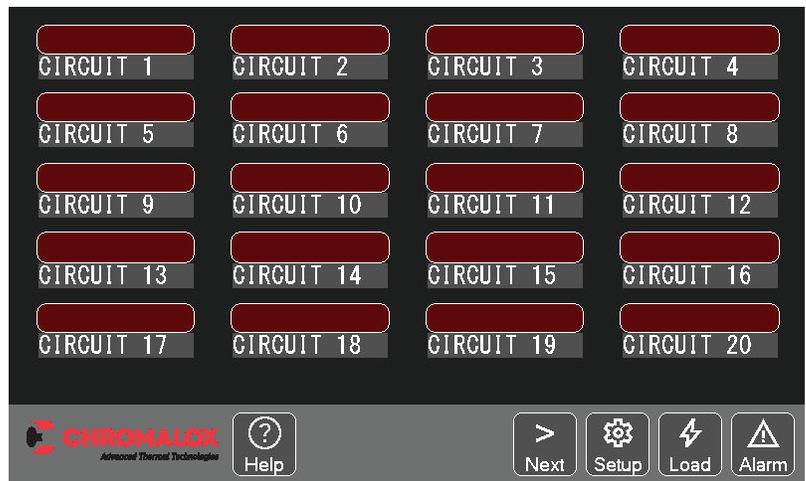


Operations Manual for FPASM Panels



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Receiving, Handling & Lifting



The packaging supplied is only suitable for short term indoor storage.

Any outdoor storage is considered temporary (less than 48 hours) and the entire system must immediately be protected from the outdoor elements with appropriate coverings. The coverings shall be suitably covered for protection against adverse weather, using a tear-free waterproof membrane such as a tarpaulin. The equipment shall be placed on dry ground or on blocks to lift it clear of any possible water.

The unit must be handled with care and stored in clean, dry conditions as befits any electrical apparatus. Units must not be exposed to wet or damp atmospheres. Units shall be stored in areas with uniform temperature control to prevent condensation accumulation.

Unpacking

All hardware and materials are to be removed with tools designed for the purpose.

Equipment Handling & Lifting

Ensure that the equipment is correctly moved and installed by technically qualified and competent persons experienced in the class of work involved. Know the capabilities of the lifting equipment available to handle the weight of the system. At no time should any person be under, or in contact with, a suspended load.

Ensure that all precautions are taken regarding the weight of the panel or controller. Lifting equipment shall have capacity for the given weight.

Exercise care during any movement and placement operations to prevent falling or unintentional rolling or tipping.

Each unit is manufactured with great care from the highest quality materials and thoroughly inspected before leaving the manufacturing facility. Examine the equipment against the packing list to check that the quantity received, and its identity is complete.

Start-up & Commissioning

Contact Chromalox Service Group or www.chromalox.com for additional information.

Check that labels and tags are secure and correct.

Ensure all other safety and / or shutdown devices are functioning properly.

It is a warranty requirement to comply with these instructions and documented evidence shall be maintained in the form of a signed checklist as per the Appendix A or operator's equivalent.

NOTE: A completed Maintenance Checklist or equivalent will be required in the event of any safety or warranty claim.



NOTICE/AVIS

Inspect the equipment/system to ensure no damage has occurred within 48 hours of receipt. If damaged, please report any claims to your carrier and contact Chromalox within 7 days for repair options. Do not attempt to operate damaged equipment.

Inspectez l'équipement/le système pour vous assurer qu'aucun dommage n'est survenu dans les 48 heures suivant la réception. En cas de dommage, veuillez signaler toute réclamation à votre transporteur et contacter Chromalox dans les 7 jours pour connaître les possibilités de réparation. N'essayez pas de faire fonctionner un équipement endommagé.

Any service work must be performed by trained personnel.

Contact your local Chromalox representative for technical support. Provide your unit part number, model number, and Chromalox purchase order number to properly identify the equipment.

Precautions & Warnings

General Equipment Warnings

The user must ensure that their employees are fully trained and supervised in the proper working procedures in order to ensure their safety. The plant must be maintained in a safe condition.

Personnel must be fully aware of the risk associated with electricity and hazardous area usage. Only qualified personnel shall perform work on this unit during installation, operation, and maintenance procedures.

This equipment was specifically designed for its intended purpose and shall not be used for any other application without a complete re-evaluation by the manufacturer. The operator shall ensure these instructions are kept with the equipment to prevent any misuse for which the equipment has not been designed.



The Safety Alert Symbol  is used on the product, consult the documentation to find out the nature of the potential hazard, any actions to be taken, and the consequences of not adhering to the requirement.

The seriousness of the potential hazard is identified by one of three signal words below.



The Safety Alert Symbol  is used on the product, consult the documentation to find out the nature of the potential electrical hazard, any actions to be taken, and the consequences of not adhering to the requirement.

The seriousness of the potential hazard is identified by one of three signal words below.

Electrical Safety

All personnel working on electrical equipment shall strictly adhere to the applicable local, countrywide, and industry-recognized standards. Examples of such standards may include, but not limited to, the IEC (International Electric Code), NEC (National Electric Code), OSHA (Occupational Safety and Health Administration), NFPA (National Fire Protection Association), Health and Safety Work Act 1974, Factories Act 1961, and others. Failure to adhere to proper safety standards, including proper use of PPE (Personal Protective Equipment) may result in injury or even death. Chromalox will not be liable for failure of customer to adhere to governing standards.



DANGER – will result in serious injury or death.



WARNING – could result in serious injury or death.



CAUTION – may result in minor or moderate injury.



Means Protective Earth (ground) terminal. De-energize all equipment before opening junction boxes and control panels and follow the appropriate lockout/tagout procedures. Do not work on live circuits. Qualified persons and associated equipment must be effectively grounded in accordance with the applicable governing standard, such as the IEC (International Electric Code) to eliminate shock hazard. During any service work, please follow the proper electrical isolation, lockout/tagout, and disconnection procedures.

General Warnings

DANGER/DANGER

Explosion hazard. Explosion could occur if this product is installed in a location in an environment it is not designed for. Ensure environmental rating is appropriate for the product.

Risque d'explosion. Une explosion peut se produire si ce produit est installé à un endroit dans un environnement pour lequel il n'a pas été conçu. Assurez-vous que la classification environnementale est appropriée pour le produit.

DANGER/DANGER

HAZARDOUS VOLTAGE ENCLOSED. Contact will cause electric shock and burn. Isolate all sources of power elsewhere before working on equipment.

TENSION DANGEREUSE ENFERMÉE. Débranchez toutes les sources d'alimentation avant de retirer le couvercle intérieur de la boîte de jonction.

CAUTION/MISE EN GARDE

Equipment Damage. Users should install adequate controls and safety devices with their electric heating equipment. The consequences of all possible failure modes must be evaluated.

Dommages matériels. Les utilisateurs doivent installer des contrôles et des dispositifs de sécurité adéquats avec leur équipement de chauffage électrique. Les conséquences de tous les modes de défaillance possibles doivent être évaluées.

CAUTION/MISE EN GARDE

Equipment damage. Equipment can be damaged by the ingress of water. Care must be taken to ensure that water does not enter the enclosure when covers are removed.

Dommages à l'équipement. L'équipement peut être endommagé par la pénétration d'eau. Il faut veiller à ce que l'eau ne pénètre pas dans le boîtier lorsque les couvercles sont retirés.

NOTICE/AVIS

All personnel working on electrical equipment must adhere to all national and local regulations, codes, and standards.

Tout le personnel travaillant sur des équipements électriques à basse tension doit se conformer à toutes les réglementations, codes et normes nationales et locales.

NOTICE/AVIS

Only suitably qualified and experienced persons, who are familiar with this equipment, and the work they are to do, should carry out installation, commissioning, operation, or maintenance of this equipment.

L'installation, la mise en service, le fonctionnement ou l'entretien de cet équipement ne doivent être effectués que par des personnes qualifiées et expérimentées, déjà familiarisées avec cet équipement et le travail qu'elles doivent faire.

NOTICE/AVIS

Such persons shall adhere to proper electrical safety procedures, including the use of appropriate personal protective equipment (ppe).

Ces personnes doivent respecter les procédures de sécurité électrique appropriées, y compris l'utilisation d'un équipement de protection individuelle (epi) adéquat.

NOTICE/AVIS

Failure to adhere to any of the above may result in equipment damage, operating losses, injury, or death. Chromalox will not be liable for failure to adhere to all governing regulations, codes, standards, site procedures and information given in this manual.

Le non-respect de l'une des consignes ci-dessus peut entraîner des dommages matériels, des pertes d'exploitation, des blessures ou la mort. Chromalox ne sera pas responsable du non-respect de toutes les réglementations, codes, normes, procédures de site et informations données dans ce manuel.

NOTICE/AVIS

If in doubt, contact chromalox.

En cas de doute, contactez chromalox.

NOTICE/AVIS

If the equipment is used in a manner not specified by the manufacturer, then the protection provided by the equipment may be impaired.

Si l'équipement est utilisé d'une manière non spécifiée par le fabricant, la protection fournie par l'équipement peut être altérée.

NOTICE/AVIS

If the equipment is used in a manner not specified by the manufacturer, then the warranty will be invalidated.

Si l'équipement est utilisé d'une manière non spécifiée par le fabricant, la protection fournie par l'équipement peut être altérée.

CAUTION/MISE EN GARDE

EQUIPMENT DAMAGE. Do not engage the Auto Cycle feature during normal operation. The heating cables will become fully energized for approximately 2 minutes throughout the Auto Cycle Interval which could cause damaging temperature overshoot. Dommages à l'équipement. N'engagez pas la fonction de cycle automatique pendant le fonc-

tionnement normal. Les câbles chauffants seront entièrement sous tension pendant environ 2 minutes au cours de l'intervalle de cycle automatique, ce qui pourrait provoquer un dépassement de température nuisible.



CAUTION/MISE EN GARDE

An arc flash label is provided. Data for this should be determined using a site arc flash study. The completed label should be affixed to the outside of the equipment.

Une étiquette d'éclair d'arc est fournie. Les données de cette étiquette doivent être déterminées à l'aide d'une étude d'éclair d'arc sur le site. L'étiquette remplie doit être apposée à l'extérieur de l'équipement.



NOTICE/AVIS

De-energize all equipment before opening junction boxes and control panels and follow the appropriate lockout/tagout procedures. Do not work on live circuits. All equipment must be effectively grounded [earthed] in accordance with all national and local regulations, codes, and standards. During any service work, please follow the proper electrical isolation and lockout/tagout procedures.

Mettez tous les équipements hors tension avant d'ouvrir les boîtes de jonction et les panneaux de commande et suivez les procédures de verrouillage et d'étiquetage appropriées. Ne travaillez pas sur des circuits sous tension. Tous les équipements doivent être mis à la terre conformément à l'ensemble des réglementations, codes et normes nationaux et locaux. Lors de toute intervention, veuillez suivre les procédures d'isolation électrique et de verrouillage/déconnexion appropriées.



NOTICE/AVIS

Users should install adequate controls and safety devices with their electric heating equipment. Where the consequences of failure may be severe, back-up controls are recommended.

Les utilisateurs doivent installer des contrôles et des dispositifs de sécurité adéquats avec leur équipement de chauffage électrique. Lorsque les conséquences d'une défaillance peuvent être graves, il est recommandé d'installer des commandes de secours.



NOTICE/AVIS

The equipment must be installed with a 2-pole isolating device when this equipment is connected to a supply where both wires/terminals are live.

L'équipement doit être installé avec un dispositif d'isolation bipolaire lorsqu'il est connecté à une alimentation où les deux fils/bornes sont sous tension.



NOTICE/AVIS

Tighten or replace all loose or missing hardware. Resserrez ou remplacez toute ferrure desserrée ou manquante.



NOTICE/AVIS

Refer to the Chromalox unit design drawing for specific certifications(s) and/or classification rating. Certified enclosures **MUST NOT** be modified, altered, or repaired by anyone other than the manufacturer. Improper usage will void the warranty and could create a dangerous environment.

Reportez-vous au dessin de conception de l'unité Chromalox pour les certifications particulières et/ou la classification. Les boîtiers certifiés **NE DOIVENT PAS** être modifiés, altérés ou réparés par une personne autre que le fabricant. Une utilisation inappropriée annule la garantie et peut créer un environnement dangereux.

Operation Instructions for FPASM Panels

Overview

The HMI displays the status of each circuit connected to the panel, as well as the load contactor and any system alarms. The main screen displays the status of loops 1-20, pressing NEXT will display loops 21-40, and pressing NEXT one final time will display loop 41-48. Figure 1 is showing the main load contactor OFF, and as a result all circuits are showing de-energized.

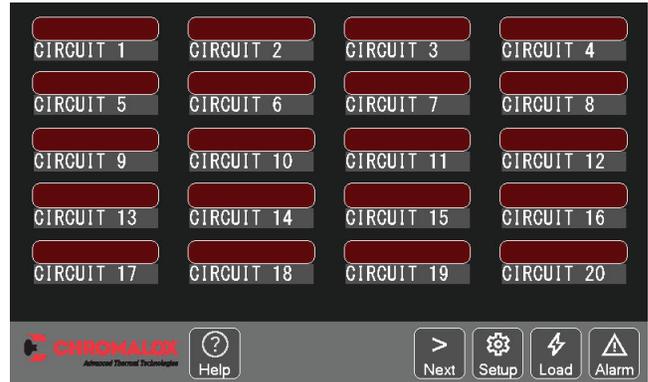


Figure 1 - Main Screen

Setup

Pressing the SETUP button will display SETUP screen, which is password protected. Here, the operator can configure the maximum number of circuits, initialize the circuits, or change/save the circuit names. The number of circuits will be set from the factory to match the panel that was purchased. See Figure 2.

When the circuits are connected and the load contactor is energized, the 'Initialize' button will need pressed (Figure 3). This scans the inputs for active circuits, and flags them as enabled. Once enabled, the system will begin monitoring the circuit for voltage loss (tripped breaker). Only circuits that have been initialized will be monitored, if there are circuits that are intentionally turned off, the initialize procedure will need done to disable monitoring on those circuits. If the load contactor is not energized, the initialization cannot be done (Figure 4).

By default, the circuits will be named as shown in Figure 1 (Circuit 1, Circuit 2, etc..). However, these can be modified by pressing on the text. These modified names are stored in the CCU, and will need saved to Flash memory to avoid being lost in the event of a power loss. If the names are not saved, there is a risk of them being reverted to their default value. The default names can be restored at any time by pressing the Load Default Names button.

All of these features can be reviewed by pressing the SETUP HELP button (Figure 5).

Password: CHX1347

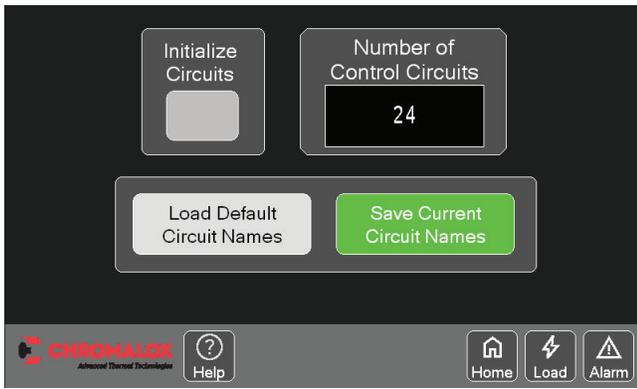


Figure 2 - Setup Screen



Figure 3 - Initialize, Load ON

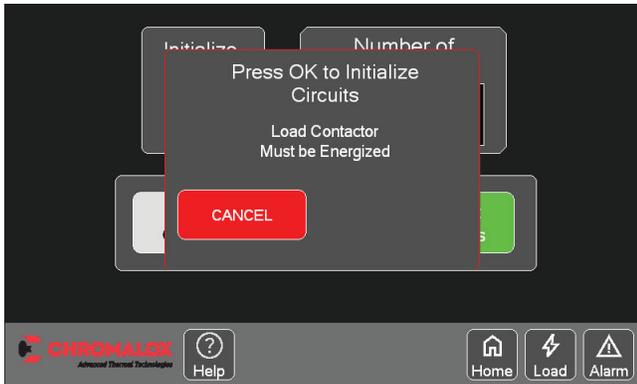


Figure 4 - Initialize, Load OFF

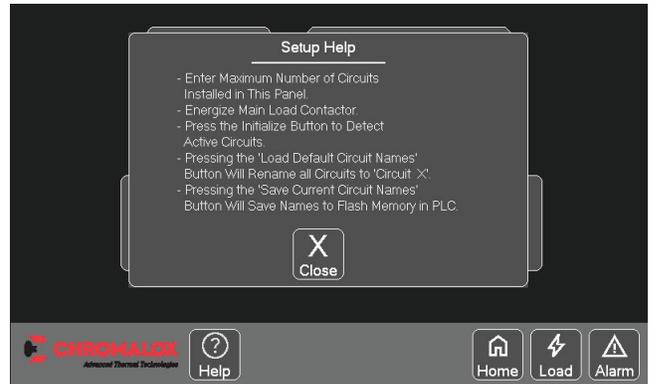


Figure 5 - Setup Help

Operation

Enabled circuits have 3 possible states as shown in Figure 6:

- Disabled (not initialized) (Dark Red)
- Enabled and OK (White)
- Enabled and Not Energized (Bright Red)

These states can be reviewed at any time by pressing the HELP button on the main screen.

If an initialized circuit loses voltage while the load contactor is energized, it will go into alarm. When this happens, the ALARM light will flash, and the common alarm outputs on the CCU will energize (Figure 7). If the load contactor is de-energized, the indicators will turn red indicating loss of load voltage but will not indicate an alarm. The CCU has 2 relay outputs to signal a common alarm. Output 0 is normally closed, which will open on alarm. Output 1 is normally open, which will close on alarm. If the HMI is in screen saver mode, an active alarm will wake the display and navigate to the screen with the alarm. For example, if circuit 24 were to alarm while the HMI was in Screen Saver, the CCU would wake up the HMI and send it to the second screen (Loops 21-40).

The CCU (PLC) is equipped with a battery to prevent non-volatile memory loss during a loss of power. If this battery is low voltage or missing, the HMI will alert the operator (Figure 8) but the alarm outputs on the CCU will not be affected.

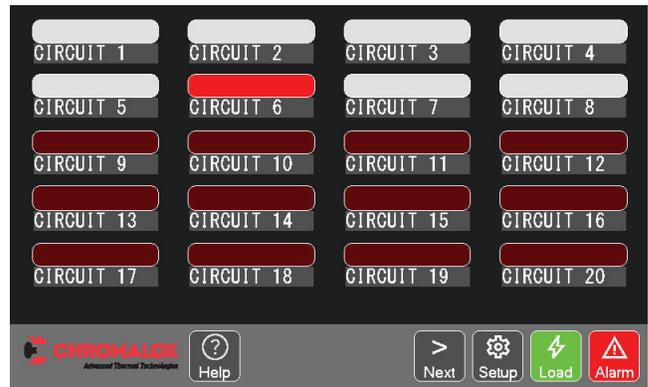


Figure 7 - Circuit Alarm

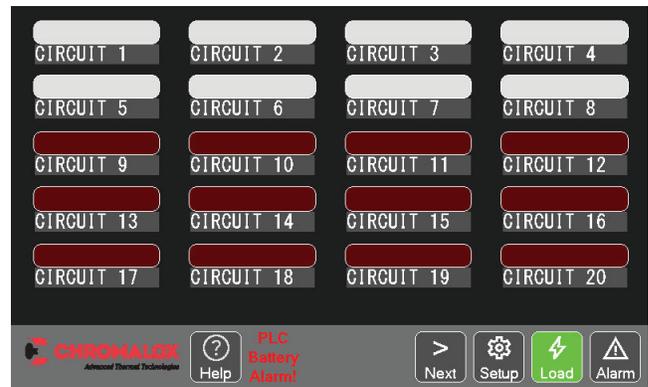


Figure 8 - PLC Battery Alarm

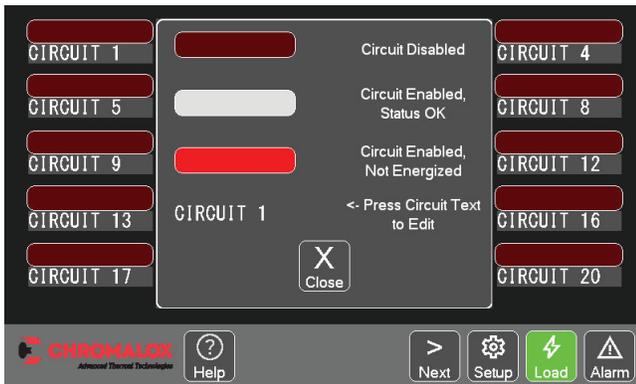


Figure 6 - Circuit Status

Limited Warranty:

Please refer to the Chromalox limited warranty applicable to this product at <http://www.chromalox.com/customer-service/policies/termsofsale.aspx>.

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