4285–00 Fuse and Distribution Module

CLEI™ Code: PWPQW021AA

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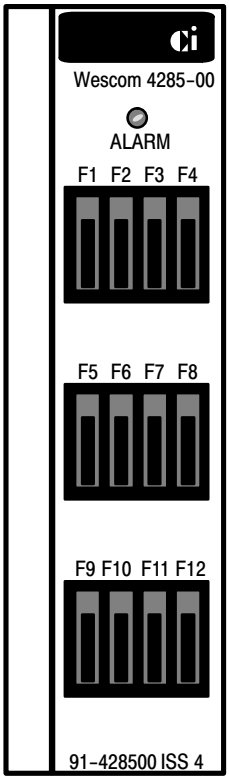

Figure 1. 4285—00 Front Panel

1. GENERAL

1.1 Document Purpose

This document provides general, installation, circuit description and basic testing information for the Charles Industries 4285–00 Fuse and Distribution Module, shown in Figure 1.

1.2 Document Status

This document is reprinted to provide a general editorial update.

1.3 Equipment Function

The 4285–00 module is a plug-in, printed circuit card assembly which provides battery fusing, distribution, and a fuse alarm for 12 modules installed in a 400-type or 4000-type mounting shelf.

The 4285–00 module provides 12 fused outputs. Fuses are front panel mounted in three blocks of four fuses each. The 4285–00 module can accept three different battery inputs and each input utilizes one of the fuse blocks. The battery voltages can be combinations within the range of –21 to –84Vdc.

1.4 Equipment Mounting

The 4285–00 module is designed to plug into any position of a Charles Industries 400-type or 4000-type mounting shelf. The 400-type mounting shelves are available in capacities of 1 to 13 modules and allow for either KTU apparatus-case or relay-rack mounting. The 4000-type mounting shelves are available with 12 and 14 module positions. Each 4285–00 module makes electrical connection to the system through one of the 56-pin, wire-wrap connectors provided as part of the mounting shelf.

1.5 Equipment Features

The significant features of the 4285–00 are listed below.

- Twelve fused outputs
- Front panel visual alarm (red LED) to indicate an open distribution fuse or external alarm condition
- External CO alarm input also monitored by alarm circuitry
- Relay (K1) allows auxiliary alarms to be connected, as required
- Accepts three battery inputs
- Battery inputs can be combinations within the range of –21 to –84Vdc
- Requires 12 GMT-type fuses from 0.25 Amp through 1⅓ Amp (maximum). Specify fuse amperages when ordering the module (see Table 2 for more information).
- Diodes provide isolation between the different supply voltages and external alarm input should simultaneous fuse openings occur.

2. CIRCUIT DESCRIPTION

Refer to Figure 2 while reading the following circuit description.

The 4285–00 has three battery inputs each having a group of four fused outputs. Battery inputs can be combinations within the range of –21 to –84Vdc. The three battery inputs are applied to the 4285–00 at pins 35, 36, and 32, which are fused by fuses F1–F4, F5–F8, and F9–F12, respectively. The fused battery voltages at the output pins are distributed to associated system modules in the mounting shelf. If a system module draws more current than the ampere rating of its associated fuse in the 4285–00, the fuse will open.

When a fuse element opens, its spring-loaded contact is allowed to close, which applies battery potential through diodes CR2, CR3, or CR4 to the Alarm Buffer. The Alarm Buffer limits the battery voltage to an acceptable level to illuminate the Alarm LED and actuate relay (K1). The alarm circuit remains in this condition until the opened fuse is removed.

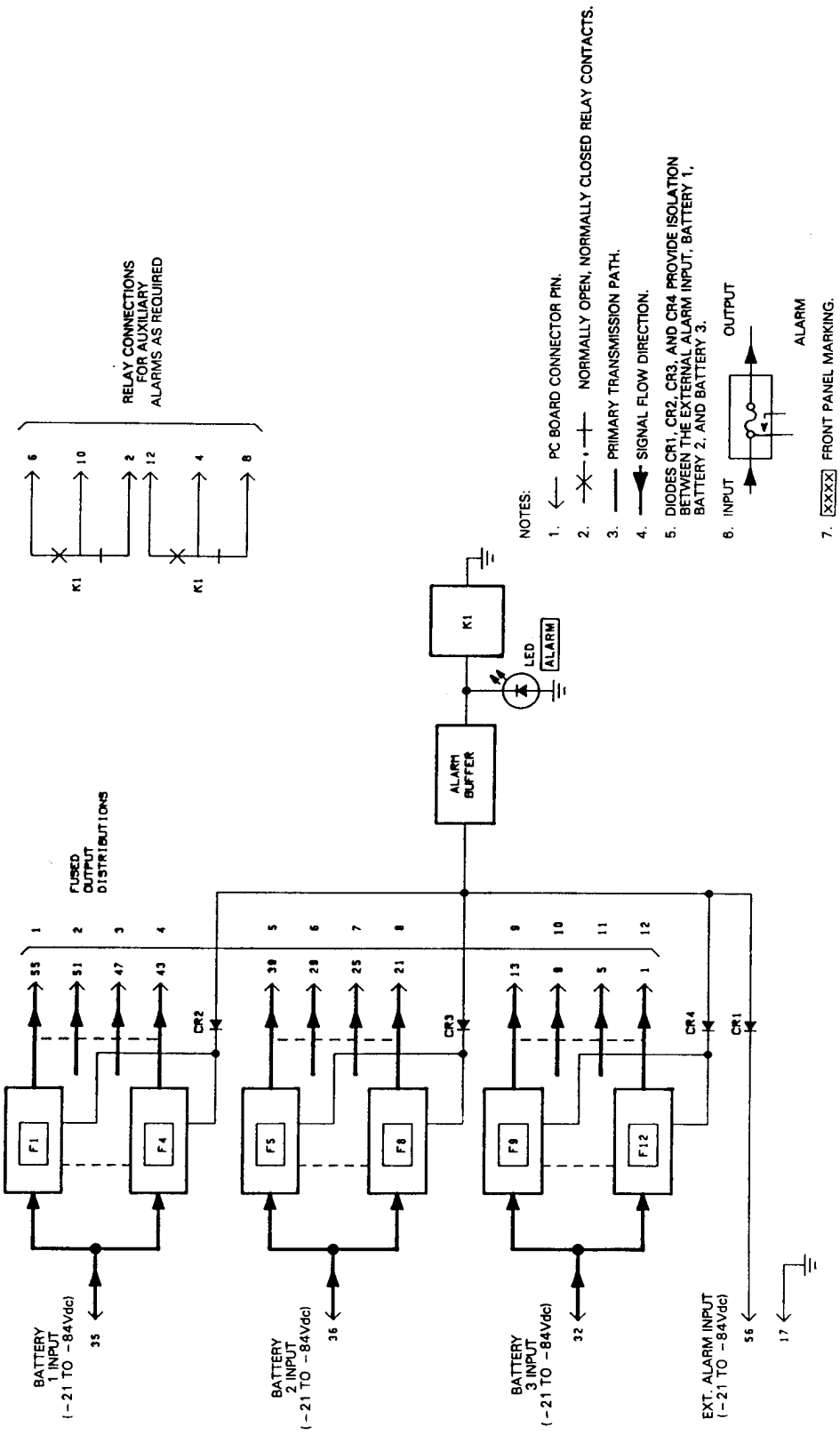

Figure 2. 4285–00 Fuse And Distribution Module (Issue4) Block Diagram

Relay K1 contains two sets of transfer contacts (two pairs of normally closed contacts, and two pairs of normally open contacts) for use in operating auxiliary alarms as required.

The alarm circuitry can also be activated from a remote location. An external CO alarm voltage (–21 to –84Vdc) connected to pin 56 is applied to the Alarm Buffer through diode CR1. The alarm circuit will be activated as previously described and will continue until the external alarm voltage is removed.

3. INSPECTION

Inspect the equipment thoroughly upon delivery. If the equipment has been damaged in transit, immediately report the extent of damage to the transportation company.

Charles Industries equipment is identified by a model and issue number imprinted on the front panel or located elsewhere on the equipment. Each time a major engineering design change is made on the equipment, the issue number is advanced by one number on any subsequent models that are manufactured. Therefore, be sure to include both the model number and its issue number when making inquiries about the equipment.

Each module is shipped in static-protective packaging to prevent electrostatic charges from damaging static-sensitive devices. Use approved static-preventive measures, such as static-conductive wrist straps and a static-dissipative mat, when handling modules outside of their protective packaging. A module intended for future use should be tested as soon as possible and returned to its original protective packaging for storage.

CAUTION

Do not ship or store modules near strong electrostatic, electromagnetic, or magnetic fields. Also, make sure to use the original static-protective packaging for shipping or storage.

4. MOUNTING

The 4285–00 module is designed to mount in any module position of a 400-type or 4000-type mounting shelf.

When a high degree of flexibility is required to provide for new circuit arrangements, as well as circuit rearrangements, the 4285–00 may be mounted in a Charles Industries universal shelf. For additional information covering these mounting units, refer to the appropriate Charles Industries documentation.

5. INSTALLER CONNECTIONS

When the 4285–00 module is installed in a 400-type or 4000-type mounting shelf, it makes electrical connection to the associated equipment through a 56-pin, wire-wrapped card connector provided as part of the mounting assembly. Make all installer connections to this connector in accordance with Table 1.

Type 400UA–11 and 400UA–13 Universal Shelves provide terminal block locations above the mounting assembly. Type 400UB–11 and 400UB–13 Universal Shelves provide terminal block location below the mounting assembly. When the 4285–00 is installed in a universal shelf, make all installer connections to these terminal blocks in accordance with Table 1.

CAUTION

Do not make any connections with power applied to the equipment or modules installed in the mounting assembly.

5.1 Inserting Modules

When all installer connections have been completed, insert the 4285–00 into the mounting shelf.

CAUTION

Installation and removal of modules should be done with care. Do not force a module into place. If excessive resistance is encountered while installing a module, remove the module and check the card guides and connector to verify proper alignment and the absence of foreign material.

Table 1. Installer Connections

Connect	Lead Designation	To 56-pin Connector
Load Circuit 1	1	55
Load Circuit 2	2	51
Load Circuit 3	3	47
Load Circuit 4	4	43
Load Circuit 5	5	39
Load Circuit 6	6	29
Load Circuit 7	7	25
Load Circuit 8	8	21
Load Circuit 9	9	13
Load Circuit 10	10	9
Load Circuit 11	11	5
Load Circuit 12	12	1
GROUND	—	17
Input for circuits 1–4	Battery 1	35
Input for circuits 5–8	Battery 2	36
Input for circuits 9–13	Battery 3	32
External alarm input	External alarm	56
*	K1 (NC)	2
*	K1	10
*	K1 (NO)	8
*	K1 (NC)	6
*	K1	4
*	K1 (NO)	12

6. TESTING

If the 4285–00 does not operate as described in the Circuit Description, first verify that all installer connections have been properly made in accordance with Table 1. With power removed, make certain the module is making good electrical contact with the mounting shelf card-edge connector. Check that all fuses used are properly rated. If the ALARM LED remains on with all good fuses, check for external alarm voltage at pin 56. If trouble persists, replace module with one known to be good.

7. TECHNICAL ASSISTANCE

7.1 Technical Assistance — U.S.

If technical assistance is required, contact Charles Industries' Technical Services Center at:

847–806–8500
847–806–8556 (FAX)
800–607–8500
techserv@charlesindustries.com (e-mail)

7.2 Technical Assistance — Canada

Canadian customers contact:

905–821–7673 (Main Office)
905–821–3280 (FAX)

8. WARRANTY & CUSTOMER SERVICE

8.1 Warranty

Charles Industries, Ltd. offers an industry-leading, 5-year warranty on products manufactured by Charles Industries. Contact your local Sales Representative at the address or telephone numbers below for warranty details. The warranty provisions are subject to change without notice. The terms and conditions applicable to any specific sale of product shall be defined in the resulting sales contract.

Charles Industries, Ltd.
5600 Apollo Drive
Rolling Meadows, Illinois 60008–4049

Telephone: 847–806–6300 (Main Office)
847–806–6231 (FAX)

8.2 Field Repairs (In-Warranty Units)

Field repairs involving the replacement of components within a unit are not recommended and may void the warranty and compatibility with any applicable regulatory or agency requirements. If a unit needs repair, contact Charles Industries, Ltd. for replacement or repair instructions, or follow the *Repair Service Procedure* below.

8.3 Advanced Replacement Service (In-Warranty Units)

Charles Industries, Ltd. offers an “advanced replacement” service if a replacement unit is required as soon as possible. With this service, the unit will be shipped in the fastest manner consistent with the urgency of the situation. In most cases, there are no charges for in-warranty repairs, except for the transportation charges of the unit and for a testing and handling charge for units returned with no trouble found. Upon receipt of the advanced replacement unit, return the out-of-service unit in the carton in which the replacement was shipped, using the preaddressed shipping label provided. Call your customer service representative at the telephone number above for more details.

8.4 Standard Repair and Replacement Service (Both In-Warranty and Out-Of-Warranty Units)

Charles Industries, Ltd. offers a standard repair or exchange service for units either in- or out-of-warranty. With this service, units may be shipped to Charles Industries for either repair and quality testing or exchanged for a replacement unit, as determined by Charles Industries. Follow the *Repair Service Procedure* below to return units and to secure a repair or replacement. A handling charge applies for equipment returned with no trouble found. To obtain more details of this service and a schedule of prices, contact the CI Service Center at 217–932–5288 (FAX 217–932–2943).

Repair Service Procedure

1. Prepare, complete, and enclose a purchase order in the box with the equipment to be returned.

2. Include the following information:

   – Company name and address
   – Contact name and phone number
   – Inventory of equipment being shipped
   – Particulars as to the nature of the failure
   – Return shipping address

3. Ship the equipment, purchase order, and above-listed information, transportation prepaid, to the service center address shown below.

CI Service Center
Route 40 East
Casey, IL 62420–2054

4. Most repaired or replaced units will be returned within 30 or 45 days, depending on the product type and availability of repair parts. Repaired units are warranted for either 90 days from the date of repair or for the remaining unexpired portion of the original warranty, whichever is longer.

9. SPECIFICATIONS

9.1 Electrical

The electrical characteristics of the 4285–00 are as follows:

(a) INPUT VOLTAGES: –21 to –84Vdc.

(b) RELAY (K1) CONTACT RATING: 2 Amp DC/0.5 Amp AC (maximum).

(c) INDIVIDUAL FUSE RATING: 0.25A, 0.5A, 0.75A, 1A, or 1⅓A (maximum) as specified (GMT). FUSES: Fuse order numbers for the 4285–00 units are shown below.

Table 2. Fuse Kits and Types

Order Number	**Fuse Kit Description**
A97–000205	Twelve 0.25 Amp GMT fuses
A97–000206	Twelve 0.5 Amp GMT fuses
A97–000207	Twelve 1⅓ Amp GMT fuses
Order Number	**Piece Part Description**
018–000010	0.25 Amp GMT fuse
018–000008	0.5 Amp GMT fuse
018–000031	0.75 Amp GMT fuse
018–000024	1 Amp GMT fuse
018–000002	1⅓ Amp GMT fuse

9.2 Physical

The physical characteristics of the 4285–00 are shown in Table 3.

Table 3. Physical Specifications

Feature	U.S.	Metric
Height	5.6 inches	14.2 centimeters
Width	1.4 inches	3.5 centimeters
Depth	6 inches	15.2 centimeters
Weight	6 ounces	170.1 g
Temperature	32 to 120° F	0 to 49° C
Humidity	To 95% (no condensation)	