf

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The instructions given herein cover the general description, installation, operation and maintenance of the subject equipment. Honeywell Enraf. reserves the right, without prior notice, to make engineering refinements that may not be reflected in this manual.

Should any questions arise which cannot be answered specifically by this manual, they should be directed to Honeywell Enraf for further detailed information and technical assistance.

Honeywell Enraf will not accept any liability for either direct or consequential damages resulting from the use or misapplication of the contents of this manual.

Section	Title	Date
01.00	Overview Introduction, Approvals	07/06/07
02.00	Application Pack Overview , Installed Hardware Modules, Software modules and Terminal Layout	07/06/07
03.00	Card Descriptions Overview, Component Layout, Link Positions, Terminal Designations, Connection Details	07/06/07
04.00	Instrument Data Sheet General description of the Model 1010 Bay Load Controller.	Current
05.00	Operator Manual Alpha-Numeric Key Entry, Loading Operations, Error & Fault Messages	27/03/07
06.00	Programming Manual Entering Programming Mode, Adjusting the Display Contrast, System, Clock, Options, Valve, Arm Input, Additive Injection and Communication Menus	07/06/07
07.00	Software Modules Software Module descriptions, including Digital Control Valve Operation, Alpha-Numeric Keypad, Overfill/Ground Inputs, Communications, Use of Non Linear Flowmeters, etc.,	05/09/06
08.00	Software Protocol Manual Communication Procedures and Commands	15/12/06
09.00	Installation, Testing and Commissioning Receipt of Equipment, Recommended Wiring Practices, Hardware Test Mode, Changing EPROMs, Dimension Drawings.	01/06/07
10.00	Wiring Diagrams Typical Wiring and Communication Diagrams	30/03/06



Introduction**About this Manual**

In essence this manual is a compilation of the various manuals that describe in detail the operation and functions of the Model 1010.

Application Packs

Reference is made throughout the various manuals to Application Packs. Application Packs are a method of describing the mixture of hardware and software that are specific to a particular application. The Application Pack lists the main electronic modules, the software modules and provides a terminal listing specific to the application.

Card Descriptions

Card Descriptions give a general description of the electronic modules that control the basic functions of the Model 1010 Bay Load Controller. Each Card Description gives a brief functional description of the card including a layout of its main components. All link settings which are required to set up the operation of the card are clearly shown. The Card Description provides a full list of all terminal connections and the technical specifications of the various types of inputs and outputs.

Instrument Data Sheet

The instrument data sheet gives a general overview of the Model 1010A including the model number breakdown, programmable parameters and the instruments technical specification.

Operator Manual

The Operator Manual describes the operator interface, operational prompts and error and alarm messages that may be encountered during the day to day use of the Model 1010A.

Programming Manual

The Programming Manual sets out the various programming steps necessary to configure the Model 1010A for the particular installation. Topics covered are the standard system functions, the setting of the date and time, optional parameters, flowmeter and control valve selection, additive injection details and communication set-up for either printers or host computers.

Software Modules

Provides a description of the various software modules that together make up the operating system of the Model 1010. It should be noted that depending on the manner in which the unit is programmed not all software modules may be installed. The Application Pack lists the applicable software modules.

Software Protocol Manual

The Software Protocol Manual sets out the necessary information to design communication software to link the Model 1010A to a computer system.

01.00

Installation and Commissioning

This manual is to be used as a guide to the installation and commissioning of the Model 1010. Topics range from receipt and unpacking, recommended wiring practices, to the testing of external equipment such as valves and flowmeters etc..

Wiring Diagrams

A selection of wiring diagrams is provided including a standard Model 1010A installation and various communication modes.

About the Model 1010A Bay Load Controller

The 1010A is a powerful and intelligent loading system designed to manage the loading of petroleum and chemical products into road tankers, rail cars and barges.

The Model 1010A is available with a range of Applications Packs, consisting of application software and hardware designed to meet the specific requirements of:

- Standard petroleum loading
- Asphalt, bitumen & emulsions
- Loading aircraft refuelling trucks
- Railcar loading
- Chemical Loading
- LPG loading
- Chinese language characters
- Special 6 arm version

In addition, Honeywell Enraf has developed a number of special Application Packs to meet the needs of customers in different countries or where special or non-standard requirements exist. The flexibility of the Model 1010A software and the range of input/output boards allows the system to be tailored to meet most customer requirements.

The Model 1010A can operate in a stand-alone mode or be fully integrated with a high level terminal automation system.

Stand-alone

In the Stand-alone mode, the Model 1010A will provide complete control of the loading rack, including:

- Authorising drivers & vehicles
- Prompting the driver to enter arm number, compartment number and preset quantity
- Prompting and checking that the vehicle earth or overfill is connected
- Simultaneous loading of up to 4 arms
- Deadman Timer Operation
- Control of Pumps and Gantry Isolation Valves

The Model 1010A will manage all loading operations for single or multi-compartment vehicles and produce a bill of lading for the entire vehicle.

The last 200 vehicle loads are always stored in memory, allowing tickets to be re-printed or transactions downloaded to a

computer system at a later date.

Integrated System

As the Model 1010A is capable of authorising vehicles and generating prompts without reference to an automation system, the communication workload on the office computer is substantially less than if these functions were fully controlled by the automation system, as is the case with most other presets. As a result the cost of developing software drivers and automation programs is greatly reduced.

The Model 1010A uses SLIP Plus protocol, Slip was originally developed for the internet, it provides a very reliable, secure and efficient method to transfer information to the office computer system. SLIP conforms to the International Standards Organisation OSI recommendations for multi-layered protocols.

Touch Key Technology

Honeywell Enraf has pioneered the use of Touch Key technology within the petroleum industry as a rugged and secure method of identification for both personnel and vehicles.

The Touch Keys produce a coded number, similar to a magnetic card, that can be read by the Model 1010A. Unlike magnetic cards, however, the Touch Key numbers are not corrupted through heavy use. Each key has a unique identification number laser etched into a microchip that will transmit the number when the key is momentarily pressed against the reader.

Personnel or vehicle authorisation can be granted by the Model 1010A via a database of valid key numbers stored internally to the instrument. Alternatively, the key number can be sent to TAS (Terminal automation system) for authorisation.

Touch Keys are available as a key ring tag in a number of colours or as a card, where the actual touch button is mounted on a plastic card or badge, of similar size to a magnetic card and can be in the form of a Photo-ID card.

Standard Touch Keys do not have a battery and have an unlimited life span. The keys receive a small amount of power from the reader, which is mounted on the front panel of the Model 1010A. An intrinsically safe isolation barrier inside the Model 1010A limits the power to microwatts, and both the keys and the reader are internationally certified for use in hazardous areas.

Functionality

The Model 1010A has all the flow measurement and control functions expected of a leading preset. These include:

- Precision flow measurement, including pulse verification to API and ISO standards.
- Temperature Measurement
- Volume Correction to API tables for most petroleum products and to US and metric standards.
- Digital Valve Control.
- Additive Control outputs
- Pump demand outputs with programmable delays.
- Permissive inputs for overfill, vehicle ground and emergency stop
- Pulse Outputs
- Other digital inputs/outputs specific to user requirements.

The digital control output enables the flow profile to be programmed to ramp up at the start of the load and to ramp down prior to the end of the load.

With our field proven fine-tuning algorithm, accurate control of flowrate is ensured for all major brands of digital control valves.

01.00

Modular Design

The modular design of the electronics simplifies servicing. Should a fault develop in the electronics, modules can be simply changed over in the field by technicians with minimal training.

The need for highly specialised personnel and/or costly maintenance contracts is eliminated providing terminals and depots with a level of self-sufficiency otherwise not available.

Approvals

To match its worldwide acceptance as a leading bay load controller the Model 1010 has the following approvals :

CE & EMC Standards

All instruments conform to the EMC-Directive of the Council of European Communities 89/336/EEC and the following standards:

Generic Emission Standard EN 50081-1 Residential, Commercial & Light Industry Environment.

Generic Emission Standard EN 50081-2 Industrial Environment.

Generic Immunity Standard EN 50082-1 Residential, Commercial & Light Industry Environment.

Generic Immunity Standard EN 50082-2 Industrial Environment.

Metrology

The Model 1010A has international metrology approvals including:

- European approvals to the OIML R117 standards with certification through NMI and PTB
- US NIST approval
- Canadian approval
- South African SABS
- Australian NSC

Hazardous Area**SAA**

AUS Ex 04.3948

Ex d IIB T6

IEC

BVS PP 02.2084 IEC

Ex d IIB T6

ATEX Approval

DMT 02 ATEX E 105

Group & Category: II 2G

Type of Protection: EEx d.IIB T6

Ambient Temperature: -40°C to +60°C.

USA & Canadian

SAUS/C for Class 1, Groups C & D

Government of India

R1(I) 136/Contrec/423 Date 07/06/2001

Honeywell Enraf

Certification of

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Certificate of Conformity

Certificate No: AUS IS 04-2048 **Issue #:** Original Issue: 5/04/2004

Date of Expiry: 31/12/2006

Certificate Holder: Cosair Pty. Ltd.
22 Hall Street
Hawthorn East Vic. 3123

Electrical Equipment: Enclosure Type EXE310 and EXE3410

Type of Protection: Exd

Marking Code: Exd IIB T6
AUS IS 04-2048

Manufactured By: Cosair Pty. Ltd.
22 Hall Street
Hawthorn East Vic. 3123

Administered by:



Test Safe
+ + + + + + + + + +

919 Londonderry Road, Londonderry NSW 2753
Australia

Phone: +61 2 4724 4900 **Fax:** +61 2 4724 4999



SAA-ASZ
Standards Australia
Quality Assurance Services
15/15/2006

STANDARDS AUSTRALIA

Standards Australia, Quality Assurance Services Pty Limited, A.S.B.F. #1 028 411 482

Page 1 of 3

Certification of

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

The certificate is issued subject to the conditions set out in Schedule 2 and the Information Publication IPN9 and the Procedure (Part 6) of the scheme.

The electrical equipment and any accessories submitted to it specified in the certificate and the attached documents, may only be supplied with the following standards:

- IEC 60076-0:2000 Electrical equipment for explosive gas atmospheres - Part 0: - General requirements
- IEC 60076-1:2001 Electrical equipment for explosive gas atmospheres - Part 1: Flammable substances 'A'

This certificate does not ensure compliance with related safety requirements and performance other than those included in the Standard listed above.

It is the certificate holder's responsibility to ensure any relevant product is the above standard is in current use.

The equipment submitted for compliance must be manufactured and test requirements as recommended.

Test Report No. 019 001 2843/02, dated 05/12/03

File Reference: TestSafe 2084/060403

Issued for and on behalf of issuing authority:

Quality & Certification Manager:

Position:

Signature:

Date: 04/03/08

This certificate and its validity may not be reproduced except in full.

This certificate is not transferable and remains the property of Standards Australia Quality Assurance Services and must be returned to the issuer if it being transferred and retained.

Administered by:



Test Safe
+ + + + + + + + + +

919 Londonderry Road, Londonderry NSW 2753
Australia

Phone: +61 2 4724 4900 **Fax:** +61 2 4724 4999



SAA-ASZ
Standards Australia
Quality Assurance Services
15/15/2006

STANDARDS AUSTRALIA

Standards Australia, Quality Assurance Services Pty Limited, A.S.B.F. #1 028 411 482

Page 2 of 3

Certification of

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Schedule

Certificate No: AUS EX 04.3948 Issue: 0 Date of Issue: 4/2/2004

Certified Equipment: The EXE 410 and EXE 810 enclosures are intended to house electronic equipment for the processing and display of transmitter outputs.

Both designations of enclosure consist of a body and lid parts attached by bolting across a flange joint, differences relate to the enclosed volume of the body part. Body and lid are cast from aluminium alloy AS6017 and machined to drawing requirements. The lid is machined to accept a series of switch shafts for operators, a similar shaft is also provided in one side of the body part. The shafts of these operators are retained by creeps. The lid also includes a glass window retained by bolting it between a retaining plate and the rear of the lid.

Electrical entry is via suitably certified glands to threaded entries in the base of the body or by suitable conduit entry.


The enclosures may include the following options:

- Self-limiting internal heater having a maximum surface temperature of 65°C.
- Separately certified blanking elements for unused entries.


Conditions of Certification:

1. It is a condition of manufacture that each enclosure shall be subject to a static pressure test in accordance with clause 16 of IEC 60079-1:2001 using a minimum test pressure of 13.5 bar applied for more than 10 seconds.

Assembly:



919 Londonderry Road, Londonderry, NSW 2753
Australia
Phone: +61 2 4724 4000 Fax: +612 4724 4099



STANDARDS AUSTRALIA
Standards Australia Quality Assurance Services Pty Limited A.B.N. 67 050 611 642

Page 31

Certification of

EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Addendum to Certificate No. Ex 043948


Drawing Schedule

Drawing No	Drawing Title	Issue	Date
1909 ME Sheets 1 to 5	Cartridge Assy	5	10-04-00
1914 ME	Keyboard for 18 switch EXE810	1	13-03-99
1915 ME	Switch Panel for 18 switch EXE810	7	14-06-01
1920 ME	Switch Plunger for EXE810	7	19-04-01
1922 ME	Window Glass	1	17-12-98
1923 ME	Window Retaining Plate	5	13-06-00
1924 ME	Display Window for EXE810 - Cut	1	13-03-99
1925 ME	Switch Spring for EXE810	2	11-02-00
1926 ME	W & M Switch Plunger for EXE810	8	24-06-01
1927 ME	W & M Spring/Actuator for EXE810	2	14-02-00
1928 ME	W & M Switch bracket	5	18-06-00
1929 ME	Reader Gland for EXE810	4	21-06-00
1930 ME	EXE10 Door PCB Mounting Plate	3	08-06-00
1931 ME	Label-CSA-EXE810	1	20-03-99
1932 ME	Stand-Off x 20	2	10-12-98
1933 ME	Reader Surround	2	14-02-00
1934 ME	Reader Insulating Bush 'A'	2	14-02-00
1935 ME	Reader Head	4	20-06-00
1936 ME	Reader Stopped Insulating Washer	2	14-02-00
1937 ME	Reader Insulating Washer	1	13-03-99
1938 ME	Reader Insulating Bush 'B'	1	13-03-99
1939 ME Sheets 1 to 4	EXE810-3 Assembly	10	13-03-04
1940 ME Sheets 1 to 4	EXE810-18 Assembly	10	13-03-04
1941 ME	Assy Reader Gland for EXE810	1,2	11-02-00
1948 FA	EXE810-Window-Printed	2	20-03-99
1949 ME	Gland Seal Plug for EXE810	2	11-02-00
1960 ME	Keyboard for 5 switch EXE810	1	15-03-99
1961 ME	Switch Plate for 5 Switches	7	14-06-01
1965 ME	Blanking Plate for Reader Hole	3	21-06-00
1966 ME	Hinge Pin for EXE810 Endstore	1	13-03-99
1967 ME Sheets 1 to 4	EXE410 Assembly	7	13-03-04
1968 ME Sheets 1 to 3	Mounting Plate for EXE410	3	13-06-00
1969 ME	Switch Panel for EXE410	3	18-06-00
1960 ME	Keyboard for EXE410	1	13-03-99

Assembly:



919 Londonderry Road, Londonderry, NSW 2753
Australia
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STANDARDS AUSTRALIA
Standards Australia Quality Assurance Services Pty Limited A.B.N. 67 050 611 642

Page 4 of 5

Certification of
EXPLOSION PROTECTED ELECTRICAL EQUIPMENT

Administered by: Standards Australia Quality Assurance Services

Addendum to Certificate No. EA 043948

Drawing Schedule (cont.)

Drawing No	Drawing Title	Issue	Date
1961 ME	Blank Switch Plunger for EXE410	5	09-11-00
1980 ME Sheets 1 to 2	Body Casting Details for EXE410	4	02-04-00
1982 ME Sheets 1 to 2	Body Casting Details for EXE810	4	02-04-00
1984 ME	Lid Casting-EXE410 & 810 Casting details	2	20-04-99
1985 ME	EXE810-5 Switch Lid Machine details	8	12-07-00
1986 ME	EXE810-18 Switch Lid Machine details	8	12-07-00
2023 ME	Retaining Clip for Touch-key	3	07-12-00
2042 ME	Large Plunger Button for EXE810	5	25-07-00
2054 ME Sheets 1 to 2	Body for EXE810 with M25 Glands machining details	9	13-03-04
2095 ME Sheets 1 to 2	EXE 410 body Machining Details 3 x M20	5	13-03-04
2159 ME	Hinge Spacer for EXE810	1	09-02-00
2234 ME	Switch Button Small for EXE810	3	14-06-01
2235 ME	Switch Button Large for EXE810	3	14-06-01
2242 ME	Blank Switch Panel for 810	1	07-12-00
2265 ME	Switch Button Cover	1	14-06-01
2520PL	Label for AUS EXE810	1	10/03/04

Issued by:


	<p>919 Londonderry Road Londonderry NSW 2753 Australia</p> <p>Phone: +61 2 4724 4900 Fax: +61 2 4724 4999</p>	 <p style="font-size: small;">Accreditation by the Test Accreditation System of Australia and New Zealand, Acc No. 222213048</p>
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STANDARDS AUSTRALIA


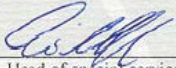
Standards Australia Quality Assurance Services Pty Limited A.B.N. 67 050 611 642

Page 5 of 5



INTERNATIONAL ELECTROTECHNICAL COMMISSION (IEC)
COMMISSION ELECTROTECHNIQUE INTERNATIONALE (CEI)

Ref. No.
DE / DMT / BVS PP 02.2084 IEC

IEC SCHEME FOR CERTIFICATION TO STANDARDS FOR ELECTRICAL EQUIPMENT FOR EXPLOSIVE ATMOSPHERES (IECEX Scheme)	SYSTEME CEI POUR CERTIFICATION SELON LES NORMES RELATIVES AUX APPAREILS ELECTRIQUES DESTINES A ETRE UTILISES EN ATMOSPHERES EXPLOSIBLES (SYSTEME CEIEx)						
IECEX ASSESSMENT AND TEST REPORT RAPPORT CEIEx D'EVALUATION ET D'ESSAIS							
Product <i>Produit</i> Name and address of the applicant <i>Nom et adresse du demandeur</i> Name and address of the manufacturer <i>Nom et adresse du fabricant</i> Rating and principal characteristics <i>Valeurs nominales et caractéristiques principales</i> Trade mark (if any) <i>Marque de fabrique (si elle existe)</i> Model/type Ref. <i>Ref. de type</i> Additional information (if necessary) <i>Information complémentaire (si nécessaire)</i> A sample of the product was tested and found to be in conformity with <i>Un échantillon de ce produit a été essayé et a été considéré conforme à la</i> as shown in the Test Report, Ref. No. <i>comme indiqué dans le Rapport d'essais, numéro de référence</i>	<div style="border: 1px solid black; padding: 5px;"> <p>Enclosure</p> <p>Contrec Systems Pty. Ltd AUS - 3123 Melbourne, Hawthorn East</p> <p>Contrec Systems Pty. Ltd AUS - 3123 Melbourne, Hawthorn East</p> <p>Ex d IIB T6</p> <p>EXE 410 resp. EXE 810</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">PUBLICATION</td> <td style="width: 50%;">EDITION</td> </tr> <tr> <td>IEC 60079-0</td> <td>2000</td> </tr> <tr> <td>IEC 60079-1</td> <td>2001</td> </tr> </table> <p>BVS PP 02.2084 IEC</p> </div>	PUBLICATION	EDITION	IEC 60079-0	2000	IEC 60079-1	2001
PUBLICATION	EDITION						
IEC 60079-0	2000						
IEC 60079-1	2001						
The Ex ATR is issued by the following Accepted Certification Body <i>Le Rapport ATR Ex est émis par l'organisme accepté de certification suivante</i>							
Deutsche Montan Technologie GmbH Essen, 02-12-05							
 DMT Certification body	 Head of special services unit						

ATR/CS/9905



Translation

EC-Type Examination Certificate

(1)

- Directive 94/9/EC -

(2)

Equipment and protective systems intended for use
in potentially explosive atmospheres

(3)

DMT 02 ATEX E 105

(4)

Equipment: Enclosure Type EXE 410 and Type EXE 810

(5)

Manufacturer: Contrec Systems Pty. Ltd

(6)

Address: AUS 3123 Melbourne

(7)

The design and construction of this equipment and any acceptable variation thereto are specified in the schedule to this type examination certificate.

(8)

The certification body of Deutsche Montan Technologie GmbH, notified body no. 0158 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive.
The examination and test results are recorded in the test and assessment report BVS PP 02.2053 EG.

(9)

The Essential Health and Safety Requirements are assured by compliance with:

EN 50014:1997+A1-A2 General requirements
EN 50018:2000 Flameproof enclosure 'd'

(10)

If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11)

This EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to Directive 94/9/EC.
Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate

(12)

The marking of the equipment shall include the following:

Ex II 2G EEx d IIB T6

Deutsche Montan Technologie GmbH

Essen, dated 27. May 2002.


Signed: Jockers

DMT-Certification body

Signed: Eickhoff

Head of special services unit

Page 1 of 2 to DMT 02 ATEX E 105
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Am Technologiepark 1, 45307 Essen, Telefon (0201)72-1416, Telefax (0201)72-1716



(13) Appendix to

(14) **EC-Type Examination Certificate**
DMT 02 ATEX E 105

(15) 15.1 Subject and type
Enclosure type EXE 410 and type EXE 810

15.2 Description
The enclosures are designed for electronic devices to analyse and display signals e. g. of flow sensors.
The enclosures may be equipped with a heater with a self-limiting characteristic (maximum surface temperature of the heater 65°C).
The front panel may be equipped with a touch key reader. An intrinsically safe circuit connects the reader with the electronic devices inside the enclosure via a bushing. This intrinsically safe circuit as well as the necessary components inside the enclosure are certified separately. If the reader is not installed a blanking element is used instead of the bushing.

15.3 Parameters

	or	EXE 410	EXE 810
Supply voltage		AC 240 V	AC 240 V
Maximum power		DC 28 V	DC 15 V
		7,5 W	24 W


(16) Test and assessment report
BVS PP 02.2053 EG ns of 27.05.02


(17) Special conditions for safe use
None

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

45307 Essen, 27. May 2002
BVS-Wit/Ar A 20020125

Deutsche Montan Technologie GmbH


 DMT-Certification body


 Head of special services unit

Page 2 of 2 to DMT 02 ATEX E 105
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Translation



1st Supplement

(Supplement in accordance with Directive 94/9/EC Annex III number 6)

to the EC-Type Examination Certificate DMT 02 ATEX E 105

Equipment: Enclosure Type EXE 410 and Type EXE 810
Manufacturer: Contrec Systems Pty. Ltd
Address: AUS 3123 Melbourne

Description

Inside the enclosure type EXE 810 a barrier 810KTIS can be mounted according to the descriptive documents as mentioned in the pertinent test and assessment report

The Essential Health and Safety Requirements of the modified equipment are assured by compliance with:

- EN 50014:1997 + A1 – A2 General requirements
- EN 50018:2000 Flameproof enclosure 'd'
- EN 50020:1994 Intrinsic safety 'i'

Test and assessment report

BVS PP 02.2053 EG as of 02.04.2003

Deutsche Montan Technologie GmbH

Essen, dated 02. April 2003

signed: Jockers
DMT-Certification body

signed: Eickhoff
Head of special services unit

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

45307 Essen, 02.04.2003
BVS-Wit/Ar A 20020399


Deutsche Montan Technologie GmbH

DMT-Certification body

Head of special services unit

Page 1 of 1 to DMT 02 ATEX E 105 / N1
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Am Technologiepark 1, 45307 Essen, Telefon (0201)172-1416, Telefax (0201)172-1716





CSA INTERNATIONAL

Certificate: 162527-0001003223 (L.R. 104840) Date: April 26th, 2000

Project: 0001003223

Part A:
Class I, Div. 1, Groups C and D, T6
Model EXE10-X-a-b, Explosion Proof Enclosure, Rated at 12 Vdc or 120/240 Vac, 50 Watts Max Operating Temperature Ambient -40°C to +60 °C, Encl. Type 4/4X

Notes:
(1) Where the Suffix "X" represents "Five (5)" or "Eighteen (18)" push button combinations options
Where the Suffix "a" is the IS wiring feed through fitting
Where the Suffix "b" is the size of cable/conduit entry


APPLICABLE REQUIREMENTS
The product, as described in this Report, complies with:

CSA Standard C22.2 No. 0-M91 - General Requirements, Canadian Electrical Code, Part II.
0.4-M1982 - Bonding and Grounding of Electrical Equipment (Protective Grounding)
0.5-M1982 - Threaded Conduit Entries.
30-M1986 - Explosion-Proof Enclosures for Use in Class I Hazardous Locations.
94-M91 - Special Purpose Enclosures
142-M1987 - Process Control Equipment.

UL Standard 50 - Enclosures for Electrical Equipment
508 - Industrial Control Equipment.
1203 - Explosion-Proof and Dust-Ignition-Proof Electrical equipment for use in Hazardous (Classified Locations)

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CSA INTERNATIONAL


Certificate of Compliance

Certificate: 162527-0001003223 (L.R. 104840) Date Issued: April 26th, 2000


Project: 0001003223

Issued to: Contec Systems Pty. Ltd
21 Hall St
Hawthorn, East Victoria 3123
Australia

The products listed below are eligible to bear the CSA Mark shown, with adjacent indicator "C" and "US", OR the products listed below are eligible to bear the CSA Mark shown, with adjacent indicator NRTL/C.
Issued by: Darryl Boyko, C.E.T.

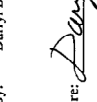


C



US

OR



NRTL/C

CLASS
2258 02 PROCESS CONTROL EQUIPMENT - FOR HAZARDOUS LOCATIONS
2258 82 PROCESS CONTROL EQUIPMENT - FOR HAZARDOUS LOCATIONS - For U.S. Locations

PRODUCTS

Part A:
Class I, Div. 1, Groups C and D, T6
Model EXE10-c, Explosion Proof Enclosure, Rated at 12 Vdc or 120/240 Vac, 50 Watts Max, Operating Temperature Ambient -40°C to +60 °C, Encl. Type 4/4X

Notes:
(1) Where the Suffix "c" represents size of cable/conduit entry;

The "C" and "US" indicator adjacent to the CSA Mark signifies that the product has been evaluated to the applicable ANSI/UL and CSA Standards, for use in the U.S. and Canada. This includes products eligible to bear the NRTL indicator. NRTL, i.e. Nationally Recognized Testing Laboratory, is a designation granted by the U.S. Occupational Safety and Health Administration (OSHA) to laboratories which have been recognized to perform certification to U.S. Standards. NRTL, i.e. Nationally Recognized Testing Laboratory, for use in the U.S. and Canada. NRTL, i.e. Nationally Recognized Testing Laboratory, is a designation granted by the U.S. Occupational Safety and Health Administration (OSHA) to laboratories which have been recognized to perform certification to U.S. Standards.

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Page 1



GOVERNMENT OF INDIA
DEPARTMENT OF EXPLOSIVES
NAGPUR

No.: R1(1)136/Contrec/423
Date : 07/06/2001

To,
M/s. Contrec Pty Limited,
CAN 087 289 012,
22 Hall Street,
Hawthorn East 3123,
Melbourne, AUSTRALIA.

Sub : Approval for Enclosure Type 410 and EXE 810.

Dear Sirs,

Please refer to your letter No. Nil dated 03/04/2001.

The following equipments manufactured by you according to European Harmonised Standards EN50014-1977 & EN50018-1977, tested and certified by BVS is acceptable for use in Division 1 hazardous areas coming under the purview of the Petroleum Rules, 1976 administered by this Department.

Description	Identification Marks & Type of Protection	BVS Cert.No. & Date	Drawing Nos.
Enclosure Type EXE 410 & EXE 810	EEx d IIB T6	BVS 00.E.2007 Dated 14/02/2000	1915 ME, 1920ME, 1922ME to 1941 ME, 1948FA, 1949ME, 1953ME, 1955ME to 1958ME, 1961ME, 1980ME to 1982ME, 1984ME to 1986ME, 2023ME, 2042ME, 2054ME & 2095ME

This approval is granted subject to observance of the following conditions :-

- 1) The design and construction of the equipment shall be strictly in accordance with the description, condition and drawings as mentioned in the BVS Test Reports referred to above.
- 2) The equipment shall be used only with approved type of accessories and associated apparatus.
- 3) Each equipment shall be marked either by raised lettering cast integrally or by plate attached to the main structure to indicate conspicuously :-
 - a) Name of the manufacturer.
 - b) Name and number by which the equipment is identified.
 - c) Number & date of the test report of the BVS applicable to the equipment.
 - d) Number and date of this letter by which use of the apparatus is approved.

Contd...2/-

:: 2 ::

- 4) A certificate to the effect that the equipment has been manufactured strictly in accordance with the drawing referred to in the BVS test report and is identical with the one tested and certified at BVS shall be furnished with each equipment.
- 5) The customer shall be supplied with a copy of this letter, an extract of the conditions and maintenance schedule, if any, recommended by BVS in their test reports and copy of instructions booklet detailing operation & maintenance of the equipment so as to maintain its intrinsic safety characteristics.
- 6) The after sales service and maintenance of the subject equipment shall be looked after by your representative M/s.SYS Control Solutions India Pvt.Ltd., Mumbai.

This approval also covers the permissible variation as approved under the BVS test reports referred to above. This approval may be deemed to have been revoked with immediate effect at any time, if anyone of the conditions subject to which approval has been granted is violated or not complied with. The approval may also be amended or withdrawn at any time, if considered necessary in the interest of safety.

The field performance report from actual users/your customers of the subject equipment may please be collected and furnished to this office for verification & record at regular intervals.

This approval is otherwise valid for a period of five years from the date of issue.

Yours faithfully,



(R.C. KAUL)

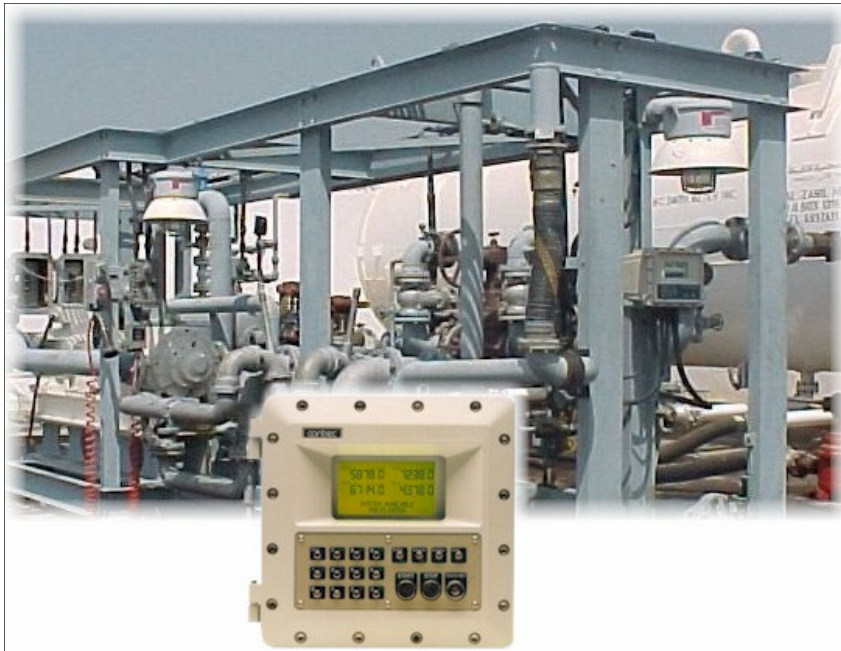
Controller of Explosives
for Chief Controller of Explosives

Copy forwarded to :-

1. M/s.SYS Controls Solutions India Pvt.Ltd., 356/10, Ram Janki Building, Linking Road Khar, MUMBAI – 400 052.
2. All Circle/Sub-circle offices.

for Chief Controller Of Explosives

Model 1010A Application Pack



Honeywell Enraf

Honeywell Enraf

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www.honeywellenraf.com

The instructions given herein cover the general description, installation, operation and maintenance of the subject equipment. Honeywell Enraf. reserves the right, without prior notice, to make engineering refinements that may not be reflected in this manual.

Should any questions arise which cannot be answered specifically by this manual, they should be directed to Honeywell Enraf for further detailed information and technical assistance.

Honeywell Enraf will not accept any liability for either direct or consequential damages resulting from the use or misapplication of the contents of this manual.

Description

The **1-BJ** Application Pack is the standard version of the 1010A that can handle 1 arm loading only. The 1-BJ version has full dot matrix display and alphanumeric keyboard. The 1-BJ has a number of specific SLIP Commands to allow it to interface with most Terminal Automation Systems such as CSI'S Fuel-facs and allows the TAS maximum control in displaying messages and controlling the load – while still retaining strong stand-alone features.

Software Functions (See Programming & Software Manuals for further details on individual functions)

Dual/Single Pulse Input per channel	Intelligent Injector Interface (Model 1020)
Non-linearity Correction for flow	Additive Recipe Selection
Temperature Compensation to API	Date & Time
Digital Valve Control	Transaction Log (200 transactions stored)
On-off Valve Control	Initial Message Programmable
Pump Demand with delay time	Driver Authorisation (Touch/Pin/None)
Additive Pulse Output (programmable)	Truck Authorisation (Touch/Pin/None)
Overfill Input & Control	Ask Compartment No (enable/disable)
Vapour Recovery Input & Control	Ask Preset Quantity (enable/disable)
Emergency Stop/Bay Shutdown	Ask Load No. (enable/disable)
Batch Control on Gross/Net	Remote Mode. (enable/disable)
Alarm Output	Deadman Timer (enable/disable)
Password Access	Illegal Access lockout (enable/disable)
SLIP + Protocol	Programmable Units (litres/liters/metres ³
Load Scheduling (enable/disable)	/kg/grams/gallons/lbs)
Printer Output	Programmable Product Name (alphanumeric)
Additive Pulse Output	Diagnostics Program
	Bay Active Output

Number of Arms per 1010A: 1 or 2 arms

Product: Gasoline, diesel, crude oil, jet fuel

Number of Arms per 1010A: 1 arm

Product: Gasoline, diesel, crude oil, jet fuel

Temperature Inputs: 1 off 4-20mA or 1 off 4 wire RTD

Temperature Compensation: as per API tables

Communications: **Main Port:** Isolated RS485 (standard)
or non-isolated RS485/422/232

Auxillary Port: Non-isolated RS485/422/232

Both ports are configurable via links on the CPU card. The Main Port is normally isolated RS485 and the Auxillary Port is non-isolated RS422 unless otherwise specified.

Part Number: 1010 A **1-BJ** - abcNe
where a designates the authorisation options
b designates the glands and heater options
c designates the power supply input
N is for the dot matrix display
e designates the metrology approvals

02.01

No information

Hardware Description

The 1-BJ version of the 1010 is mounted in a single **Style A** enclosure and Touch Key identification may be included.

Boards:	Slot A - Power Supply Board	S800PS4-6
	Slot B - Output Board	None
	Slot C - Input Board	S800INOUT2
	Slot D - CPU Card	S810CPU-FI

A1	0 Vdc supply out	C15	Not Used
A2	+24 Vdc supply out	C16	Not Used
A3	+12 Vdc supply out	C17	Not Used
A9	Relay Deadman Timer out		
A10	Relay Deadman Timer out	C18	Signal Ground
A11	Relay Alarm	C19	Flow Input Arm 1A
A12	Relay Alarm	C20	Flow Input Arm 1B
A13	Relay Arm 1 – Pump Demand		
A14	Relay Arm 1 – Isolation Valve	C21	Additive Pulse Arm 1 – Low Voltage Opto
A15	Relay Arm 1 – Additive Pulse	C22	Additive Pulse Arm 1 – Low Voltage Opto
A16	Not Used		
A17	Relay Common for A13 – A16	C23	Relay Common for C24 – C25
		C24	Relay 1 Arm 1 – DCV Inlet (low flow)
		C25	Relay 2 Arm 1 – DCV Outlet (high flow)
C1	Arm 1 4-20mA		
C2	Not Used		
C3	Arm 1 RTD Current (+)		
C4	Arm 1 RTD Signal (+)		
C5	Arm 1 RTD Signal (-)		
C6	Arm 1 RTD Current (-)		
			<i>Standard Configuration</i>
		D0	Main Port
		D1	Common 0V RS422
		D2	Aux Port Rx- RS422
		D3	Aux Port Rx+ RS422
		D4	Aux Port Tx- RS422
		D5	Aux Port Tx+ RS422
C7	Switch Input Common	D6	Main Port Isolated RS485 0V
C8	Additive Alarm Input	D7	Main Port Isolated RS485(-)
C9	Overfill/Permissive Input 1	D8	Main Port Isolated RS485(+)
C10	Vapour Recovery/Permissive Input 2		
C11	Emergency Stop		
C12	Not Used		
C13	Not Used		
C14	Signal Ground		

For other port configurations refer to the Card Description

No information

02.02

Description

The **2-BJ** Application Pack is the standard version of the 1010A that can handle 1 or 2 arm loading simultaneously. The 2-BJ version has full dot matrix display and alphanumeric keyboard.

Software Functions (see Programming & Software Manuals for further details on individual functions)

Dual/Single Pulse Input per channel	Intelligent Injector Interface (Model 1020)
Non-linearity Correction for flow	Date & Time
Temperature Compensation to API	Transaction Log (200 transactions stored)
Digital Valve Control	Initial Message Programmable
On-off Valve Control	Driver Authorisation (Touch/Pin/None)
Pump Demand with delay time	Truck Authorisation (Touch/Pin/None)
Additive Pulse Output (programmable)	Local or Remote Authorisation
Overfill/Ground Input & Control	Ask Compartment No (enable/disable)
Vapour Recovery Input & Control	Ask Return Quantity (enable/disable)
Emergency Stop	Ask Load No. (enable/disable)
Batch Control on Gross/Net	Ask Preset Quantity
Alarm Output	Deadman Timer (enable/disable)
Password Access	Illegal Access lockout (enable/disable)
SLIP + Protocol	Programmable Units (litres/liters/gallons/kg/lbs)
Load Scheduling (enable/disable)	Programmable Product Name (alphanumeric)
Printer Output	Diagnostics Program
Additive Pulse Output	

Temperature Inputs: 2 off 4-20mA or 2 off 4 wire RTD

Temperature Compensation: as per API tables

Communications:

Main Port: Isolated RS485 (standard)
or non-isolated RS485/422/232

Auxillary Port: Non-isolated RS485/422/232

Both ports are configurable via links on the CPU card. The Main Port is normally isolated RS485 and the Auxillary Port is non-isolated RS422 unless otherwise specified.

Part Number: 1010 A **2-BJ** - abcNe
 where a designates the authorisation options
 b designates the glands and heater options
 c designates the power supply input
 N is for the dot matrix display
 e designates the metrology approvals

02.02

No information

Hardware Description

The BJ-2 version of the 1010 is mounted in a single **Style A** enclosure and Touch Key identification may be included.

Boards:	Slot A - Power Supply Board	S800PS4-6
	Slot B - Output Board	S800SS6R2
	Slot C - Input Board	S800Q2T2C2
	Slot D - CPU Card	S810CPU-FI

A1	0 Vdc supply out	C1	Arm 1 4-20mA
A2	+24 Vdc supply out	C1	Arm 2 4-20mA
A3	+12 Vdc supply out	C3	Arm 1 RTD Current (+)
A9	Relay	C4	Arm 1 RTD Signal (+)
A10	Relay	C5	Arm 1 RTD Signal (-)
A11	Relay Alarm	C6	Arm 1 RTD Current (-)
A12	Relay Alarm	C7	Arm 2 RTD Current (+)
A13	Relay Arm 1 – Pump Demand	C8	Arm 2 RTD Signal (+)
A14	Relay Arm 2 – Pump Demand	C9	Arm 2 RTD Signal (-)
A17	Relay Common for A13 – A14	C10	Arm 2 RTD Current (-)
B1	Additive Pulse Common	C11	Switch Input Common
B2	Additive Pulse Arm 1 – Low Voltage	C12	Additive Alarm Input
B3	Additive Pulse Arm 2 – Low Voltage	C13	Overfill Input
B6	Relay 1 Arm 1 – DCV Inlet	C14	Emergency Stop
B7	Relay 1 Arm 1 – DCV Inlet	C15	Vapour Recovery
B8	Relay 2 Arm 1 – DCV Outlet	C17	Signal Ground
B9	Relay 2 Arm 1 – DCV Outlet	C18	Flow Input Arm 1A
B10	Relay 3 Arm 2 – DCV Inlet	C19	Flow Input Arm 1B
B11	Relay 3 Arm 2 – DCV Inlet	C20	Signal Ground
B12	Relay 4 Arm 2 – DCV Outlet	C21	Flow Input Arm 2A
B13	Relay 4 Arm 2 – DCV Outlet	C22	Flow Input Arm 2B

Standard Configuration

B14	Relay 5 Additive Pulse Arm 1 – AC	D0	Main Port
B15	Relay 5 Additive Pulse Arm 1 – AC	D1	Common 0V RS422
B16	Relay 6 Additive Pulse Arm 2 – AC	D2	Aux Port Rx- RS422
B17	Relay 6 Additive Pulse Arm 2 – AC	D3	Aux Port Rx+ RS422
B18	Relay 7 Isolation Valve Arm 1 – AC	D4	Aux Port Tx- RS422
B19	Relay 7 Isolation Valve Arm 1 – AC	D5	Aux Port Tx+ RS422
B20	Relay 8 Isolation Valve Arm 2 – AC	D6	Main Port Isolated RS485 0V
B21	Relay 8 Isolation Valve Arm 2 – AC	D7	Main Port Isolated RS485(-)
		D8	Main Port Isolated RS485(+)

For other port configurations refer to the individual Card Descriptions.

Description:

The **4-CJ** Application Pack is the standard version of the 1010A that can handle 3 or 4 arm loading simultaneously. The 4-CJ version has full dot matrix display and alphanumeric keyboard.

Software Functions: (see Programming & Software Manuals for further details on individual functions)

Dual/Single Pulse Input per channel	Intelligent Injector Interface (EFT or Model 1020)
Non-linearity Correction for flow	Date & Time
Temperature Compensation to API	Transaction Log (512 transactions stored)
Temperature & Pressure Compensation to API	Initial Message Programmable
Digital Valve Control	Driver Authorisation (Touch/Pin/None)
On-off Valve Control	Truck Authorisation (Touch/Pin/None)
Pump Demand with delay time	Local or Remote Authorisation
Additive Pulse Output (programmable)	Ask Compartment No (enable/disable)
Dual Overfill/Ground Input & Control (programmable – including Vapour Rec.)	Ask Preset Quantity (enable/disable)
Left & Right Arm Position Indicators	Deadman Timer (enable/disable)
Programmable Outputs (Alarms, Low/High Flow)	Illegal Access lockout (enable/disable)
Programmable Inputs (Pause/Terminate/Low Flow)	Programmable Units (litre/liter/gallon/kg/lb, m3)
Emergency Stop	Programmable Arm Name (alphanumeric)
Batch Control on Gross/Net	Programmable Product Name (alphanumeric)
System Alarm Output	Programmable Product Description (alphanumeric)
Password Access	Programmable Hazardous Material Description
SLIP + Protocol	Diagnostics Program
Load Scheduling (enable/disable)	3 x 4-20mA outputs for flow control or re-transmitting 4-20mA inputs
Printer Output	Configuration History Log
Additive Pulse Output	Event History Log

Max. Number of Arms per 1010A: 3 or 4 arms

Product: Gasoline, diesel, crude oil, jet fuel

Temperature Inputs: 4-20 mA or RTD

Protocol: SLIP+

Communications:

- Port 1:** Isolated RS485/422/232 (standard)
- Port 2:** Isolated RS485/232 (standard)
- Port 3:** Isolated RS485/232 (standard) or Network Connection

Ports no longer require jumper configuration – all configuration is obtained through software control via configuration settings.

Part Number: **1010 A 4 – CJ - abcNe**
 where a designates the authorisation options
 b designates the glands and heater options
 c designates the power supply input
 N is for the graphics display
 e designates the metrology approvals

02.03

Hardware Description

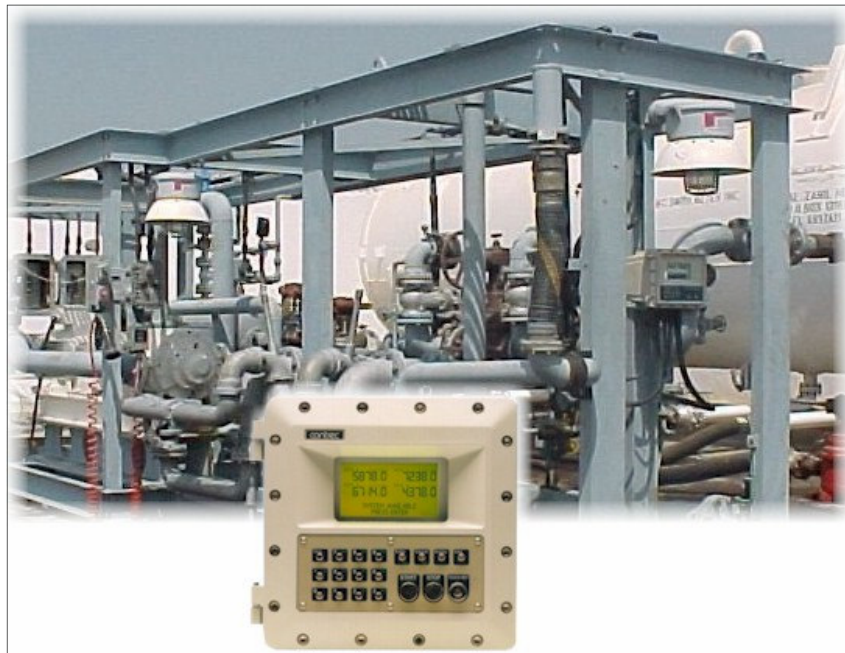
The CJ version of the 1010A is mounted in a single **Style A** enclosure and Touch Key identification may be included.

Boards:	Power Supply Board	S800PS4-6
	Output Board	S10RA-XXX-RB-XXX
	Input Board	S10NA-I1
	CPU Card	S10CPU-XXX-FI

Terminal Designation (Main Enclosure)

A1	0 Vdc supply out	BB17	Common for Relay 23 & 24	CB17	Flow Input Meter 4A
A2	+24 Vdc supply out	BB18	Relay B24 (GP Output #22)	CB18	Flow Input Meter 4B
A3	+12 Vdc supply out			CB19	Signal Ground
A9	Relay A1 (GP Output #1)	CA1	RTD 1	CB20	Input 2_1 (Arm 1 Left Position)
A10	Relay A1 (GP Output #1)	CA2	RTD 1/4-20mA 1	CB21	Input 2_2 (Arm 1 Right Pos.)
A11	Relay A2 (GP Output #2)	CA3	RTD 1	CB22	Input 2_3 (Arm 2 Left Position)
A12	Relay A2 (GP Output #2)	CA4	RTD 1 & 2 Return	CB23	Input 2_4 (Arm 2 Right Pos.)
A13	Relay A3 (GP Output #3)	CA5	RTD 2	CB24	Signal Ground
A14	Relay A4 (GP Output #4)	CA6	RTD 2/4-20mA 2	CB25	Input 2_5 (Arm 3 Left Position)
A15	Relay A5 (GP Output #5)	CA7	RTD 2	CB26	Input 2_6 (Arm 3 Right Pos.)
A16	Relay A6 (GP Output #6)	CA8	4-20mA 3 Input	CB27	Input 2_7 (Arm 4 Left Position)
A17	Relay Common for A13 – A16	CA9	4-20mA 4 Input	CB28	Input 2_8 (Arm 4 Right Pos.)
		CA10	Opto Output 1 (Add Pulse)		
BA1	Relay B1 – DCV Inlet 1	CA11	Opto Output 2 (Add Pulse)	D1	Port 1 Rx RS232
BA2	Common for Relay 1 & 2	CA12	Opto 0 Volt	D2	Port 1 Tx RS232
BA3	Relay B2 – DCV Outlet 1	CA13	Signal Ground (Flow)	D3	Port 1 0V Common
BA4	Relay B3 – DCV Inlet 2	CA14	Flow Input Meter 1A	D4	Port 1 Rx+ RS422
BA5	Common for Relay 3 & 4	CA15	Flow Input Meter 1B	D5	Port 1 Rx- RS422
BA6	Relay B4 – DCV Outlet 2	CA16	Signal Ground (Flow)	D6	Port 1 Tx+ RS422
BA7	Relay B5 – DCV Inlet 3	CA17	Flow Input Meter 2A	D7	Port 1 Tx- RS422
BA8	Common for Relay 5 & 6	CA18	Flow Input Meter 2B		
BA9	Relay B6 – DCV Outlet 3	CA19	Signal Ground	D8	Port 2 Rx RS232
BA10	Relay B7 – DCV Inlet 4	CA20	Input 1_1 (Emergency Stop)	D9	Port 2 Tx RS232
BA11	Common for Relay 7 & 8	CA21	Input 1_2 (Permissive #1)	D10	Port 2 0V Common
BA12	Relay B8 – DCV Outlet 4	CA22	Input 1_3 (Permissive #2)	D11	Port 2 Rx/Tx+ RS485
BA13	Relay B9 – (GP Output #7)	CA23	Input 1_4 (Permissive #3)	D12	Port 2 Rx/Tx- RS485
BA14	Common for Relay 9 & 10	CA24	Signal Ground		
BA15	Relay B10 – (GP Output #8)	CA25	Input 1_5 (Programmable In #1)	D13	Port 3 Rx RS232
BA16	Relay B11 – (GP Output #9)	CA26	Input 1_6 (Programmable In #2)	D14	Port 3 Tx RS232
BA17	Common for Relay 11 & 12	CA27	Input 1_7 (Programmable In #3)	D15	Port 3 0V Common
BA18	Relay B12 – (GP Output #10)	CA28	Input 1_8 (Programmable In #4)	D16	Port 3 Rx/Tx+ RS485
				D17	Port 3 Rx/Tx- RS485
BB1	Relay B13 (GP Output #11)	CB1	RTD 3	D18	Signal Ground
BB2	Common for Relay 13 & 14	CB2	RTD 3/4-20mA 5	D19	Signal Ground
BB3	Relay B14 (GP Output #12)	CB3	RTD 3	D20	+5V to Reader
BB4	Relay B15 (GP Output #13)	CB4	RTD 3 & 4 Return	D21	Card Int/Touch Key #1/In #1
BB5	Common for Relay 15 & 16	CB5	RTD 4	D22	Card data/Touch Key #2/In #2
BB6	Relay B16 (GP Output #14)	CB6	RTD 4/4-20mA 6	D23	Card Present
BB7	Relay B17 (GP Output #15)	CB7	RTD 4	D24	4-20mA Channel 1 V+
BB8	Common for Relay 17 & 18	CB8	4-20mA Input 7	D25	4-20mA Channel 1 Iout
BB9	Relay B18 (GP Output #16)	CB9	4-20mA Input 8	D26	4-20mA Channel 2 V+
BB10	Relay B19 (GP Output #17)	CB10	Opto Output 3 (Add Pulse)	D27	4-20mA Channel 2 Iout
BB11	Common for Relay 19 & 20	CB11	Opto Output 4 (Add Pulse)	D28	4-20mA Channel 3 V+
BB12	Relay B20 (GP Output #18)	CB12	Opto 0 Volt	D29	4-20mA Channel 3 Iout
BB13	Relay B21 (GP Output #19)	CB13	Signal Ground (Flow)		
BB14	Common for Relay 21 & 22	CB14	Flow Input Meter 3A		
BB15	Relay B22 (GP Output #20)	CB15	Flow Input Meter 3B		
BB16	Relay B23 (GP Output #21)	CB16	Signal Ground (Flow)		

Model 1010A Card Descriptions



Honeywell Enraf

Honeywell Enraf

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The instructions given herein cover the general description, installation, operation and maintenance of the subject equipment. Honeywell Enraf. reserves the right, without prior notice, to make engineering refinements that may not be reflected in this manual.

Should any questions arise which cannot be answered specifically by this manual, they should be directed to Honeywell Enraf for further detailed information and technical assistance.

Honeywell Enraf will not accept any liability for either direct or consequential damages resulting from the use or misapplication of the contents of this manual.

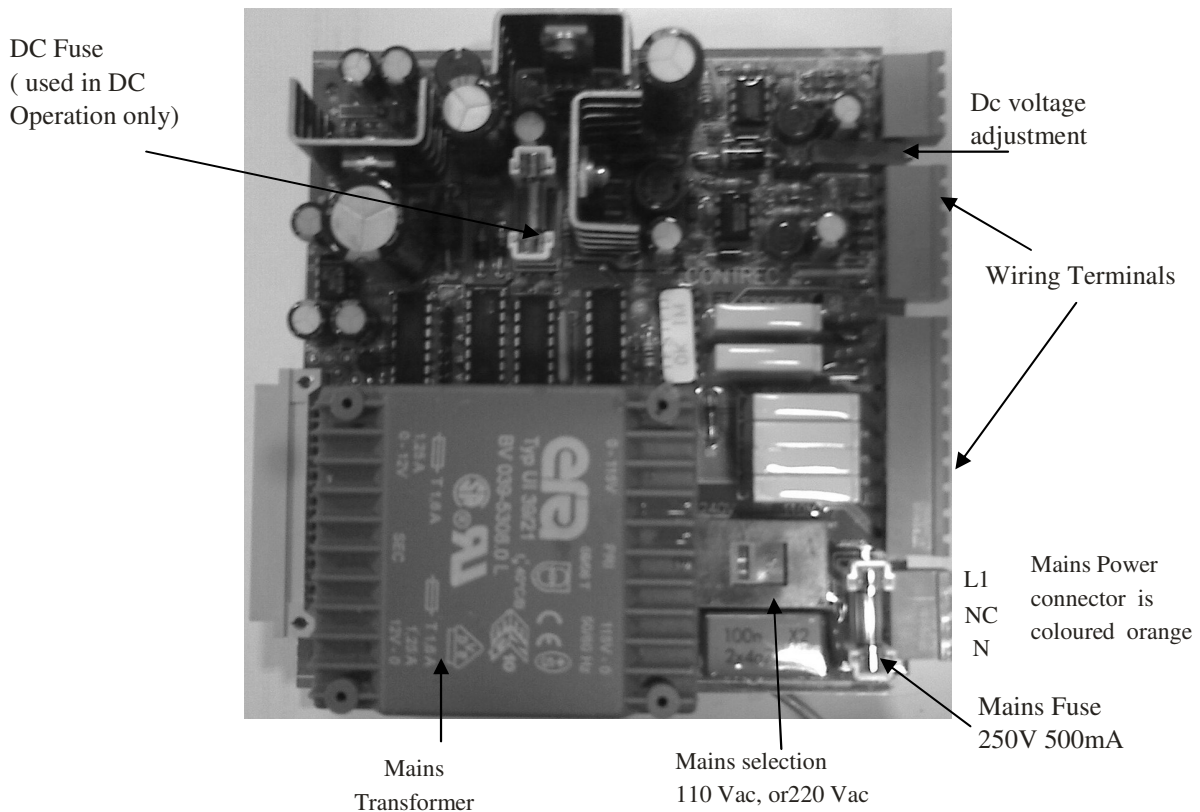
This card is a general purpose power supply card and comprises of:

- 110/220 Vac mains input
- 6 Electromechanical Relay outputs
- 5 to 30 Vdc power out (100 mA max.)
- 12 Vdc power out (250mA max.)

Mains voltage is selected a switch on the board and can be either 110 Vac (95 to 135 Vac) or 220 Vac (190 to 260 Vac)A 500 mA

fuse and varistor provide protection on the mains inputs against power spikes and short term overvoltage connection.

The 5 to 30 Vdc power output is adjustable by means of a trim potentiometer adjacent to terminal A3. This should be adjusted with a screwdriver while monitoring the resultant voltage on terminal A2 with a voltmeter. The default value when shipped from the factory is 24V.



Mains Fuse Type:
250 Vac, 500mA
Slow-Blow
Size: 20 x 5 mm

DC Input Fuse Type:
250 Vac, 1.5 A
Slow-Blow
Size: 20 x 5 mm

Terminal	Description
A1	0 Vdc supply out
A2	+24 Vdc supply out
A3	+12Vdc supply out
A4 to A8	Unused
A9	Relay A1(GP Output #1)
A10	Relay A1(GP Output #1)
A11	Relay A2(GP Output #2)
A12	Relay A2(GP Output #2)
A13	Relay A3(GP Output #3)
A14	Relay A4(GP Output #4)
A15	Relay A5(GP Output #5)
A16	Relay A6(GP Output #6)
A17	Relay common A13 to A16
L	Ac mains 110/220 Vac switch
NC	Not Connected
N	Ac mains 110/220 Vac switch

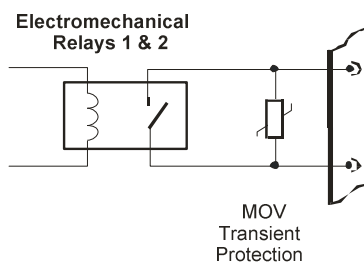
Notes:

Mains voltages must be wired in accordance with local safety standards.

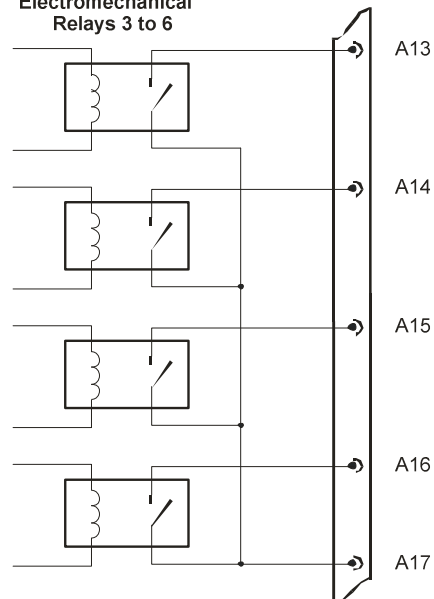
Electromechanical Relays Specifications

Rating: 240 Vac, 30 Vdc
 Max1 Amp max.
 Protection: 275 Vac MOV transient protection

Relay Outputs



Electromechanical Relays 3 to 6



No information on 1 Arm CJ

Output Relay Card - S800INOUT2

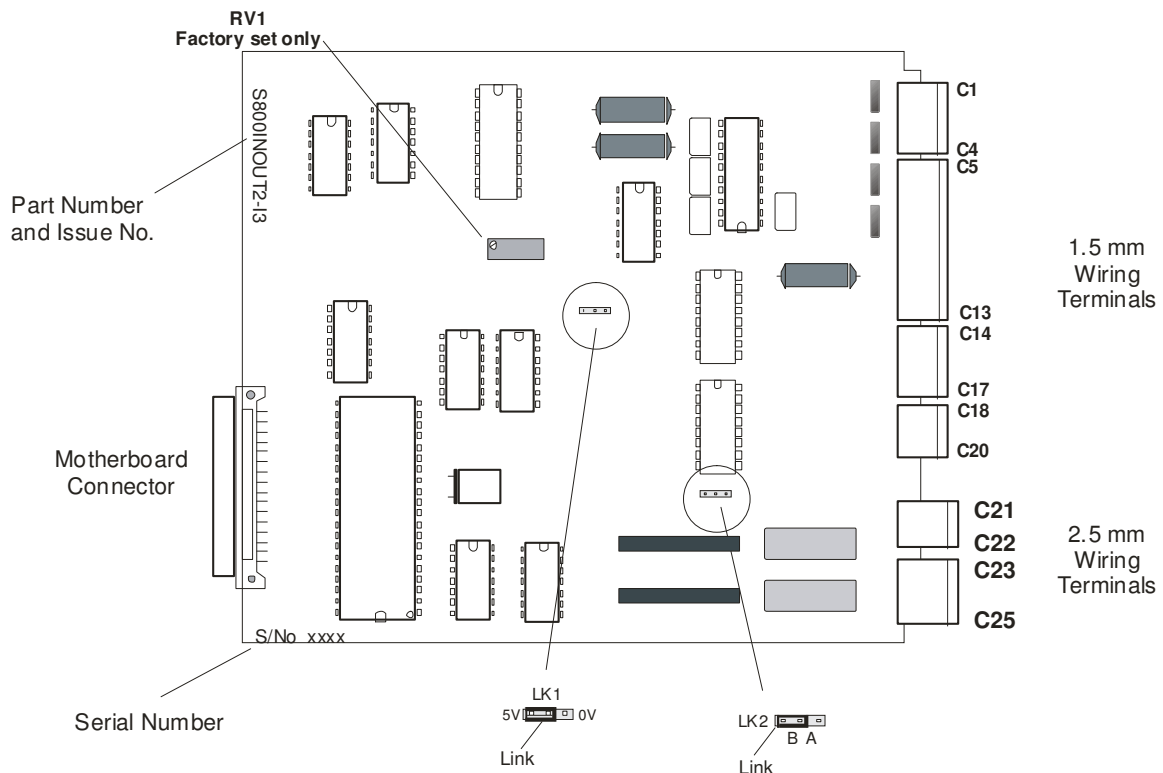
This card is a general purpose input card and is comprised of:

- 9 x digital inputs
- 1 x flowmeter input (dual input)
- 1 x RTD Temperature Probe (4 wire PT 100)
- 2 x 4-20mA inputs which can be used for pressure, temperature or density.
- 2 x Solid State Relay Outputs
- 1 x Opto Isolated Pulse Output (scaled pulse out or proving pulse)

Each input has transient protection.

An unscaled output is coupled to the "A" side of the flowmeter input circuitry to retransmit the flow signal. This output can be used for proving or for driving additional registers.

The S800INOUT2 card is a general purpose card designed for 1 arm systems.



<p>Link 1 provides pull-up resistors for the flowmeter input.</p> <p>Position 5V input pullup tied to 5volts Position 0V input pullup tied to 0 volts No Link input floating</p> <p>Link 1 provides a common pullup for both quadrature inputs</p>	<p>Link 2 configures the isolated output pulse as:</p> <p>Position B Scaled Pulse Out (Additive) Position A Re-transmission of flowmeter input</p> <p>Position B is used for additive outputs or for a scaled pulse out. Position A is used for provers where a raw pulse is required.</p>	
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Card Description

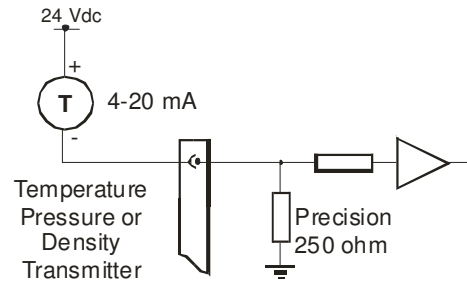
Standard 1 Arm (BJ-1 Only)

No information on 1Arm CJ

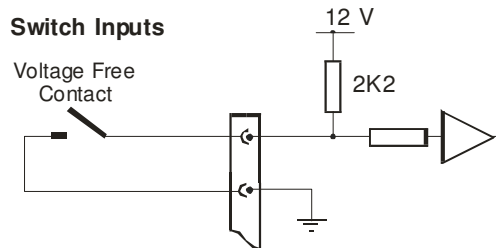
Terminals Designation

Terminal	Input	Line
C1	4-20 mA #1	1
C2	4-20 mA #2	1
C3	RTD Current (+)	1
C4	RTD Signal (+)	1
C5	RTD Signal (-)	1
C6	RTD Current (-)	1
C7	Signal Ground	For C1 to C2
C8	Switch Input 1	Additive Alarm
C9	Switch Input 2	Overflow Input
C10	Switch Input 3	Emergency Stop
C11	Switch Input 4	
C12	Switch Input 5	
C13	Switch Input 6	
C14	Signal Ground	
C15	Switch Input 7	For C8 to C17
C16	Switch Input 8	
C17	Switch Input 9	
C18	Signal Ground	
C19	Flowmeter	
C20	Flowmeter	For flow signals
C21	Pulse Out (+)	
C22	Pulse Out (-)	1B
C23	SSR Common	Open Collector
C24	SSR Output 1	Open Emitter
C25	SSR Output 2	Solid State Relay
		DCV Inlet
		DCV Outlet

4-20 mA Inputs

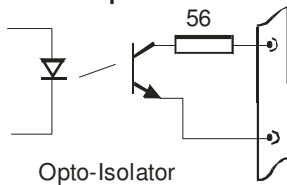


Switch Inputs



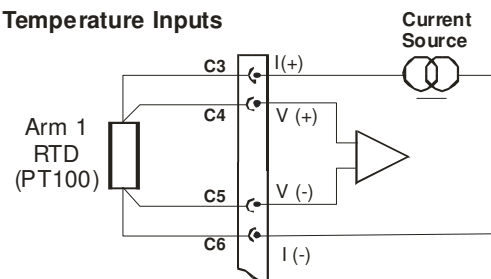
All switch inputs on C8 to C17 must be voltage free switch contacts from a relay or switch.

Pulse Outputs

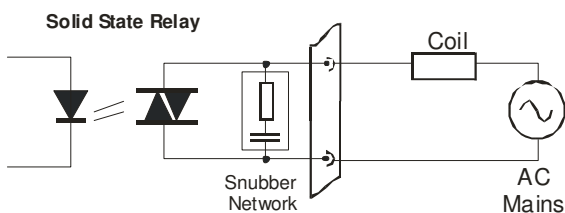


The output can sink up to 10 mA typical.
Maximum voltage is 30 Vdc.

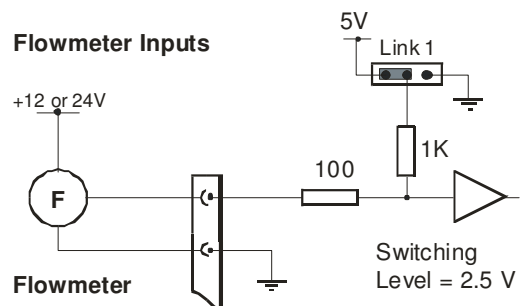
Temperature Inputs



Solid State Relay Outputs



Flowmeter Inputs



Open Collector (Pullup to 5V)
Pulse (Pullup not connected)
Namur (Pullup to 0V)

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Standard 2 Arm (BJ-2 Only)
No information on 2Arm CJ

Card Description

This card is a general purpose relay output card and comprises of:

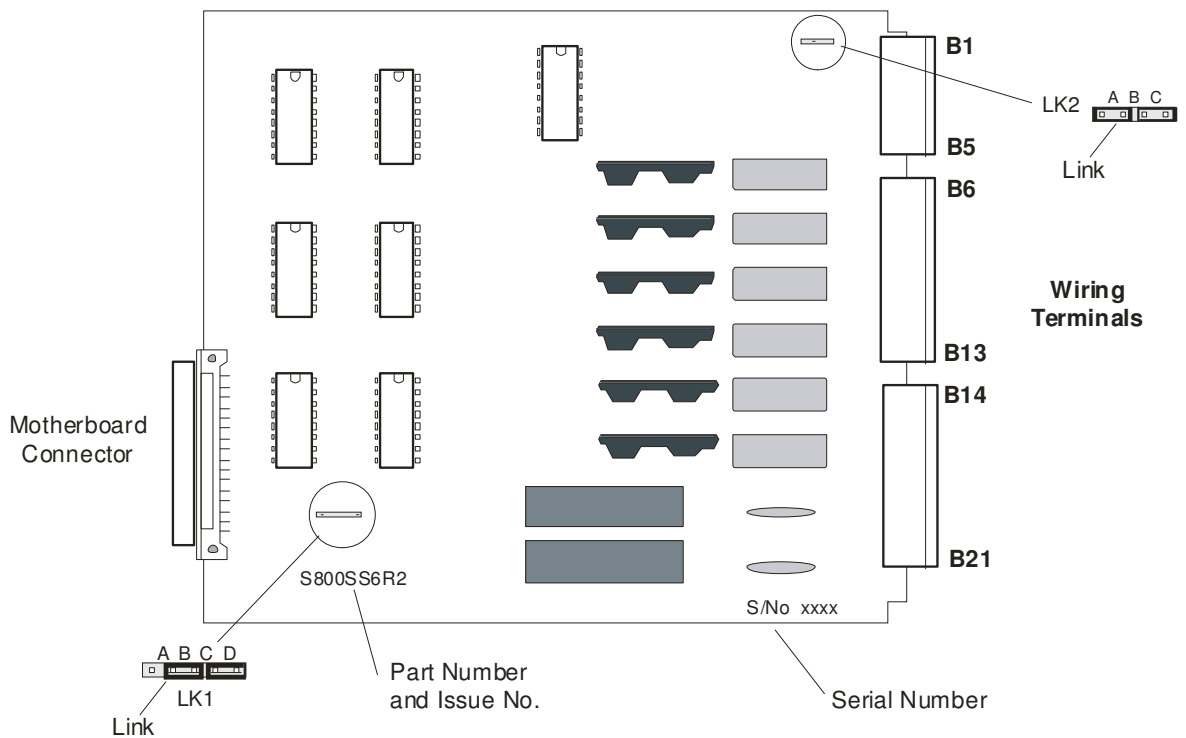
- 6 x 100-240 Vac solid state relay outputs
- 2 x Electromechanical relay outputs
- 4 x Digital Input/Outputs

The solid state relay outputs are suitable for driving digital control valves & provide the control signals to AC Additive Injector Systems, where continual switching of the outputs would otherwise wear out a mechanical relay. The outputs are fully isolated and capable of driving A.C. voltages only. The outputs have a snubber network across the output to minimise voltage spikes when switching inductive loads such as coils.

The electromechanical relays are general purpose outputs used to drive alarms, pump demand and PLC inputs etc. The outputs are individually transient protected with metal oxide varistors.

Four Digital input/output terminals can be programmed to function as either open collector outputs for driving additive injection systems or as scaled pulse outputs; or as permissive inputs from voltage free switches. The selection is under software control and all lines must be in the same direction. Each input has transient protection.

The S800SS6R2 card is a general purpose card designed for 1 or 2 arm systems.



Link 1 provides addressing for the board so that it may be mounted in slot B or C. The normal position is **SLOT B**.

Card Mounted in Slot B (Default)
 Links in positions B & D (as shown above)

Card Mounted in Slot C
 Links in positions A & C

Link 2 must be set with Links A & C connected.

Card Description

Standard 2 Arm (BJ-2 Only)

No information on 1 Arm CJ

Terminals Designation

Terminal	Output	Arm/Line
B1	Signal Ground	see note for Link
B2		
B2	Input/Output	
B3	Input/Output	
B3	Input/Output	
B5	Input/Output	
B6	Solid State Relay 1	1 - DCV Inlet *
B7	Solid State Relay 1	1 - DCV Inlet
B8	Solid State Relay 2	1 - DCV Outlet
B9	Solid State Relay 2	1 - DCV Outlet
B10	Solid State Relay 3	2 - DCV Inlet
B11	Solid State Relay 3	2 - DCV Inlet
B12	Solid State Relay 4	2 - DCV Outlet
B13	Solid State Relay 4	2 - DCV Outlet
B14	Solid State Relay 5	
B15	Solid State Relay 5	
B16	Solid State Relay 6	
B17	Solid State Relay 6	
B18	E/mechanical Relay 1	
B19	E/mechanical Relay 1	
B20	E/mechanical Relay 2	
B21	E/mechanical Relay 3	

Notes:

1. Mains voltages must be wired in accordance with local safety standards.
2. All inputs must be shielded. For CE compliance, shields should be connected at one end only and wired to the chassis earth.
3. Terminals are numbered B1 to B21 only when mounted in the "B" slot of the card cage. If mounted in slot C they would be numbered C1 - C21.

Specifications

Solid State Relay Outputs

Switching Voltage: AC Only

90 - 240 Vac
1 Amp max.

Transient Protection:

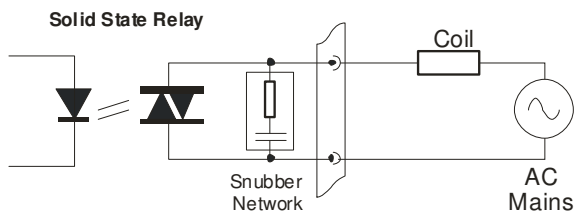
Snubber Network
47 nF, 47R

Electromechanical Relays

Rating: 240 Vac, 30 Vdc Max
1 Amp max.

Protection: 275 Vac MOV transient protection

Solid State Relay Outputs



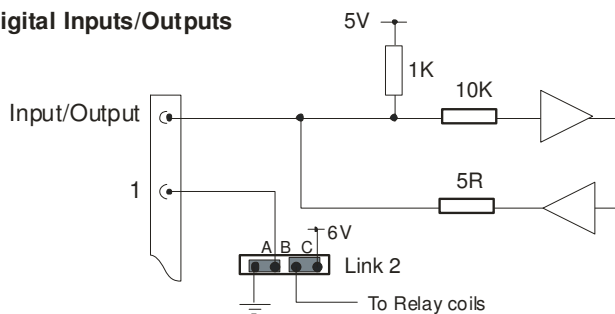
Digital Inputs

Type: Voltage free contacts only

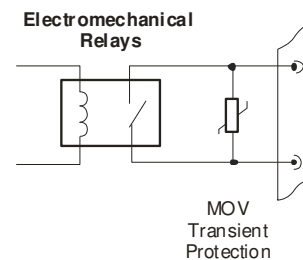
Digital Outputs

Type: Open Collector Transistors
Voltage: 5 Vdc. only
Current: 100 mA max.

Digital Inputs/Outputs



Relay Outputs



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Output Relay Card - S10RA-XXX-RB -XXX

03.04

This card is a general purpose relay output card and comprises of:

24 Relay outputs

There are 12 relays on S10RA-XXX-I1 and another 12 on the add on card S10RB-XXX-I1.

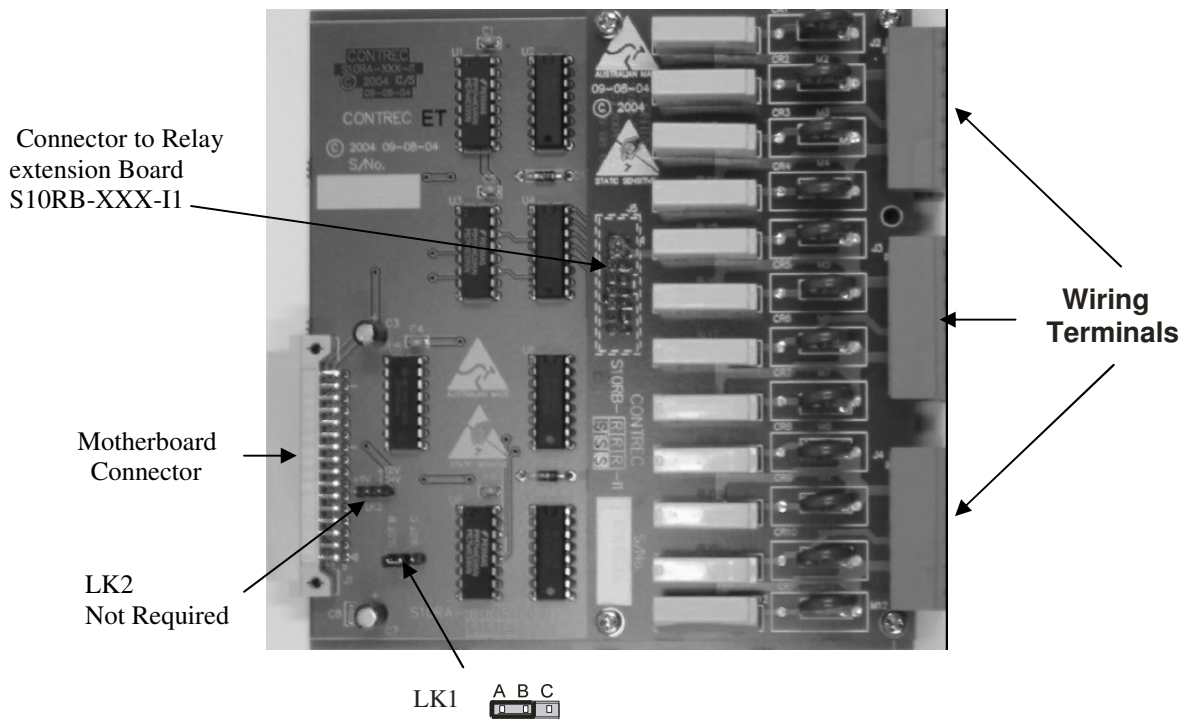
Relays can be 100-240 Vac solid state or Electromechanical

X in S10RA-XXX can either be S or R depending upon the type of relays on board. (S indicates solid state and R indicates Electromechanical relays)

Each relay bank can be of different type. There are total 6 relay banks each having 4 relays. The default combination is S10RA-SSR-RB- RRR.

Electromechanical relay outputs have MOV's across the output

The solid state relay outputs are suitable for driving digital control valves where continual switching of the outputs would otherwise wear out a mechanical relay. The outputs are fully isolated and capable of driving A.C. voltages only. The outputs have a snubber network across the output to minimise voltage spikes when switching inductive loads such as coils.



Link 1 : This provides addressing for the board so that it may be mounted in slot B or C.

Card Mounted in Slot B (Default)

Link in positions A & B (as shown above)

Card Mounted in Slot C

Link in positions B & C

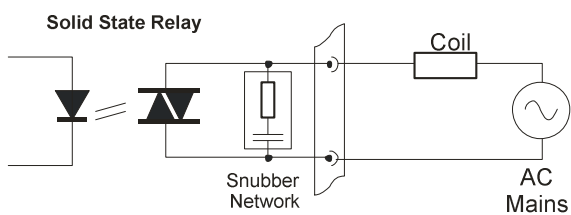
Note: Link 2 is no longer required.

Card Description

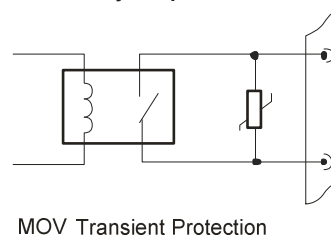
Standard 4 Arm (CJ-4 Only)

Terminal	Output	Arm/Line	Terminal	Output	Arm/Line
BA1	Relay B1	DCV Inlet 1	BB1	Relay B13	GP Output #11
BA2	Common	Relay 1 & 2	BB2	Common	Relay B13 & B14
BA3	Relay B2	DCV Outlet 1	BB3	Relay B14	GP Output #12
BA4	Relay B3	DCV Inlet 2	BB4	Relay B15	GP Output #13
BA5	Common	Relay 3 & 4	BB5	Common	Relay B15 & B16
BA6	Relay B4	DCV Outlet 2	BB6	Relay B16	GP Output #14
BA7	Relay B5	DCV Inlet 3	BB7	Relay B17	GP Output #15
BA8	Common	Relay 5 & 6	BB8	Common	Relay B17 & B18
BA9	Relay B6	DCV Outlet 3	BB9	Relay B18	GP Output #16
BA10	Relay B7	DCV Inlet 4	BB10	Relay B19	GP Output #17
BA11	Common	Relay 7 & 8	BB11	Common	Relay B19 & B20
BA12	Relay B8	DCV Outlet 4	BB12	Relay B20	GP Output #18
BA13	Relay B9	GP Output #7	BB13	Relay B21	GP Output #19
BA14	Common	Relay 9 & 10	BB14	Common	Relay B21 & B22
BA15	Relay B10	GP Output #8	BB15	Relay B22	GP Output #20
BA16	Relay B11	GP Output #9	BB16	Relay B23	GP Output #21
BA17	Common	Relay 11 & 12	BB17	Common	Relay B23 & B24
BA18	Relay B12	GP Output #10	BB18	Relay B24	GP Output #24

Solid State Relay Outputs



Electromechanical Relay Outputs



Specifications

Solid State Relay Outputs

Switching Voltage: AC Only 90 - 240 Vac
1 Amp max.
Transient Protection: Snubber Network 47 nF, 47R

Electromechanical Relays

Rating: 240 Vac, 30 Vdc Max
1 Amp max.
Protection: 275 Vac MOV transient protection

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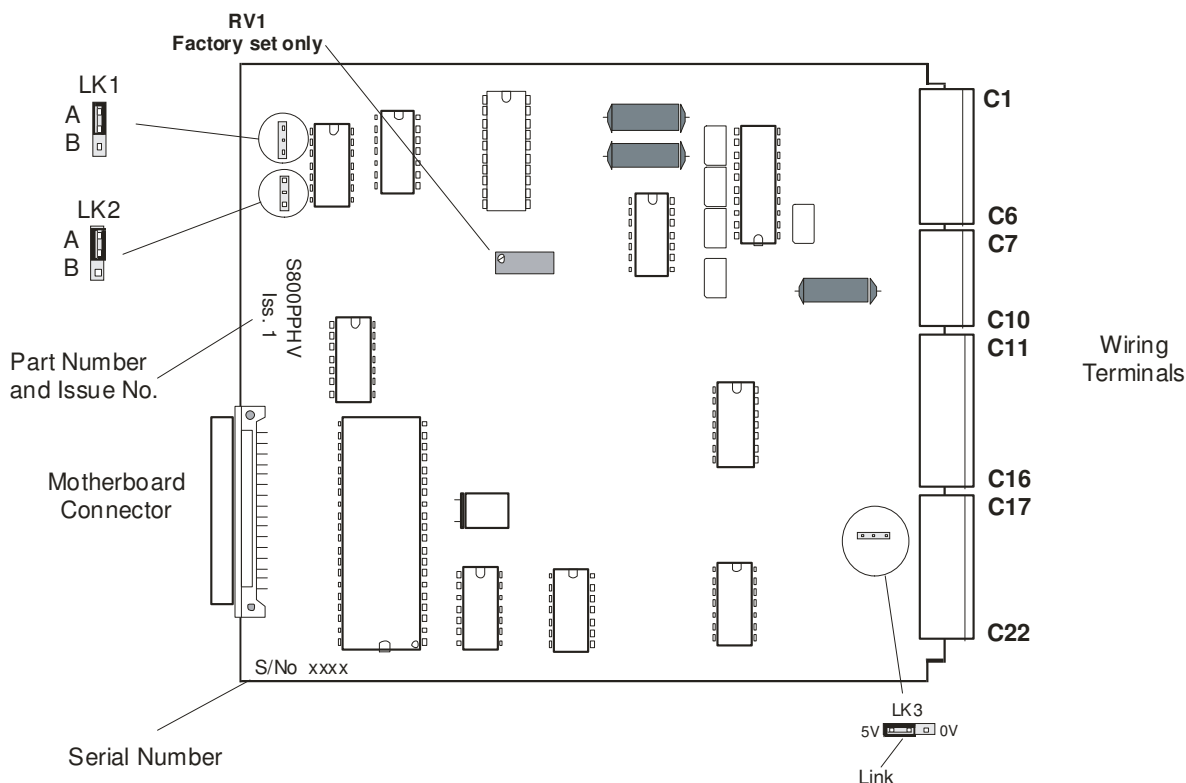
This card is a general purpose input card and comprises of:

- 5 x digital inputs
- 2 x flowmeter inputs (dual inputs on each channel)
- 2 x RTD Temperature Probes (4 wire PT 100)
- 2 x 4-20mA inputs which can be used for pressure or density..

Each input has transient protection.

The S800Q2T2C2 card is a general purpose card designed for 1 or 2 arm systems. Uses include the following projects:

- Foxboro India
- Tata Honeywell India



Links 1 & 2 are addressing for the board and depend on which card slot the board mounted in. The normal position is **SLOT C**.

Card Mounted in Slot C (Default)

- Link 1 Connect to position A
- Link 2 Connect to position A

Card Mounted in Slot B

- Link 1 Connect to position B
- Link 2 Connect to position B

Links 3 provides a pull-up resistors for the flowmeter inputs.

- Position 5V inputs pullup tied to 5volts
- Position 0V input pullup tied to 0 volts
- No Link input floating

Link 3 provides a common pullup for Arms/Lines 1A, 1B, 2A & 2B

Card Description

Standard 2 Arm (BJ-2 Only)

No information on 1 Arm CJ

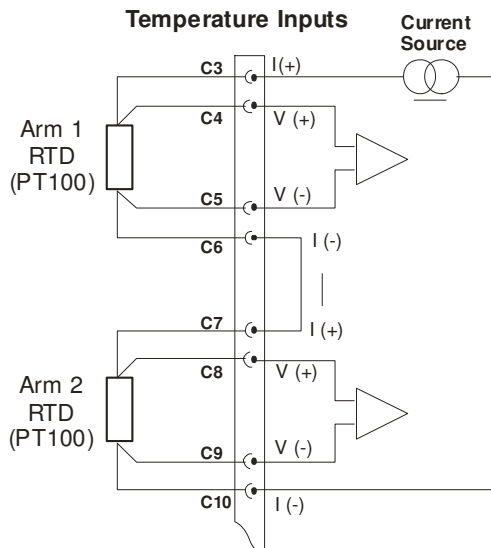
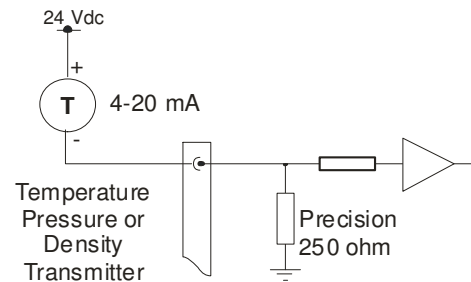
Terminals Designation

Terminal	Input	Arm/Line
C1	4-20 mA	1
C2	4-20 mA	2
C3	RTD Current (+)	1
C4	RTD Signal (+)	1
C5	RTD Signal (-)	1
C6	RTD Current (-)	1
C7	RTD Current (+)	2
C8	RTD Signal (+)	2
C9	RTD Signal (-)	2
C10	RTD Current (+)	2
C11	Ground	For C12 to C16
C12	Switch Input 1	
C13	Switch Input 2	
C14	Switch Input 3	
C15	Switch Input 4	
C16	Switch Input 5	
C17	Signal Ground	For flow signals
C18	Flowmeter	1A
C19	Flowmeter	1B
C20	Signal Ground	For flow signals
C21	Flowmeter	2A
C22	Flowmeter	2B

Notes:

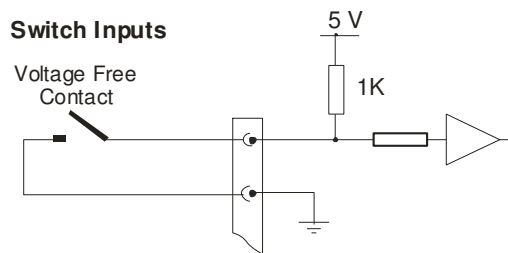
- Flow inputs provide for dual pulse signals from each flowmeter as a pulse integrity check of the flow signal. Flowmeter 1, therefore has two inputs, 1A and 1B.
- For Single arm operation terminals C7 and C10 must be linked.
- All switch inputs on C12 to C16 must be voltage free switch contacts from a relay or switch.
- All inputs must be shielded. For CE compliance, shields should be connected at one end only and wired to the chassis earth.

4-20 mA Inputs

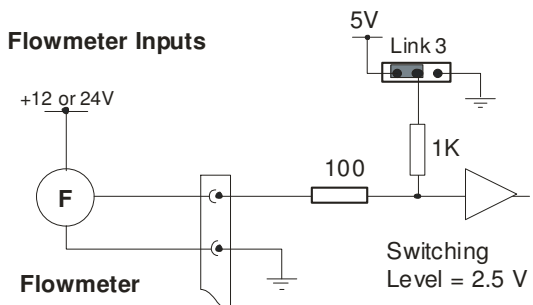


Note: For Single arm operation terminals C7 and C10 must be linked to ensure continuity of current loop.

Switch Inputs



Flowmeter Inputs



Open Collector (Pullup to 5V)
 Pulse (Pullup not connected)
 Namur (Pullup to 0V)

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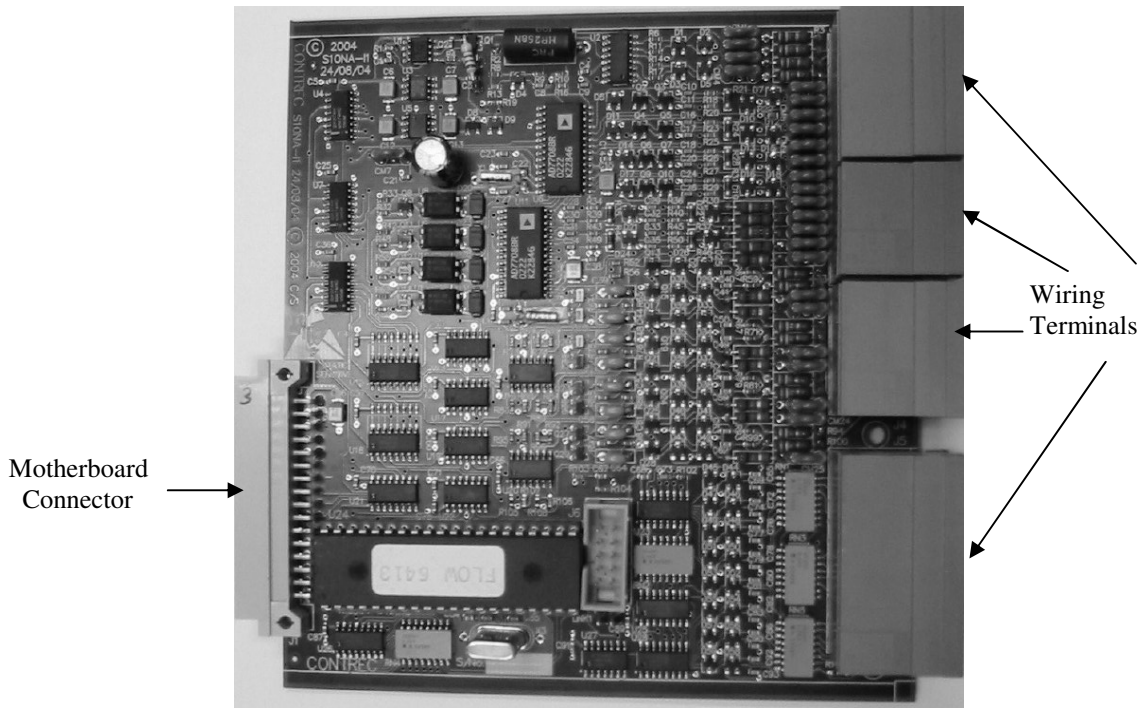
Input Card - S10NA-I2

03.06

This card is general purpose input card and comprises of following:

- 4 x RTD/4-20 mA temperature inputs
- 4 x 4-20 mA inputs which can be used for temperature, pressure or density
- 4 x flow meter inputs (dual inputs on each channel)
- 8 x digital inputs

Each input has transient protection
 8 digital inputs are used as follows
 One is used for Emergency stop. 2,3,4 can be used as Permissive or as programmable input.
 Inputs 5 to 8 can be used as programmable inputs.



Card Description

Standard 4 Arm (CJ-4 Only)

Input Card - S10NA-I2

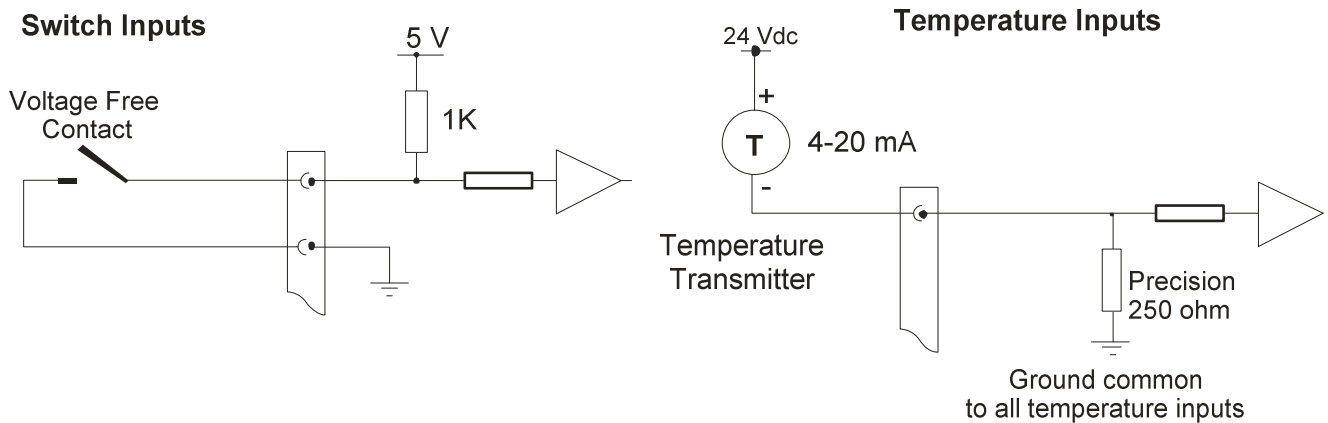
Terminal	Input/ Output	Arm/Line	Terminal	Input/ Output	Arm/Line
CA1	RTD	1	CB1	RTD	3
CA2	RTD / 4-20 mA	1	CB2	RTD / 4-20 mA	RTD 3/ input 5
CA3	RTD	1	CB3	RTD	3
CA4	RTD	1 & 2 Return	CB4	RTD	3 & 4 Return
CA5	RTD	2	CB5	RTD	4
CA6	RTD / 4-20 mA	2	CB6	RTD / 4-20 mA	RTD 4 / input 6
CA7	RTD	2	CB7	RTD	2
CA8	4-20 mA	Input 3	CB8	4-20 mA	Input 7
CA9	4-20 mA	Input 4	CB9	4-20 mA	Input 8
CA10	Opto output 1	Additive pulse	CB10	Opto output 3	Additive pulse
CA11	Opto output 2	Additive pulse	CB11	Opto output 4	Additive pulse
CA12	Opto 0 Volt		CB12	Opto 0 Volt	
CA13	Signal Ground	For flow signals	CB13	Signal Ground	For flow signals
CA14	Flow meter input	1A	CB14	Flow meter input	3A
CA15	Flow meter input	1B	CB15	Flow meter input	3B
CA16	Signal Ground	For flow signals	CB16	Signal Ground	For flow signals
CA17	Flow meter input	2A	CB17	Flow meter input	4A
CA18	Flow meter input	2B	CB18	Flow meter input	4B
CA19	Signal Ground	For CA20 to CA23	CB19	Not used	
CA20	Input1_1	Emergency Stop	CB20	Not used	
CA21	Input1_2	Permissive #1	CB21	Not used	
CA22	Input1_3	Permissive #2	CB22	Not used	
CA23	Input1_4	Permissive #3	CB23	Not used	
CA24	Signal Ground	For CA25 to CA28	CB24	Not used	
CA25	Input1_5	Programmable #1	CB25	Not used	
CA26	Input1_6	Programmable #2	CB26	Not used	
CA27	Input1_7	Programmable #3	CB27	Not used	
CA28	Input1_8	Programmable #4	CB28	Not used	

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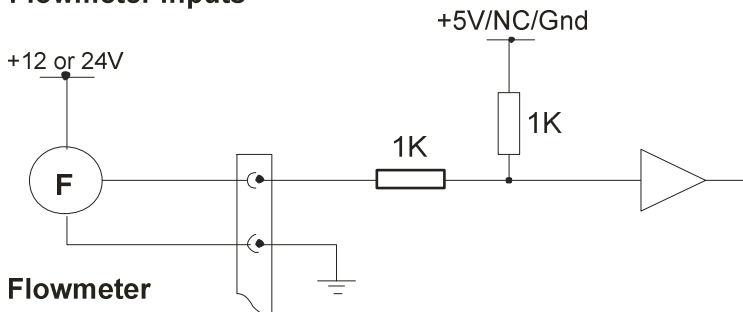
Input Card - S10NA-I2

Notes:

1. Flow inputs provide for dual pulse signals from each flow-meter as a pulse integrity check of the flow signal. Flow-meter 1, therefore has two inputs, 1A and 1B.
2. Temperature Input share a common ground.
3. All switch inputs on CA20 to CA28 must be voltage free switch contacts from a relay or switch.
4. All inputs must be shielded. For CE compliance, shields should be connected at one end only and wired to the chassis earth.



Flowmeter Inputs



Open Collector (Pullup to 5V)
 Pulse (Pullup not connected)
 Namur (Pullup to 0V)

Type of flow meter input can be selected through configuration menu.

This CPU card is designed to work with both 1010H and 1010A instruments. 1010A units feature a large graphics display and this board has a special Novram that is necessary to support this display.

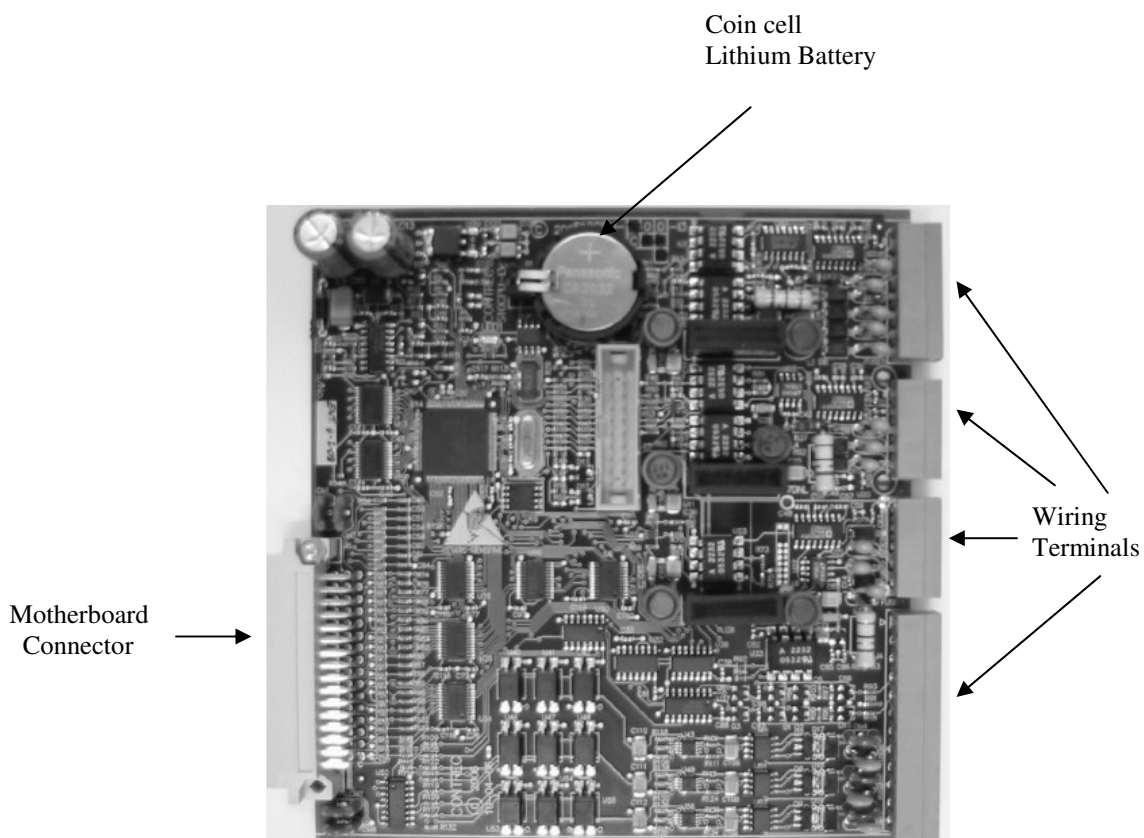
The card has three communication ports which can be set up through software via configuration settings.

Port 1 : Isolated RS485/422/232 (standard)

Port 2: Isolated RS485/232 (standard)

Port 3: Isolated RS485/232 (standard) or Network Connection

The card also has inputs for (magnetic or RFID?) Card / Touch key.



Terminal	Description
D1	Port1 RX 232
D2	Port1 TX 232
D3	Port1 Common
D4	Port1 RX+ RS422
D5	Port1 RX- RS422
D6	Port1 TX+ RS422
D7	Port1 TX- RS422
D8	Port2 RX 232
D9	Port2 TX 232
D10	Port2 Common
D11	Port2 RX/TX+ RS485
D12	Port2 RX/TX- RS485
D13	Port3 RX 232
D14	Port3 TX 232
D15	Port3 Common
D16	Port3 RX/TX+ RS485
D17	Port3 RX/TX- RS485
D18	Common Signal Ground
D19	Common Signal Ground
D20	+ 5v To Reader
D21	In #1 Card Int/Touch key#1
D22	In#2 Card Data/Touch key#2
D23	Card Present
D24	Channel 1 V+ 4-20 mA
D25	Channel 1 Iout 4-20mA
D26	Channel 2 V+ 4-20 mA
D27	Channel 2 Iout 4-20mA
D28	Channel 3 V+ 4-20 mA
D29	Channel 3 Iout 4-20mA

Model 1010A Instrument Data Sheet



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The instructions given herein cover the general description, installation, operation and maintenance of the subject equipment. Honeywell Enraf. reserves the right, without prior notice, to make engineering refinements that may not be reflected in this manual.

Should any questions arise which cannot be answered specifically by this manual, they should be directed to Honeywell Enraf for further detailed information and technical assistance.

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