

3M

Dynapro™

ET 3170 Terminal (Series B)

User's Installation Guide

**Read and understand all safety information
before installing and using this product.**

Copyright

This manual is © 3M 2002. All rights reserved.

Reproduction of the contents of this copyrighted manual in whole or in part, by any means, electronic or mechanical, for any purpose, without written permission of 3M Touch Systems, a subsidiary of 3M, is prohibited.

Notice

Given the variety of factors that can affect the use and performance of a 3M Touch Systems Product (the "Product"), including that solid state equipment has operation characteristics different from electromechanical equipment, some of which factors are uniquely within User's knowledge and control, it is essential that User evaluate the 3M Touch Systems Product and software to determine whether it is suitable for User's particular purpose and suitable for User's method of application. 3M Touch Systems' statements, engineering/technical information, and recommendations are provided for User's convenience, but their accuracy or completeness is not warranted. 3M Touch Systems products and software are not specifically designed for use in medical devices as defined by United States federal law. 3M Touch Systems products and software should not be used in such applications without 3M Touch Systems' express written consent. User should contact its sales representative if User's opportunity involves a medical device application.

Important notice to purchaser

Specifications are subject to change without notice. These 3M Touch Systems' Products and software are warranted to meet their published specifications from the date of shipment and for the period stated in the specification. **3M Touch Systems makes no additional warranties, express or implied, including but not limited to any implied warranties of merchantability or fitness for a particular purpose.**

User is responsible for determining whether the 3M Touch Systems Products and software are fit for User's particular purpose and suitable for its method of production, including intellectual property liability for User's application. If the Product, software or software media is proven not to have met 3M Touch Systems' warranty, then 3M Touch Systems' sole obligation and User's and Purchaser's **exclusive remedy**, will be, at 3M Touch Systems' option, to repair or replace that Product quantity or software media or to refund its purchase price. 3M Touch Systems has no obligation under 3M Touch Systems' warranty for any Product, software or software media that has been modified or damaged through misuse, accident, neglect, or subsequent manufacturing operations or assemblies by anyone other than 3M Touch Systems. **3M Touch Systems shall not be liable in any action against it in any way related to the Products or software for any loss or damages, whether non-specified direct, indirect, special, incidental or consequential (including downtime, loss of profits or goodwill) regardless of the legal theory asserted.**

Edition

Document Number: 19914 (Rev. 1.0).
October 2002
(Supersedes 11754)

Trademarks

3M Dynapro, MicroTouch, and Near Field Imaging are trademarks of 3M.

Important Safety Information

Read and understand all safety information before using the 3M Dynapro™ ET 3170 terminal. Follow all instructions marked on the product and described in this document. Pay close attention to the statement of intended use and the safety notices.

Intended use

The 3M Dynapro ET 3170 terminal is intended to provide touch screen functions for industrial applications when the terminal is connected to a host computer. The ET 3170 terminal is *not* intended for use in hazardous locations. Using the terminal in conditions exceeding these ratings will invalidate the warranty and will be solely the user's risk and responsibility. The ET 3170 terminal is a component. After the terminal is installed, the whole system of which it is a part must be inspected to confirm seal ratings and compliance with all local electrical codes.

Safety notices

DANGER

To reduce the risks associated with fire and explosion which, if not avoided, will cause death or serious injury and/or property damage:

- Do not install or use the ET unit in a hazardous location.

WARNING

To reduce the risks associated with fire and explosion which, if not avoided, could result in death or serious injury and/or property damage:

- Refer to the cleaner manufacturer's material safety data sheet and follow all instructions and recommendations.
- Do not use flammable or combustible cleaners.

WARNING

To reduce the risks associated with electrical shock or fire which, if not avoided, could result in death or serious injury and/or property damage:

- Engineer the installation of the ET unit to take into account the operating environment (e.g., thermal, shock/vibration factors).
- Install the ET unit close to the power source so the unit can be easily and quickly disconnected. For permanently connected equipment, a readily accessible disconnect device must be incorporated in the fixed wiring.
- Follow all product and accessory installation instructions.
- Any servicing or other procedures not described in this manual are to be performed only by 3M Touch Systems service personnel.
- To ensure compliance with electrical codes and safe operation of the ET unit, have a licensed journeyman electrician familiar with local and federal codes perform all wiring tasks.
- When connecting power with fixed field wiring, the power cable must be double insulated. A clear, flexible insulator (supplied) must cover the portion of the cable that is not double insulated when connecting to a terminal strip connector.

 **WARNING**

To reduce the risks associated with electrical shock or fire which, if not avoided, could result in death or serious injury and/or property damage:

- Provide a clean, reliable grounding.
- When installing the ET unit, ensure that specifications for supply circuit overcurrent protection and wiring are not exceeded.
- Properly install the ET unit with a NEMA 4X/IP66 gasket that is undamaged and effective.
- Do not use an ET unit that is not rated to NEMA 4X/IP66 in an environment that requires a NEMA 4X/IP66 seal.
- When replacing a fuse of other part, use a part of the type and rating specified by 3M Touch Systems.

 **WARNING**

To reduce the risks associated with electrical shock which, if not avoided, could result in death or serious injury and/or property damage:

- Do not open the power supply in the ET unit. It contains hazardous voltages. The power supply has no user-serviceable parts or adjustments inside.
- Make sure that the ground potential difference between the ET unit and the host computer is less than 2V.
- Qualified service personnel should avoid exposed electrical contacts inside the ET unit.
- Before removing the ET unit from its mounting or performing any other service to the unit, disconnect power to the unit.
- Provide adequate strain relief for all communications and power cables.

 **CAUTION**

To reduce the risks associated with fire and electrical shock that may result in personal injury or property damage:

- If the ET unit will be used in corrosive environments, it is the responsibility of the user to test and evaluate the unit in those environments. The ET unit, as shipped, has not been evaluated for use in corrosive environments and using it in such environments, without evaluation and testing, may lead to unsafe conditions.

 **CAUTION**

To reduce the risks associated with fire which, if not avoided, could result in property damage:

- Use only installation materials supplied. Use of materials other than those supplied may result in uneven mechanical loading and will invalidate the warranty.

 **CAUTION**

To reduce the risks associated with muscle strain which, if not avoided, may result in minor or moderate injury:

- Avoid using the ET unit for long periods of time without breaks.

 **CAUTION**

To reduce the risks associated with eye strain which, if not avoided, may result in minor or moderate injury:

- Use the ET unit where there is neither too much ambient light nor glare on the screen.






 **CAUTION**

To reduce the risks associated with environmental contamination which, if not avoided, may result in minor or moderate injury and/or cause property damage:

- Dispose of the ET unit according to applicable government regulations.

Safety labels

The following safety symbols appear on your 3M Dynapro industrial product and its packaging materials:

Symbol	Meaning
	Consult user instructions.
	Caution: Risk of electric shock.
	Caution: Item is susceptible to electrostatic discharge (ESD) damage if proper precautions are not taken.
 	Lifting hazard


Information importante sur la sécurité


Lire les renseignements de sécurité et les comprendre avant d'utiliser le terminal Dynapro ET 3170 de 3M. Suivre toutes les instructions indiquées sur le produit et décrites dans le présent manuel. Prêter une attention spéciale au mode d'emploi et aux avis de sécurité.


Utilisation

Le terminal Dynapro ET 3170 de 3M est conçu pour servir à l'exécution de fonctions au moyen d'un écran tactile dans les utilisations industrielles où le terminal est raccordé à un ordinateur hôte. Le terminal Dynapro ET 3170 n'est *pas* destiné à servir dans des endroits à risque. L'emploi du terminal dans des conditions qui excèdent les valeurs nominales prescrites entraîne l'annulation de la garantie et relève de la seule responsabilité de l'utilisateur. Le terminal Dynapro ET 3170 est un composant. Après l'installation du terminal, il faut procéder à la vérification de l'ensemble du système dont il fait partie afin d'en certifier l'étanchéité nominale et la conformité aux codes locaux de l'électricité.

Avis de sécurité

 DANGER
Pour réduire les risques d'explosion et d'incendie susceptibles, faute de précaution, de causer la mort, des blessures graves ou des dommages matériels :
<ul style="list-style-type: none">• Ne pas installer le terminal ET dans un endroit à risque.

 AVERTISSEMENT
Pour réduire les risques d'explosion et d'incendie susceptibles, faute de précaution, de causer la mort, des blessures graves ou des dommages matériels :
<ul style="list-style-type: none">• Prière de suivre les instructions et les recommandations prescrites par le fabricant de produits de nettoyage et d'en consulter la fiche toxicologique.• Ne pas utiliser de produits de nettoyage inflammables ou combustibles.

 AVERTISSEMENT
Pour réduire les risques d'incendie et d'électrocution susceptibles, faute de précaution, de causer la mort, des blessures graves ou des dommages matériels :
<ul style="list-style-type: none">• Prévoir l'installation du terminal ET en tenant compte de l'environnement de service (facteurs de température, de vibrations ou de chocs par exemple).• Installer le terminal ET près de la source d'alimentation afin de pouvoir le débrancher facilement et rapidement. Pour l'équipement branché en permanence, un dispositif de débranchement facile d'accès doit être incorporé au fixe câblage.• Suivre toutes les instructions d'installation du produit et des accessoires.• Tout entretien ou autre procédure qui n'est pas décrite dans ce manuel doit être réalisée seulement par le personnel du service de 3M Touch Systems.• Pour s'assurer du fonctionnement sécuritaire du terminal ET et de sa conformité aux codes de l'électricité, demander à un électricien compétent agréé familier avec les codes locaux et fédéraux d'en effectuer le câblage.• Lors du branchement à l'alimentation au moyen d'un dispositif de câblage à champ fixe, le câble d'alimentation doit comporter une double gaine isolante. Un isolant transparent et flexible (fourni) doit recouvrir la portion du câble ne comportant pas de double gaine isolante lors du branchement à un connecteur de bornier.

 **AVERTISSEMENT**

Pour réduire les risques d'incendie et d'électrocution susceptibles, faute de précaution, de causer la mort, des blessures graves ou des dommages matériels :

- Fournir une mise à terre fiable et propre.
- Lors de l'installation du terminal ET, veiller à ne pas dépasser les normes de câblage et de protection contre les surcharges du circuit d'alimentation.
- Équiper le terminal ET d'un joint NEMA 4X/IP66 efficace et en bon état.
- Ne pas utiliser un terminal ET incompatible avec la norme NEMA 4X/IP66 dans un milieu de service nécessitant l'emploi d'un joint conforme à cette norme.
- Pour remplacer un fusible ou un autre composant, utiliser une pièce de rechange de type et de capacité nominale prescrits par 3M Touch Systems.

 **AVERTISSEMENT**

Pour réduire les risques d'électrocution susceptibles, faute de précaution, de causer la mort, des blessures graves ou des dommages matériels :

- Ne pas ouvrir le bloc d'alimentation du terminal ET. Il contient des tensions dangereuses. Le bloc d'alimentation ne renferme aucune pièce ni aucun dispositif de réglage remplaçable par l'utilisateur.
- Veiller à ce que la tension de masse entre le terminal ET et l'ordinateur hôte soit inférieure à 2 volts.
- Le personnel d'entretien compétent doit éviter de toucher aux contacts électriques nus du terminal ET.
- Couper l'alimentation du terminal ET avant de le détacher de son dispositif de montage ou d'y effectuer une réparation quelconque.
- Équiper les câbles d'alimentation et de communication d'un réducteur de tension adéquat.

 **AVERTISSEMENT**

Pour réduire les risques d'incendie et d'électrocution susceptibles, faute de précaution, de causer des blessures ou des dommages matériels :

- Si le terminal ET doit servir dans une atmosphère corrosive, il incombe à l'utilisateur de le mettre à l'essai et d'en évaluer l'efficacité dans un tel milieu. Le terminal ET d'origine n'a pas fait l'objet d'une mise à l'essai en atmosphère corrosive et son emploi dans un tel milieu, sans évaluation ou essai préalable, risque de le rendre non sécuritaire.

 **AVERTISSEMENT**

Pour réduire les risques d'incendie susceptibles, faute de précaution, de causer des dommages matériels :

- Se servir exclusivement des matériaux d'installation fournis. L'emploi de matériaux autres que ceux fournis risque d'entraîner une charge mécanique inégale et d'annuler la garantie.

 **AVERTISSEMENT**

Pour réduire les risques de tension musculaire susceptibles, faute de précaution, de causer des blessures légères ou modérées :

- Éviter d'utiliser le terminal ET pendant de longues périodes de temps sans pause.

 **AVERTISSEMENT**

Pour réduire les risques de fatigue oculaire susceptibles, faute de précaution, de causer des blessures légères ou modérées :

- Utiliser le terminal ET là où la lumière ambiante ne produit aucun effet d'éblouissement à l'écran.





 **AVERTISSEMENT**

Pour réduire les risques de contamination environnementale susceptibles, faute de précaution, de causer des blessures légères ou modérées ou des dommages matériels :

- Mettre le terminal ET au rebut en suivant les règles gouvernementales en vigueur.

Étiquettes de sécurité

Les symboles de sécurité suivants apparaissent sur le produit industriel Dynapro de 3M et sur son emballage :

Symbole	Signification des symboles
	Consulter le mode d'emploi.
	Avertissement : Risque d'électrocution.
	Avertissement : À défaut de prendre des mesures de précaution appropriées, le produit risque de subir des dommages par suite de décharges électrostatiques.
	Risque associé au levage.

Belangrijke veiligheidsinformatie

Voordat de 3M Dynapro™ ET 3170 terminal wordt gebruikt, moet alle veiligheidsinformatie zijn gelezen en begrepen. Volg alle op het product aangegeven en in dit document beschreven instructies op. Besteed extra aandacht aan de verklaring betreffende het voorgenomen gebruik en de veiligheidskennisgevingen.

Voorgenomen gebruik

De 3M Dynapro™ ET 3170 terminal voorziet in functies op het aanraakscherm voor industriële toepassingen als de terminal is aangesloten op een hostcomputer. De ET 3170 terminal is *niet* bedoeld voor gebruik op gevaarlijke locaties. Gebruik van de terminal in omstandigheden die niet aan deze toegestane waarden voldoen, maakt de garantie ongeldig en is uitsluitend voor het risico en de verantwoordelijkheid van de gebruiker. De ET 3170 terminal is een component. Nadat de terminal is geïnstalleerd, moet het gehele systeem waarvan deze deel uitmaakt, worden gecontroleerd om na te gaan of aan alle afdichtingswaarden en lokale voorschriften betreffende elektriciteit is voldaan.

Veiligheidskennisgevingen

 GEVAAR
Neem het volgende in acht om de risico's van brand en explosies te reduceren die, indien deze niet worden voorkomen, ernstig letsel, de dood en/of schade aan eigendommen tot gevolg hebben:
<ul style="list-style-type: none">• Installeer of gebruik de ET-eenheid niet op een gevaarlijke locatie.

 WAARSCHUWING
Neem het volgende in acht om de risico's van brand en explosies te reduceren die, indien deze niet worden voorkomen, ernstig letsel, de dood en/of schade aan eigendommen tot gevolg kunnen hebben:
<ul style="list-style-type: none">• Raadpleeg het veiligheidsinformatieblad van de reinigingsfabrikant en volg de instructies en adviezen op.• Gebruik geen ontvlambare of brandbare reinigingsmiddelen.

WAARSCHUWING

Neem het volgende in acht om de risico's van elektrische schokken of brand te reduceren die, indien deze niet worden voorkomen, ernstig letsel, de dood en/of schade aan eigendommen tot gevolg kunnen hebben:

- Houd bij het plannen van de installatie van de ET-eenheid rekening met de werkconfiguratie (bijv. thermische factoren en factoren als schokken en vibratie).
- Installeer de ET-eenheid in de buurt van de voedingsbron zodat de eenheid snel en eenvoudig kan worden losgekoppeld. Voor permanente installaties moet er een gemakkelijk toegankelijke schakelaar in de vaste bedrading aanwezig zijn.
- Volg nauwkeurig de installatie-instructies van dit product en de eventuele accessoires op.
- Alle onderhoudswerkzaamheden die niet beschreven worden in deze handleiding, moeten uitsluitend worden uitgevoerd door 3M Touch Systems onderhoudspersoneel.
- Laat alle bedradingswerkzaamheden uitvoeren door een erkende, gerenommeerde elektricien die bekend is met de lokale en landelijke voorschriften om er zeker van te zijn dat aan alle voorschriften betreffende elektriciteit is voldaan en om een veilige werking van de ET-eenheid te garanderen.
- Als de voeding wordt aangesloten door middel van vaste veldbedrading moet de voedingskabel dubbel zijn geïsoleerd. Een schone en flexibele isolator (meegeleverd) moet het gedeelte waar de kabel niet volledig dubbel is geïsoleerd bedekken wanneer deze wordt aangesloten op een verbindingsstrip connector.

WAARSCHUWING

Neem het volgende in acht om de risico's van elektrische schokken of brand te reduceren die, indien deze niet worden voorkomen, ernstig letsel, de dood en/of schade aan eigendommen tot gevolg kunnen hebben:

- Zorg voor een schone en betrouwbare aardleiding.
- Zorg ervoor dat bij de installatie van de ET-eenheid de specificaties voor beveiliging tegen overbelasting en bedrading van het voedingscircuit niet worden overschreden.
- Installeer de ET-eenheid op juiste wijze met een onbeschadigde en effectieve NEMA 4X/IP66-pakking.
- Gebruik ET-eenheden die niet voldoen aan NEMA 4X/IP66 niet in omgevingen waarin een NEMA 4X/IP66-afdichting vereist is.
- Gebruik ter vervanging van zekeringen of andere onderdelen uitsluitend onderdelen van het type en met de toegestane waarde die door 3M Touch Systems zijn opgegeven.

WAARSCHUWING

Neem het volgende in acht om de risico's van elektrische schokken te reduceren die, indien deze niet worden voorkomen, ernstig letsel, de dood en/of schade aan eigendommen tot gevolg kunnen hebben:

- Maak de voedingsbron in de ET-eenheid niet open. Deze bevat een gevaarlijk voltage. De vermogensvoeding bevat geen onderdelen die aanpassing of onderhoud vergen door gebruikers.
- Zorg ervoor dat het verschil in aardpotentiaal tussen de ET-eenheid en de hostcomputer niet meer dan 2V bedraagt.
- De blootliggende elektrische contacten in de ET-eenheid mogen niet door gekwalificeerd onderhoudspersoneel worden aangeraakt.
- Voordat de ET-eenheid van de steun wordt verwijderd of er onderhoud aan de eenheid wordt uitgevoerd, moet de voeding van de eenheid worden losgekoppeld.
- Zorg voor voldoende trekbelasting voor alle stroom- en communicatiekabels.

VOORZICHTIG

Neem het volgende in acht om de risico's van brand en elektrische schokken te reduceren die persoonlijk letsel of schade aan eigendommen tot gevolg kunnen hebben:

- Als de ET-eenheid in een corrosieve omgeving wordt gebruikt, is het de verantwoordelijkheid van de gebruiker de eenheid in die omgeving te testen en onderzoeken. De ET-eenheid is bij verzending niet onderzocht op gebruik in corrosieve omgevingen en gebruik ervan in zulke omgevingen zonder tests en onderzoek kan leiden tot onveilige omstandigheden.

⚠ VOORZICHTIG

Neem het volgende in acht om de risico's van brand te reduceren die, indien deze niet worden voorkomen, schade aan eigendommen tot gevolg kunnen hebben:

- Gebruik alleen de meegeleverde installatiematerialen. Het gebruik van andere dan de meegeleverde materialen kan een onevenwichtige mechanische belasting tot gevolg hebben waardoor de garantie ongeldig wordt.

⚠ VOORZICHTIG

Neem het volgende in acht om de risico's van spierbelasting te reduceren die, indien deze niet worden voorkomen, licht tot middelzwaar letsel tot gevolg kunnen hebben:

- Gebruik de ET-eenheid niet langdurig zonder pauze te nemen.

⚠ VOORZICHTIG

Neem het volgende in acht om de risico's van asthenopie te reduceren die, indien deze niet worden voorkomen, licht tot middelzwaar letsel tot gevolg kunnen hebben:

- Gebruik de ET-eenheid niet in een omgeving met te veel omgevingslicht of reflecties op het scherm.





⚠ VOORZICHTIG

Neem het volgende in acht om de risico's van verontreiniging van de omgeving te reduceren die, indien deze niet worden voorkomen, licht tot middelzwaar letsel en/of schade aan eigendommen tot gevolg kunnen hebben:

- Voer de ET-eenheid af in overeenstemming met de van toepassing zijnde overheidsbepalingen.

Veiligheidslabels

De volgende veiligheidssymbolen staan op het industriële 3M Dynapro product en de verpakkingsmaterialen:

Symbool	Betekenis
	Raadpleeg de instructies voor de gebruiker.
	Waarschuwing: Risico van elektrische schokken
	Waarschuwing: Het item is gevoelig voor beschadiging door elektrostatische ontlading (ESD) als er geen goede voorzorgsmaatregelen worden genomen.
	Gevaarlijk om op te tillen

Wichtige Sicherheitshinweise

Bevor Sie das 3M Dynapro™ ET 3170 Terminal benutzen, müssen Sie alle Sicherheitshinweise gelesen und verstanden haben. Befolgen Sie alle am Produkt angebrachten und in diesem Dokument beschriebenen Anweisungen. Achten Sie insbesondere auf die Erklärung zum Einsatzbereich und die Sicherheitshinweise.

Einsatzbereiche

Das 3M Dynapro™ ET 3170 Terminal bietet Touch-Screen-Funktionen für industrielle Anwendungen, wenn das Terminal an einen Host-Computer angeschlossen ist. Das ET 3170 Terminal ist *nicht* für die Verwendung in gefährdeten Bereichen vorgesehen. Der Einsatz des Terminals unter Bedingungen außerhalb der Nenndaten macht die Garantie nichtig und erfolgt ausschließlich auf Gefahr und Verantwortung des Benutzers. Das ET 3170 Terminal ist eine Komponente. Nach Installation des Terminals muss das gesamte System, dessen Bestandteil das Terminal ist, untersucht werden, um die Dichtungsdaten und die Einhaltung örtlicher elektrischer Vorschriften zu überprüfen.

Sicherheitshinweise

GEFAHR!

Um Brand- und Explosionsgefahr mit schweren Verletzungs- oder Todesfolgen und/oder Sachschäden zu vermeiden:

- Das ET-Gerät nicht in gefährdeten Bereichen installieren bzw. benutzen.

WARNHINWEISE

Um Brand- und Explosionsgefahr mit möglichen schweren Verletzungs- oder Todesfolgen und/oder Sachschäden zu vermeiden:

- Angaben im Sicherheitsdatenblatt des Herstellers beachten und alle Anweisungen und Empfehlungen befolgen.
- Keine entflammbaren oder brennbaren Reiniger verwenden.

 **WARNHINWEISE**

Um Elektroschock- und Brandgefahr mit möglichen schweren Verletzungs- oder Todesfolgen und/oder Sachschäden zu vermeiden:

- Bei der Installation des ET-Geräts die Betriebsumgebung (z.B. thermische sowie Erschütterungs-/Vibrationsfaktoren) berücksichtigen.
- Das ET-Gerät in der Nähe der Stromquelle aufstellen, so dass das Gerät einfach und schnell von der Stromversorgung getrennt werden kann. Für Geräte mit dauerhaften elektrischen Anschlüssen ist ein gut zugänglicher Trennschalter in die elektrische Netzleitung einzubauen.
- Alle Montageanweisungen für das Produkt und Zubehör beachten.
- Wartungsarbeiten und andere nicht in diesem Handbuch beschriebene Prozeduren dürfen nur vom Servicepersonal von 3M Touch Systems ausgeführt werden.
- Um die Einhaltung örtlicher elektrischer Vorschriften sowie den sicheren Betrieb des ET-Geräts zu gewährleisten, sollte ein lizenziertes gelernter Elektriker, der sich mit den örtlichen und nationalen Vorschriften auskennt, die elektrische Installation vornehmen.
- Wenn die Stromversorgung über fest installierte Kabel geführt wird, müssen diese Kabel doppelt isoliert sein. Ein durchsichtiger und flexibler Isolator (mitgeliefert) muss beim Anschluss an die Klemmenleiste jeweils das nicht doppelt isolierte Kabelteil abdecken.

 **WARNHINWEISE**

Um Elektroschock- und Brandgefahr mit möglichen schweren Verletzungs- oder Todesfolgen und/oder Sachschäden zu vermeiden:

- Sorgen Sie für saubere und zuverlässige Erdung.
- Bei der Installation des ET-Geräts sicherstellen, dass die Spezifikationen für Überstromschutz des Speisestromkreises und Kabels nicht überschritten werden.
- Das ET-Gerät ordnungsgemäß mit einer unbeschädigten und wirksamen NEMA 4X/IP66-Dichtung installieren.
- Ein ET-Gerät, das nicht für NEMA 4X/IP66 ausgelegt ist, in nicht einer Umgebung einsetzen, die eine NEMA 4X/IP66-Dichtung erfordert.
- Beim Ersetzen einer Sicherung oder eines anderen Bauteils muss das Teil dem Typ und den Nenndaten entsprechen, die von 3M Touch Systems festgelegt wurden.

 **WARNHINWEISE**


Um Elektroschockgefahr mit möglichen schweren Verletzungs- oder Todesfolgen und/oder Sachschäden zu vermeiden:

- Netzteil im ET-Gerät nicht öffnen. Es liegen gefährliche Spannungen an. Das Netzteil enthält keine Teile oder Einstellungsmöglichkeiten, die von Benutzern gewartet werden können.
- Sicherstellen, dass der Massepotentialunterschied zwischen dem ET-Gerät und dem Host-Computer weniger als 2 V beträgt.
- Qualifizierte Servicetechniker sollten im Innern des ET-Geräts freiliegende elektrische Kontakte vermeiden.
- Vor der Demontage des ET-Geräts aus seiner Halterung bzw. vor Wartungsarbeiten am Gerät die Stromversorgung zum Gerät unterbrechen.
- Achten Sie auf geeignete Zugentlastung der Fernmeldekabel und Netzkabel.

 **VORSICHT**


Um Elektroschock- und Brandgefahr mit möglichen Verletzungsfolgen oder Sachschäden zu vermeiden:

- Wenn das ET-Gerät in korrosiven Umgebungen eingesetzt wird, obliegt es dem Benutzer, das Gerät in diesen Umgebungen zu testen und zu bewerten. Das ET-Gerät wurde nicht für den Einsatz in korrosiven Umgebungen bewertet. Daher kann der Einsatz in derartigen Umgebungen ohne vorherige Bewertung und Tests zu unsicheren Bedingungen führen.

 VORSICHT


Um Brandgefahr mit möglichen Sachschäden zu vermeiden:

- Nur das im Lieferumfang enthaltene Installationsmaterial verwenden. Die Verwendung von nicht im Lieferumfang enthaltenem Material kann zu einer ungleichmäßigen mechanischen Belastung führen und die Garantie nichtig machen.

 VORSICHT


Um Gefahren von Muskelüberlastungen mit möglichen leichten oder moderaten Verletzungsfolgen zu vermeiden:

- Das ET-Gerät nicht über einen längeren Zeitraum ohne Pausen verwenden.

 VORSICHT

Um Gefahren von Augenüberlastungen mit möglichen leichten oder moderaten Verletzungsfolgen zu vermeiden:

- Das ET-Gerät nicht in Umgebungen mit zu starkem Umgebungslicht bzw. Blendeffekten auf dem Bildschirm einsetzen.





 VORSICHT

Um die Gefahr der Umweltbelastung mit möglichen leichten oder moderaten Verletzungsfolgen und/oder Sachschäden zu vermeiden:

- Das ET-Gerät entsprechend den geltenden gesetzlichen Vorschriften entsorgen.

Sicherheitssymbole

Die folgenden Sicherheitssymbole sind auf Ihrem 3M Dynapro und dessen Verpackung abgebildet:

Symbole	Bedeutung der Symbole
	Lesen Sie bitte in der Bedienungsanleitung nach.
	Vorsicht: Elektroschockgefahr.
	Vorsicht: Wenn keine geeigneten Maßnahmen getroffen werden, kann dieses Gerät durch elektrostatische Entladung beschädigt werden.
	Verletzungsgefahr durch Heben


Importanti informazioni sulla sicurezza


Si prega di leggere ed assimilare bene tutte le norme di sicurezza prima di utilizzare il terminale Dynapro™ ET 3170 di 3M. Seguire tutte le istruzioni indicate sul prodotto e descritte nel presente documento. Si prega di leggere con particolare attenzione la dichiarazione relativa alla destinazione d'uso e le avvertenze di sicurezza.

Applicazioni d'impiego del prodotto

Il terminale Dynapro™ ET 3170 di 3M è destinato ad essere utilizzato come "touch screen" o schermo tattile per applicazioni industriali tramite il collegamento ad un host computer. Il terminale ET 3170 non può essere utilizzato in ambienti o postazioni pericolose. Qualora il terminale venisse utilizzato in condizioni diverse da quelle indicate nei valori ammessi, la relativa garanzia sarà nulla e l'utilizzo dell'apparecchiatura sarà ad esclusivo rischio e pericolo dell'utente. Il terminale ET 3170 è un componente. Una volta installato il terminale, occorrerà ispezionare l'intero sistema di cui esso fa parte al fine di confermare la taratura delle tenute e la conformità a tutte le norme in vigore localmente in materia di impianti elettrici.

Informazioni relative alla sicurezza

 PERICOLO
Per ridurre i rischi associati ad incendio ed esplosione che, se non evitati, possono causare la morte o il ferimento grave di persone e/o il danneggiamento di cose:
<ul style="list-style-type: none">• Non installare, né utilizzare il terminale ET in luoghi pericolosi.

 AVVERTENZA
Per ridurre i rischi associati ad incendio ed esplosione che, se non evitati, possono causare la morte o il ferimento grave di persone e/o il danneggiamento di cose:
<ul style="list-style-type: none">• Consultare le istruzioni per la sicurezza nell'uso dei materiali e seguire attentamente le istruzioni e i consigli del produttore.• Per la pulizia non utilizzare prodotti infiammabili o combustibili.

 **AVVERTENZA**

Per ridurre i rischi associati ad incendio ed esplosione che, se non evitati, possono causare la morte o il ferimento grave di persone e/o il danneggiamento di cose:

- Programmare l'installazione dell'unità ET tenendo conto dell'ambiente in cui verrà utilizzato (condizioni termiche, possibili rischi di urto/vibrazione).
- Installare l'unità ET vicino ad una fonte di alimentazione, in modo da poterlo scollegare agevolmente. Per i dispositivi collegati in modo permanente, installare un dispositivo di scollegamento di facile accesso e incorporato nei cavi di alimentazione.
- Seguire tutte le istruzioni per l'installazione del prodotto e dei suoi accessori.
- Per operazioni di manutenzione o altre procedure non descritte in questo manuale, rivolgersi solo a personale di assistenza 3M Touch Systems.
- Per garantire la conformità alle norme vigenti in materia di impianti elettrici e ai requisiti di sicurezza per il funzionamento dell'unità ET, far eseguire tutte le operazioni di cablaggio da un elettricista qualificato e munito di licenza che conosca bene le leggi locali e nazionali.
- Munire il cavo di alimentazione di doppio isolamento mentre si collegano i cavi fissi di campo alla fonte di energia elettrica. Il segmento di cavo utilizzato per il collegamento a un terminale a morsetti deve essere dotato di un isolatore flessibile e trasparente (in dotazione) che deve coprire la porzione di cavo priva di doppio isolamento.

 **AVVERTENZA**

Per ridurre i rischi associati ad incendio ed esplosione che, se non evitati, possono causare la morte o il ferimento grave di persone e/o il danneggiamento di cose:

- Installare una messa a terra sicura e affidabile.
- Durante l'installazione dell'unità ET fare attenzione a non superare i valori indicati nelle specifiche per i cablaggi e la protezione dalla sovracorrente nel circuito di alimentazione.
- Installare l'unità ET in modo idoneo, con una guarnizione 4X/IP66 NEMA che sia integra ed efficace.
- Non utilizzare apparecchi ET che non siano tarati ai valori 4X/IP66 NEMA in un ambiente in cui si necessita di una guarnizione 4X/IP66 NEMA.
- Quando occorre sostituire un fusibile o altro componente, usare parti di ricambio del tipo e classificazione indicati per i Sistemi 3M Touch.

 **AVVERTENZA**

Per ridurre i rischi associati a scossa elettrica che, se non evitati, possono causare la morte o il ferimento grave di persone e/o il danneggiamento di cose:

- Non aprire l'alimentatore dell'unità ET. Esso contiene parti sotto tensione elevata. L'alimentatore non contiene parti che richiedono manutenzione o regolazione da parte degli utenti.
- Assicurarci che la differenza di potenziale della massa tra l'unità ET e l'host computer sia inferiore a 2V.
- Il personale qualificato addetto alla manutenzione eviterà di lasciare contatti elettrici esposti all'interno dell'unità ET.
- Prima di staccare l'unità ET dalla propria base o di eseguire qualsiasi altra operazione di manutenzione alla stessa, scollegare l'alimentazione elettrica.
- Evitare di sottoporre i cavi per l'alimentazione e per i segnali a sforzi meccanici.

 **ATTENZIONE**

Per ridurre i rischi associati ad incendio e scossa elettrica che possono ferire e danneggiare cose e persone:

- Se l'unità ET è destinata all'uso in ambienti esposti a corrosione, l'utente è tenuto a testarla e valutarla in relazione alle condizioni previste di utilizzo. Nelle condizioni di spedizione, l'unità ET non è stata sottoposta a valutazione per l'utilizzo in ambienti esposti a corrosione; pertanto, il suo utilizzo in tali ambienti senza le idonee prove e valutazioni preventive può non essere sicuro.

⚠ ATTENZIONE

Per ridurre i rischi associati ad incendio che, se non evitati, possono causare il danneggiamento delle apparecchiature:

- Per l'installazione usare esclusivamente i materiali forniti. L'utilizzo di materiali diversi da quelli forniti può creare condizioni di carico meccanico irregolari e rende nulla la garanzia.

⚠ ATTENZIONE

Per ridurre i rischi associati a sforzo muscolare che, se non evitati, possono causare danni lievi o moderati alla salute:

- Evitare di usare l'unità ET per lunghi periodi di tempo senza interruzioni.

⚠ ATTENZIONE

Per ridurre i rischi associati a sforzo oculare che, se non evitati, possono causare danni lievi o moderati alla salute:

- Usare l'unità ET in ambienti non troppo illuminati o dove non vi sia riverbero sullo schermo.





⚠ ATTENZIONE

Per ridurre i rischi associati ad inquinamento dell'ambiente che, se non evitati, possono causare danni lievi o moderati alla salute e/o danneggiare le apparecchiature:

- Smaltire l'unità ET secondo le vigenti norme locali.

Etichette di sicurezza

Sul vostro prodotto industriale Dynapro 3M e sul relativo materiale da imballaggio saranno esposti i seguenti simboli:

Simboli	Significato dei simboli
	Consultare le istruzioni per l'utente
	Attenzione: rischio di scossa elettrica
	Attenzione: la mancata osservanza delle norme di sicurezza consigliate può rendere l'articolo soggetto a danni dovuti a scarica elettrostatica.
	Attenzione ai rischi durante le operazioni di sollevamento


Información importante de seguridad


Lea y comprenda la información completa de seguridad antes de utilizar la Terminal 3M Dynapro™ ET 3170. Siga las instrucciones marcadas en el producto y que se describen en este documento. Preste mucha atención a la indicación sobre el propósito del producto y los avisos de seguridad.


Propósito

El propósito de la Terminal 3M Dynapro™ ET 3170 es proporcionar funciones de pantalla de tacto para aplicaciones industriales cuando ésta se conecta a la computadora host. La Terminal ET 3170 no fue diseñada para utilizarse en lugares peligrosos. El uso de la terminal en condiciones que superen estos valores, anulará la garantía y será riesgo y responsabilidad exclusivamente del usuario. La Terminal ET 3170 es un componente. Después de instalar la terminal, el sistema completo, del cual forma parte, se debe inspeccionar para confirmar las frecuencias del sello y el cumplimiento con todos los códigos locales de electricidad.

Avisos de seguridad

 PELIGRO
Para reducir los riesgos asociados con incendios y explosión, los cuales, si no se evitan, pueden ocasionar la muerte o serias lesiones o daños a la propiedad:
<ul style="list-style-type: none">• No instale o utilice la unidad ET en un lugar peligroso.

 ADVERTENCIA
Para reducir los riesgos asociados con incendios y explosión, los cuales, si no se evitan, pueden ocasionar la muerte o serias lesiones o daños a la propiedad:
<ul style="list-style-type: none">• Consulte la Ficha técnica sobre seguridad de materiales del fabricante y siga todas las instrucciones y recomendaciones.• No utilice limpiadores inflamables o combustibles.

 ADVERTENCIA
Para reducir los riesgos asociados con choque eléctrico o incendios, los cuales, si no se evitan, pueden ocasionar la muerte o serias lesiones o daños a la propiedad:
<ul style="list-style-type: none">• Realice ingeniería en la instalación de la unidad ET para tomar en cuenta el ambiente de funcionamiento (p. Ej., factores térmicos, choque/vibración).• Instale la unidad ET cerca de la fuente de alimentación de manera que la unidad se pueda desconectar fácil y rápidamente. Para el equipo conectado de manera permanente, habrá que incorporar al cableado fijo un dispositivo de desconexión de rápido acceso.• Siga todas las instrucciones de instalación del producto y sus accesorios.• Todo procedimiento de mantenimiento o de otro tipo no descrito en este manual deberá ser realizado, exclusivamente, por el personal de mantenimiento de 3M Touch Systems.• Para asegurar el cumplimiento con los códigos de electricidad y funcionamiento seguro de la unidad ET, contrate a un electricista conocido con códigos locales y federales para realizar todas las tareas de cableado.• Cuando conecte la alimentación con el cableado fijo de campo, el cable de alimentación debe ser de doble aislamiento. Un aislante transparente y flexible (que se provee con el equipo) debe cubrir la porción del cable que no tiene aislamiento doble cuando se conecte al conector de regletas terminales.

 **ADVERTENCIA**

Para reducir los riesgos asociados con choque eléctrico o incendios, los cuales, si no se evitan, pueden ocasionar la muerte o serias lesiones o daños a la propiedad:

- Proporcione una tierra limpia y confiable.
- Cuando instale la unidad ET, asegúrese de no exceder las especificaciones para suministrar protección por sobrecorriente al circuito y cableado.
- Instale adecuadamente la unidad ET con una junta NEMA 4X/IP66 que no tenga daños y funcione.
- No utilice una unidad ET que no esté clasificada de acuerdo con NEMA 4X/IP66 en un ambiente que requiera un sello NEMA 4X/IP66.
- Cuando reemplace un fusible de otra pieza, utilice una parte del tipo y clasificación especificadas por 3M Touch Systems.

 **ADVERTENCIA**

Para reducir los riesgos asociados con choque eléctrico, los cuales, si no se evitan, pueden ocasionar la muerte o serias lesiones o daños a la propiedad:

- No abra la fuente de alimentación en la unidad ET. Contiene tensiones peligrosas. La fuente de alimentación no cuenta en su interior con partes o ajustes atendibles por el usuario.
- Asegúrese de que la diferencia potencial de tierra entre la unidad ET y la computadora host sea menor a 2V.
- El personal calificado de servicio debe evitar los contactos eléctricos expuestos dentro de la unidad ET.
- Antes de retirar la unidad ET de su montaje o de realizar cualquier tipo de servicio a la unidad, desconecte la alimentación de la unidad.
- Proporcione la protección adecuada para todos los cables de comunicación y alimentación.

 **PRECAUCIÓN**

Para reducir los riesgos asociados con incendios y choques eléctricos, que pueden ocasionar lesiones personales o daños a la propiedad:

- Si la unidad ET se utilizará en ambientes corrosivos, es responsabilidad del usuario hacer pruebas y evaluar la unidad en dichos ambientes. La unidad ET, como se envía, no se ha evaluado para el uso en ambientes corrosivos y su uso en tales ambientes, sin evaluación y pruebas, puede conducir a condiciones inseguras.

 **PRECAUCIÓN**

Para reducir los riesgos asociados con incendios, los cuales, si no se evitan, pueden ocasionar daños a la propiedad:

- Utilice solamente los materiales de instalación que se proporcionan. El uso de materiales diferentes a los proporcionados puede ocasionar una carga mecánica irregular, lo cual anulará la garantía.

 **PRECAUCIÓN**

Para reducir los riesgos asociados con tensión muscular, la cual, si no se evita, puede ocasionar lesiones menores o moderadas:

- Evite utilizar la unidad ET por periodos de tiempo prolongados sin recesos.

 **PRECAUCIÓN**

Para reducir los riesgos asociados con tensión ocular, la cual si no se evita, puede ocasionar lesiones menores o moderadas:

- Utilice la unidad ET donde no existe demasiada iluminación ambiental o deslumbrante en la pantalla.





 **PRECAUCIÓN**

Para reducir los riesgos asociados con contaminación ambiental, la cual, si no se evita, puede ocasionar lesiones menores o moderadas u ocasionar daños a la propiedad:

- Deseche la unidad ET de acuerdo con la reglamentación gubernamental que aplique.

Etiquetas de seguridad

Los siguientes símbolos de seguridad aparecen en el producto industrial y en los materiales de empaque de 3M Dynapro:

Símbolo	Significado de los símbolos
	Consulte las instrucciones para el usuario.
	Precaución: Riesgo de choque eléctrico.
	Precaución: El artículo es susceptible a daño por descarga electrostática (ESD), si no se toman las precauciones adecuadas.
	Riesgos por levantar

重要安全信息

在使用 3M Dynapro™ ET 3170 Terminal 之前，请阅读并理解所有安全信息。请按照产品上和本文中标记的使用说明进行操作。应特别注意用途和安全事项的声明。

用途

连接到主机后，3M Dynapro™ ET 3170 Terminal 可以为各种工业应用提供触摸屏功能。ET 3170 Terminal 不能在危险场合中使用。如在超过规定的条件下使用本终端，保修将失效，且用户须自行承担风险和责任。ET 3170 Terminal 是一个组件。安装了本终端之后，必须对安装了本终端的整个系统进行检查，以确保绝缘等级和一致性符合当地的所有电力规范。

安全事项

危险

尽可能避免因火灾和爆炸而引起人身伤亡和 / 或财产损失：

- 请勿在危险场合中安装或使用 ET 设备。

警告

尽可能避免因火灾和爆炸而引起人身伤亡和 / 或财产损失：

- 请参阅清洁剂制造商的材料安全数据单，并遵从所有的说明和建议。
- 请勿使用可燃或易燃的清洁剂。

警告

尽可能避免因火灾和爆炸而引起人身伤亡和 / 或财产损失：

- 当安装 ET 设备时，应考虑操作环境（例如温度、冲击 / 震动因素）。
- 请将 ET 设备安装在靠近电源的位置，以便能够快速、方便地断开本设备的电源。若要将设备与电源永久性地连接，则在配线时必须安装一个便于操作的开关装置。
- 请遵从所有产品和配件的安装说明。
- 任何维修工作或其他在本指南中没有说明的操作只能由 3M Touch Systems 维修人员进行。
- 为确保 ET 设备的安全操作符合电力规范，最好请已获得许可、而且熟悉当地规范和国家标准电工来完成所有配线工作。
- 当使用固定的屏蔽线连接电源时，必须使用双层绝缘的电源线。对于在连接到接线板插孔时出现的没有双层绝缘的电缆部分，必须用干净、柔韧的绝缘带（已提供）将其缠住。

 **警告**

尽可能避免因触电或火灾而引起人身伤亡和 / 或财产损失:

- 应提供完全、可靠的接地。
- 当安装 ET 设备时, 注意不要超出电源电路过电流保护和配线规范。
- 请使用无破损、有效的 NEMA 4X/IP66 垫圈来正确安装 ET 设备。
- 如果需要使用 NEMA 4X/IP66 绝缘层, 但 ET 设备不符合 NEMA 4X/IP66 规范, 请勿使用该 ET 设备。
- 当更换其他部件的保险丝时, 请使用符合 3M Touch Systems 指定类型和规范部件。

 **警告**


尽可能避免因触电而引起人身伤亡和 / 或财产损失:

- 请勿打开 ET 设备中的电源。它带有很高的危险电压。电源中没有需要用户维修或调节的零件。
- ET 设备和主机之间的接地电位差一定要小于 2V。
- 合格的维修人员应避免将 ET 设备内的电接触暴露。
- 从支架上取下 ET 设备或对该设备执行任何其他维修操作之前, 请断开设备电源。
- 确保所有通信连线和电源线缆留有适当的长度余量。

 **小心**

尽可能避免因火灾和触电而引起人身伤亡或财产损失:

- 如果在易腐蚀的环境下使用 ET 设备, 用户须负责在此种情况下测试和评估本设备。在出厂时, 本 ET 设备尚未针对腐蚀性环境进行过评估, 因此如果不经评估和测试即在此种环境下使用本设备, 可能会产生危险。

 **小心**


尽可能避免因火灾而引起财产损失:

- 请只使用提供的安装材料。使用的材料若非提供的材料, 可能会导致不均匀的机械负载, 并会使保修失效。

 **小心**


尽可能避免因肌肉劳损而引起轻度或中度人身伤害:

- 避免连续长时间使用 ET 设备。

 **小心**

尽可能避免因眼睛劳损而引起轻度或中度人身伤害:

- 使用 ET 设备时, 环境光不应过多, 屏幕也不应刺眼。

 **小心**

尽可能避免因环境污染而引起轻度或中度人身伤害和 / 或财产损失:

- 请根据适当的政府规定处理 ET 设备。

安全标志

下列安全符号出现在您的 3M Dynapro 工业产品及其包装材料上：

符号	意义
	请参阅用户说明书。
	小心：有触电危险
	小心：如果不事先采取适当的预防措施，可能会出现静电释放 (ESD) 现象。
	提升危险

Contents

Before you start	About the User's Installation Guide.....	1
	About this guide.....	1
	Related documents.....	2
	3M Touch Systems support services	3
Chapter 1	Introducing the ET 3170 terminal.....	5
	Introducing the terminal	5
	Features.....	5
	Configuration overview	6
Chapter 2	Unpacking the terminal.....	7
	Unpacking the terminal	7
Chapter 3	Installing the terminal	9
	Typical installation	9
	Connectors	11
	Connecting a serial device	12
	Connecting a keyboard (optional)	13
	Connecting AC power	14
Chapter 4	Mounting	17
	About this chapter.....	17
	Overview	17
	Guidelines.....	17
	Standard mounting methods	19
	Optional mounting methods	21
Chapter 5	Configuring	25
	Power On Self-Test (POST).....	25
	Introducing the Setup screen	25
	Changing and saving Setup parameters.....	29
	Parameters	30
	How to test the touch control screen	39
Chapter 6	Maintaining.....	49
	About this chapter.....	49
	Cleaning.....	49
	Replacing backlights.....	50
	Replacing the fuse	50
	Checking gaskets	51
Chapter 7	Troubleshooting	53
	About this chapter.....	53
	Troubleshooting strategies.....	53
Appendix A	Specifications and certifications	55
Appendix B	Request Identification Command.....	63
Appendix C	Terms and acronyms	65

List of Tables

Table A: COM A RS-232 connector pin-out	12
Table B: COM A RS-422 connector pin-out (full duplex)	13
Table C: COM A RS-485 connector pin-out (half duplex)	13
Table D: Keyboard connector pin-out	14
Table E: Touch key functions: Direct Action Area	27
Table F: Default values of Setup parameters	30
Table G: National Replacement Code Characters	32
Table H: Touch Control Screen Parity Settings	36
Table I: Effects of New Line Parameter on characters sent to host	38
Table J: Effects of New Line Parameter on characters sent from host	38
Table K: Tests available from the Test screen pages	40

List of Figures

Figure 1: Enclosure dimensions	7
Figure 2: Terminal connectors.....	11
Figure 3: Connecting power: AC power cable with IEC connector.....	15
Figure 4: Connecting AC power cable wires to connectors	16
Figure 5: Connecting AC power: Fixed field wiring.....	16
Figure 6: Security screw locations.....	18
Figure 7: Screw hole locations	19
Figure 8: Side view: Panel cutout mount (without seal)	20
Figure 9: Side view: NEMA panel gasket mount.....	21
Figure 10: NEMA 4X hatch and extended hatch	22
Figure 11: Rack adapter.....	22
Figure 12: Desktop stand.....	23
Figure 13: Terminal with boom mount coupling.....	23
Figure 14: Boom (or post) mount hatch and gasket	24
Figure 15: Location of Setup Switch.....	26
Figure 16: Setup screen	27
Figure 17: Test screen: First page.....	40
Figure 18: Test screen: Second page	41
Figure 19: Touch Panel Integrity Test screen.....	42
Figure 20: Keyboard Test screen (example).....	44
Figure 21: Stored Screens Test screen.....	45
Figure 22: Static ASCII Character Font Test screen	47
Figure 23: Static Special Character Font Test screen.....	48
Figure 24: Components	55
Figure 25: Enclosure dimensions	56

BEFORE YOU START

About the User's Installation Guide

About this guide

Who should read this guide

The 3M Dynapro™ *ET 3170 Terminal User's Installation Guide* is a resource for the installation and use of the 3M Dynapro ET 3170 terminal (Series B).

This guide is intended to be used by:

- People using the terminal on a day-to-day basis.
- System integrators installing the terminal.



WARNING

To reduce the risks associated with electrical shock or fire which, if not avoided, could result in death or serious injury and/or property damage:

- Follow all product and accessory installation instructions.
- Any servicing or other procedures not described in this document are to be performed only by 3M Touch Systems service personnel.

If you have an earlier version of the terminal

If the label on your unit indicates that it is a Series A terminal, you have an earlier version of the product and you should refer to the 3M Dynapro *ErgoTouch 3170 TCS Terminal Installation Guide* (document 11754). This document may be downloaded from www.3Mtouch.com.

What is included

Here is a summary of topics covered in the manual:

For information on:	Refer to:
Features	Chapter 1
Unpacking	Chapter 2
Making connections	Chapter 3
Mounting	Chapter 4
Configuring (using the Setup screen)	Chapter 5
Cleaning	Chapter 6
Troubleshooting	Chapter 7
Specifications	Appendix A
Technical support and customer service	This chapter

Related documents

There are other documents that provide additional information on the terminal.

Service guide

For qualified service personnel only, the *ET 3170 Terminal Service Guide* explains service and maintenance procedures for the terminal. The Service Guide is located in the tabbed section at the back of this book.

Mounting instructions

The following installation instructions documents come with the optional mounting kits available for the terminal (and are also available for download at www.3Mtouch.com):

- *Installing the NEMA 4X hatch*
- *Installing the NEMA 4X panel gasket**
- *Installing the desktop stand*
- *Installing the rack mount*
- *Installing the boom mount*

*Note: The terminal ships with the NEMA 4X Panel Gasket Kit and includes panel gasket installation instructions.

Application developer's guide

An application developer's guide is available for reference and download at www.3Mtouch.com.

3M Touch Systems support services

3M Touch Systems provides extensive support services through our web site and technical support organization. Visit www.3Mtouch.com, to download touch screen software and drivers, obtain regularly updated technical documentation on 3M Touch Systems products, and learn more about our company.

Whenever you contact Technical Support, please provide the ET unit's part number and serial number.

Customer and technical support for 3M Dynapro products

Technical Support for 3M Dynapro products is available Monday through Friday from 7:30 a.m. to 4:00 p.m., Pacific Time. To contact customer service and technical support for 3M Dynapro products, refer to the following table:

Area	Contact information
USA and Canada	General information Tel 800-667-0374 (toll free); Fax 604-521-4629 E-mail etsales@mmm.com Web site www.3Mtouch.com
	Customer service Tel 800-667-0374 (toll free); Fax 604-521-4629 E-mail 3MTScustomerservice@mmm.com
	Technical support Tel 800-667-0374 (toll free); Fax 604-521-4629 E-mail 3Mdynaprotechsupport@mmm.com
Outside USA and Canada	General information Tel 604-521-3962; Fax 604-521-4629 E-mail etsales@mmm.com
	Customer service Tel 800-667-0374; Fax 604-521-4629 E-mail 3MTScustomerservice@mmm.com
	Technical support Tel 604-521-3962; Fax 604-521-4629 E-mail 3Mdynaprotechsupport@mmm.com

Returning products

All returned 3M Dynapro industrial products must be accompanied by a Return Authorization number. For details, contact Customer Service at 3M Touch Systems.

3M Touch Systems Worldwide Offices

All offices can be reached through the web site: www.3Mtouch.com.

Country	Telephone
United Kingdom	978-659-9000
United States	978-659-9000
Australia	+61 395-82-4799
Canada	604-521-3962
France	+33 (1) 45-13-90-30
Germany	+49 (0) 211-59907-0
Hong Kong/China	(852) 2333-6138
Italy	+39 (0) 39-230-2230
Japan	+81 (4) 4811-1133
Korea	+822 552 3198
Singapore	+65-96279173
Spain	+34 934-15-6285
Taiwan	+886-2-2704-9011

CHAPTER 1

Introducing the ET 3170 terminal

About this chapter

This chapter provides an overview of the 3M Dynapro™ ET 3170 terminal (Series B), including:

- Features of the terminal.
- Options available for configuring (customizing) the terminal for your application.

Introducing the terminal

The terminal is a small, lightweight, ergonomically-designed and environmentally-sealed unit built for continuous use in harsh industrial environments. It offers the latest in flat-panel display technology. Dimension drawings, specifications, and certifications appear in Appendix A.

Important

If the label on your unit indicates that it is a Series A terminal, see "If you have an earlier version of the terminal" on page 1.

Features

Display

The terminal uses a 10.4-inch Liquid Crystal Display (LCD) with a Thin Film Transistor (TFT). Resolution is 640 by 480 pixels, Video Graphics Array (VGA).

MicroTouch™ Near Field Imaging™ touch screen

The MicroTouch Near Field Imaging (NFI) touch screen provides greater accuracy and clearer optics than other touch screens. It calculates touches electronically by measuring disturbances in an electrostatic field near the screen's surface.

The NFI touch screen is durable (constructed of glass), reliable, and can be operated with industrial gloves. It normally will maintain touch accuracy, even across temperature and humidity variations that can affect other touch screen technologies.

Communications

The following communication connectors are at the rear of the terminal.

- RS-232/RS-422/RS-485 serial port
- Standard 101-key interface with an industry-standard AT-type keyboard connector

Power supply

The power supply is AC with the following voltage and frequency requirements:

- Voltage: 115 to 230 VAC, autoranging
- Frequency: 50 to 60 Hz

The backlight and extending its life

The typical life expectancy of the backlight is 50,000 hours. A Backlight Replacement Kit (including instructions) is available from 3M Touch Systems.

You can extend the life of the display and backlight by setting them to turn off automatically after 30 minutes of inactivity. For instructions, see “Display Activity” on page 31.

Configuration overview

The terminal settings can be configured to suit your application. Here are two ways you might choose to do so:

- By accessing a “hidden” Setup switch, using the TouchSurround.
- By opening the Setup screen, an interactive feature to help you set the operating parameters of the terminal. Parameters are tailored to the user’s preference, including cursor type and background.

For details on these and other configuring options, refer to Chapter 5.

CHAPTER 2

Unpacking the terminal

Unpacking the terminal

The following items ship with all terminals. If you ordered options, check the contents label on the box to be sure they are included.

- ET 3170 terminal

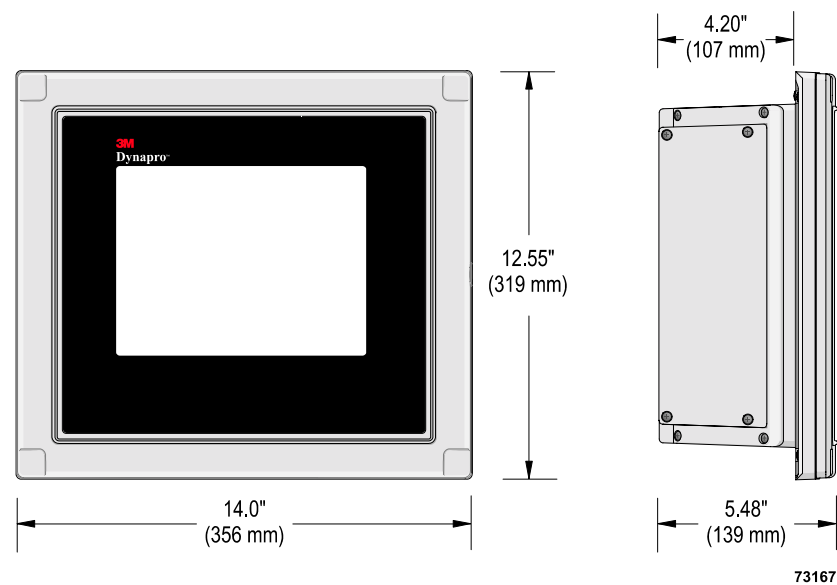


Figure 1: Enclosure dimensions

- *ET 3170 User's Installation Guide and Service Guide* (two guides in a single book — this book).

Important

The information in the Service Guide is intended only for qualified service personnel.

- NEMA 4X Panel Gasket Kit (including panel gasket installation instructions)
- Full-scale cutout template
- Panel mount screws (24 screws; two sizes, 12 of each)
- AC power cable (standard cable suitable for North American applications)

CHAPTER 3

Installing the terminal

About this chapter

This chapter outlines:

- How to do a typical installation of the ET 3170 terminal
- How to connect a serial device
- How to connect a keyboard
- How to connect AC power

Typical installation

This section explains how to do a quick, pre-installation check of the terminal and then outlines the steps of a typical installation procedure.

While most installations will follow these steps, your installation may differ. Read and understand the steps below and then decide whether you need to modify the steps to suit your application before beginning to install the terminal.

Pre-installation check

Before fully installing the terminal, run the following quick check to make sure that the terminal is functioning properly:

1. Attach power to the terminal using the AC power cable supplied (Figure 2).
2. Turn on power at the source and verify that the terminal powers up.

Upon power-up, the terminal should enter a Power On Self-Test (POST) mode and run several internal tests for a few seconds. When the tests are completed successfully, the terminal application starts and **Self-tests OK** appears on the screen

3. To check that the touch screen is functioning, press **Self-tests OK** once.

A blinking cursor should appear in the top left corner of the display.

4. If the unit performs as described, disconnect power and proceed with the “Summary of installation steps” below. If you encountered any problems during the pre-installation check, refer to Chapter 7, “Troubleshooting”. If problems persist, contact 3M Touch Systems Technical Support.

Summary of installation steps

1. Decide where you want to install the terminal. For guidelines on locating the terminal, see “Guidelines” on page 17.

DANGER

To reduce the risks associated with fire and explosion which, if not avoided, will cause death or serious injury and/or property damage:

- Do not install or use the ET unit in a hazardous location.

WARNING

To reduce the risks associated with electrical shock or fire which, if not avoided, could result in death or serious injury and/or property damage:

- Install the ET unit close to the power source so power to the ET unit can be removed quickly and easily. For permanently connected equipment, a readily accessible disconnect device must be incorporated into the fixed wiring.
- Engineer the installation of the ET unit to take into account the operating environment (e.g., thermal, shock/vibration factors).

CAUTION

To reduce the risks associated with fire and electrical shock that may result in personal injury or property damage:

- If the ET unit will be used in corrosive environments, it is the responsibility of the user to test and evaluate the unit in those environments. The ET unit, as shipped, has not been evaluated for use in corrosive environments and using it in such environments, without evaluation and testing, may lead to unsafe conditions.

2. Determine what communication devices you will be using.

If standard off-the-shelf cables are not adequate, construct any cables needed to make your communication connections.

WARNING

To reduce the risks associated with electrical shock or fire which, if not avoided, could result in death or serious injury and/or property damage:

- To ensure compliance with electrical codes and safe operation of the ET unit, have a licensed journeyman electrician familiar with local codes perform all wiring tasks.
- Before removing the ET unit from its mounting or performing any other service to the unit, disconnect power to the unit.

3. Connect the communication cables to the devices.

4. Attach the communication cables to the terminal.

WARNING

To reduce the risks associated with electrical shock or fire which, if not avoided, could result in death or serious injury and/or property damage:

- Provide adequate strain relief for all communications and power cables.

5. Connect power to the power source.

⚠ WARNING

To reduce the risks associated with electrical shock or fire which, if not avoided, could result in death or serious injury and/or property damage:

- When connecting power with fixed field wiring, the power cable must be double insulated. A clear, flexible insulator (supplied) must cover the portion of the cable that is not double insulated when connecting to a terminal strip connector.

⚠ WARNING

To reduce the risks associated with fire and explosion which, if not avoided, could result in death or serious injury and/or property damage:

- Provide a clean, reliable grounding.
- Make sure that the ground potential difference between the ET unit and the host computer is less than 2V.

6. Mount the terminal in its final location (for details on mounting, see Chapter 4).

Connectors

Communication and power connections are at the back of the terminal.

You can use standard cables for all connections, except for the RS-422/485 connection through the communication port. Connector pin-outs are provided in this section if you choose to make your own cables.

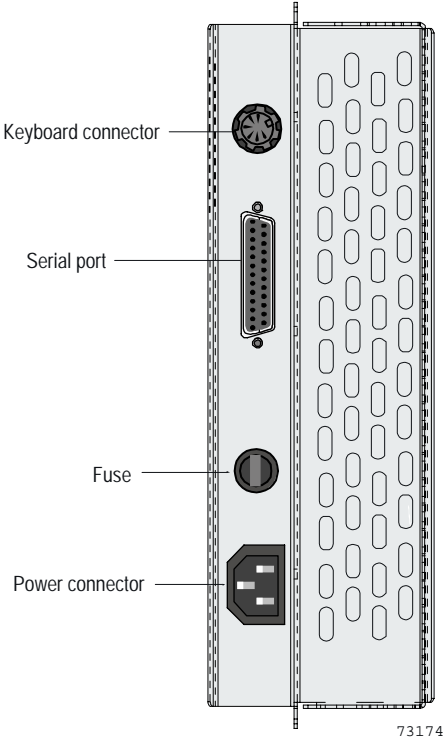


Figure 2: Terminal connectors

Connecting a serial device

The terminal has one asynchronous serial port that can be used to connect to your host system. This port is 16550 UART-based and can transmit data at speeds up to 19,200 baud.

Communication port

The communications port is a 25-pin, male D-connector that is capable of either RS-232 or RS-422/485 communication. The factory default is RS-232.

For instructions on configuring this port for RS-422 or RS-485 communications, see Chapter 2 of the *ET 3170 Terminal Service Guide* (at the back of this book).

WARNING

To reduce the risks associated with electrical shock or fire which, if not avoided, could result in death or serious injury and/or property damage:

- To ensure compliance with electrical codes and safe operation of the ET unit, have a licensed journeyman electrician familiar with local codes perform all wiring tasks.

RS-232 communication

For RS-232 communication, use a conventional cable or make a cable using the pin-out in Table A. The maximum cable length is 50 feet.

Table A: COM A RS-232 connector pin-out

Pin	Signal	Description	In/Out
1	CGND	Shield Ground ¹	---
2	TXD	Transmit Data	OUT
3	RXD	Receive Data	IN
4	RTS	Request To Send	OUT
5	CTS	Clear To Send	IN
6	DSR	Data Set Ready	IN
7	SGND	Signal Ground	---
8	DCD	Data Carrier Detect	IN
20	DTR	Data Terminal Ready	OUT
22	RI	Ring Indicator	IN

¹Connect only one end of the cable to shield ground.

RS-422 communication

For RS-422 communications, make a cable using the pin-out in Table B. For maximum cable length, refer to the EIA RS-422 Specification Standard.

Table B: COM A RS-422 connector pin-out (full duplex)

Pin	Signal	Description	In/Out
1	GND	Shield Ground ¹	---
9	TX+	Balanced Transmit data +	OUT
10	TX-	Balanced Transmit data -	OUT
14	RX+	Balanced Receive data +	IN
15	RX-	Balanced Receive data -	IN

¹Connect only one end of the cable to shield ground.

RS-485 communication

For RS-485 communication, make a cable using the pin-out in Table C. For maximum cable length, refer to the EIA RS-485 Specification Standard.

Table C: COM A RS-485 connector pin-out (half duplex)

Pin	Signal	Description	In/Out
1	GND	Shield Ground ¹	---
9	TX/ RX +	Balanced Transmit data + Connect to pin 14	IN/ OUT
10	TX/ RX -	Balanced Transmit data - Connect to pin 15	IN/ OUT
14	TX/ RX+	Balanced Receive data + Connect to pin 9	IN/ OUT
15	TX/ RX-	Balanced Receive data - Connect to pin 10	IN/ OUT

¹Connect only one end of the cable to shield ground.

Connecting a keyboard (optional)

The terminal provides all the functionality you need to use your touch screen without an input device such as a keyboard.

However, if you want to use a keyboard with the terminal, you can connect a 101-key Enhanced PC/AT compatible keyboard to the female DIN plug inside the rear hatch. Use a standard cable, or construct a cable matching the pin-out in Table D.

The keyboard port can also be used to connect a bar code reader or magnetic stripe card reader.

Table D: Keyboard connector pin-out

Pin	Signal	Description	IN/OUT
1	KBD CLK	Keyboard Clock	IN/OUT
2	KBD DATA	Keyboard Data	IN/OUT
3	N/C	N/C	---
4	GND	Signal Ground	---
5	+5V_KBD	+5 V (Current Limited)	---

Connecting AC power

Use an AC power cable that is appropriate for the power scheme in your country or region:

- **For applications in Europe**, use a harmonized AC power cable. The universal power supply of the terminal automatically senses the voltage from the external source and, within the range 115 to 230 VAC, 50 to 60 Hz, supplies the appropriate power without requiring any adjustment.
- **For North American applications**, use a standard AC power cable (Figure 4).

Both types of AC power cable are available from 3M Touch Systems and come with either:

- IEC connector
- or
- Fixed field wiring

WARNING

To reduce the risks associated with electrical shock or fire which, if not avoided, could result in death or serious injury and/or property damage:

- To ensure compliance with electrical codes and safe operation of the ET unit, have a licensed journeyman electrician familiar with local codes perform all wiring tasks.
- Install the ET unit close to the power source so power to the ET unit can be removed quickly and easily. For permanently connected equipment, a readily accessible disconnect device must be incorporated into the fixed wiring.
- Provide adequate strain relief for all communications and power cables.
- Before removing the ET unit from its mounting or performing any other service to the unit, disconnect power to the unit.

Connecting AC power: Using cable with IEC connector

To connect the power supply using a cable with IEC connector, follow these steps:

1. **If the terminal has a hatch**, make sure that the hatch is open. The hatch must be open to access connectors.
2. Connect the AC power cable with IEC connector to the power socket inside the rear hatch of the terminal (Figure 3).

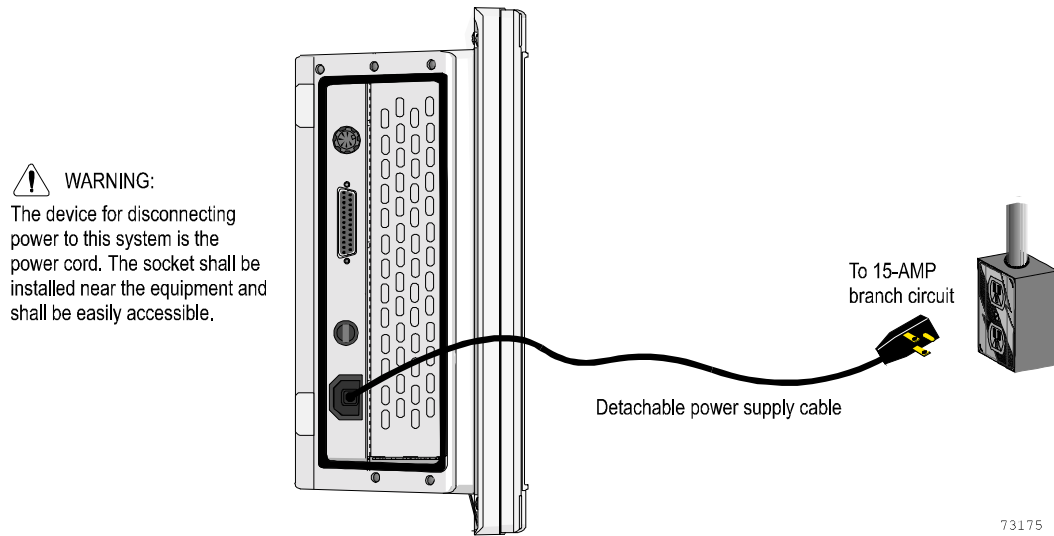


Figure 3: Connecting power: AC power cable with IEC connector

3. Connect the other end of the power cable to a standard 15-ampere (or less) branch circuit.

Connecting AC power: Fixed field wiring

To connect the power supply with fixed field wiring, follow these steps:

1. Make sure the AC power supply is disconnected at its source.
2. Strip about 1/8-inch (3 mm) of insulation from the end of the neutral, ground, and line wires.

WARNING

To reduce the risks associated with electrical shock or fire which, if not avoided, could result in death or serious injury and/or property damage:

- When connecting power with fixed field wiring, the power cable must be double insulated. A clear, flexible insulator (supplied) must cover the portion of the cable that is not double insulated when connecting to a terminal strip connector.

3. Measure and, if necessary, cut the clear, flexible insulator (supplied) so that it will cover the unjacketed portion of the power cable and overlap the jacketed portion by at least one inch.
4. Insert the stripped end of the AC power cable wire (neutral) into the terminal strip's side connector (Figure 4).

5. Using a 1/8-inch flathead screwdriver, turn the terminal block's screw clockwise until the neutral cable wire is firmly attached to the terminal.

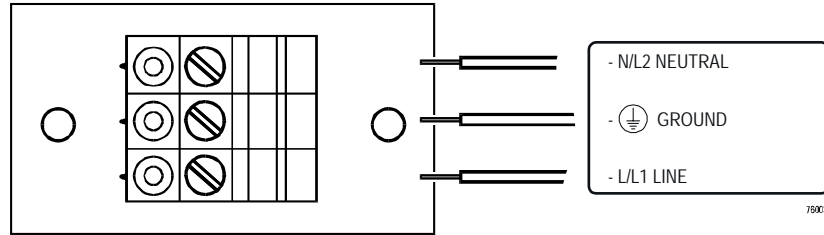
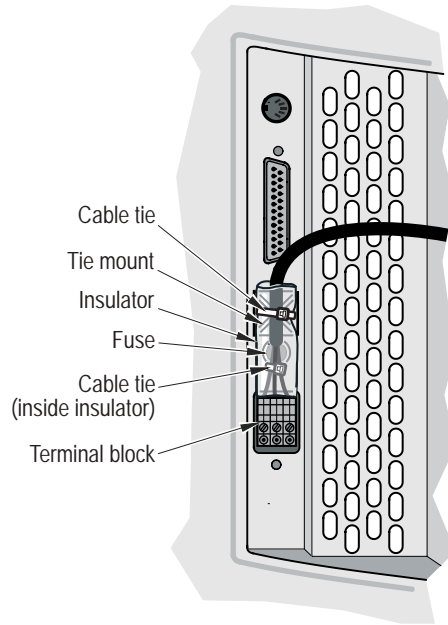


Figure 4: Connecting AC power cable wires to connectors

6. Repeat (3) and (4) for the ground and line cable wires.
7. Tighten the screws on the terminal block to a torque of 10 inch-pounds.
8. Fasten a cable tie around the three wires at about one inch from the terminal connector (Figure 5).



31013

Figure 5: Connecting AC power: Fixed field wiring

9. Slide the insulator up the power cable, positioning it so that one end of the insulator is flush with the terminal connector and the other end overlaps the power cable jacket by at least one inch.
10. To prevent the insulator from moving up or down the cable, secure the insulator to the chassis of the terminal using a cable tie or other equivalent securing device.

CHAPTER 4

Mounting

About this chapter

This chapter provides:

- Overview of methods for mounting the ET 3170 terminal. For detailed information on mounting methods, consult the mounting installation instructions that came with your mounting kit (and which also are available for download at www.3Mtouch.com).
- Guidelines for mounting the terminal.

Overview

The terminal may be mounted:

- In a panel or wall cutout
- In a panel or wall cutout with panel gasket for achieving a NEMA 4X/IP66 rated seal
- With a hatch with gasket for achieving a NEMA 4X/IP66 rated seal
- In a standard 19-inch equipment rack
- On a desktop stand
- On a post or boom

Guidelines

Keep the following guidelines in mind when mounting your terminal.

Location

- If the terminal will be placed in an environment where it will be exposed to contaminants, select a mounting method that ensures a NEMA 4X/IP66 seal.
- If space limitations prevent you from using a rack, panel, or wall mounting option, the post/boom mounting method may be useful.

⚠ WARNING

To reduce the risks associated with electrical shock or fire which, if not avoided, could result in death or serious injury and/or property damage:

- Engineer the installation of the ET unit to take into account the operating environment (e.g., thermal, shock/vibration factors).
- Install the ET unit close to the power source so the ET unit can be easily and quickly disconnected. For permanently connected equipment, a readily accessible disconnect device must be incorporated in the fixed wiring.

⚠ CAUTION

To reduce the risks associated with fire and electrical shock that may result in personal injury or property damage:

- If the ET unit will be used in corrosive environments, it is the responsibility of the user to test and evaluate the unit in those environments. The ET unit, as shipped, has not been evaluated for use in corrosive environments and using it in such environments, without evaluation and testing, may lead to unsafe conditions.

Ergonomics

To help prevent undue physical stress on users of the terminal, follow these guidelines. Position the terminal so that:

- It is at a level that is suitable for most users. If the unit is placed too high, repetitive actions may cause muscle strain.
- The screen is not receiving too much ambient light or glare.
- The top of the terminal is at the eye level of the average user.
- Touch interaction is as direct as possible. This will help reduce parallax errors.

Security screws (optional)

The terminal has openings for four optional security screws, one at each corner on the back of the enclosure (Figure 6). Once the security screws are attached, the terminal cannot be opened from the front by an unauthorized user.

Use a security screwdriver to attach or detach these screws. (The screwdriver and screws are available from 3M Touch Systems.)

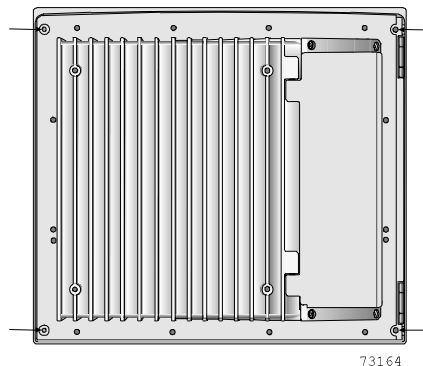


Figure 6: Security screw locations

Standard mounting methods

There are two standard panel mounting methods possible for the terminal:

- **Panel cutout mount.** Using this method, you can attach the terminal to a wall or panel with rear-mounted screws.
- **Panel gasket mount.** Using the NEMA 4X panel gasket kit that ships with the ET 3170 terminal, the terminal can be mounted to meet NEMA 4X/IP66 ratings.

WARNING

To reduce the risks associated with electrical shock or fire which, if not avoided, could result in death or serious injury and/or property damage:

- To ensure compliance with electrical codes and safe operation of the ET unit, have a licensed journeyman electrician familiar with local codes perform all wiring tasks.
- Install the ET unit close to the power source so power to the ET unit can be removed quickly and easily. For permanently connected equipment, a readily accessible disconnect device must be incorporated into the fixed wiring.
- Provide adequate strain relief for all communications and power cables.
- Before removing the ET unit from its mounting or performing any other service to the unit, disconnect power to the unit.

Panel cutout mount

The panel cutout mounting method is for situations in which:

- The terminal needs to be mounted to a panel or wall
- and
- There is no need to have a NEMA 4X/IP66 seal around the front of the unit

Tools required

- No. 2 Phillips screwdriver
- Saw that can cut the wall or panel

The terminal has four screw sockets along the top and bottom lip of the frame and three on each side (Figure 7). These are accessible only from the back of the terminal.

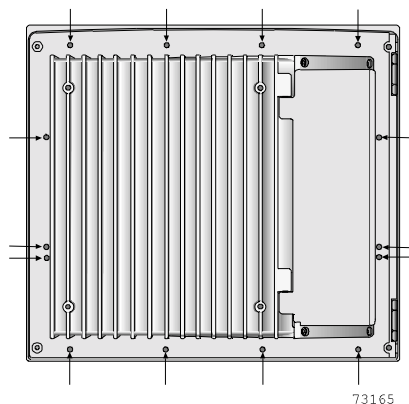


Figure 7: Screw hole locations

Steps

To mount the terminal in a panel or wall cutout:

1. Use the full-scale cutout template that came with your unit to mark the dimensions and screw holes on the panel or wall (for cutout dimensions, see Appendix A).
2. Make the cutout and drill the holes.

If you are mounting the terminal in an enclosed cabinet, make sure that there is a minimum of 1 inch (25.4 mm) clearance behind the unit for proper air circulation. In warm working environments, the depth of the enclosure should be increased to provide better air circulation.

3. Bring the power cable and the communication cables up to the cutout.

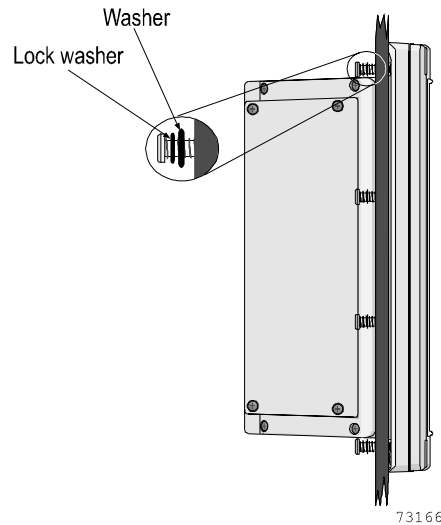


Figure 8: Side view: Panel cutout mount (without seal)

4. If applicable, insert optional security screws (security screws and screwdriver are available from 3M Touch Systems).
5. Attach communication cables. For instructions, see “Typical installation” beginning on page 9.
6. After making sure that the power at the source is off, connect power to the terminal.
7. Place the terminal in the cutout. You may need assistance to hold it in place.
8. Attach the terminal to the panel from the back. Two lengths of screws (1/2-inch and 3/4-inch) are provided with the terminal. Use the screw length appropriate for the thickness of your panel. Tighten the screws to a torque of 12 inch-pounds.

If neither of the screw sizes supplied is adequate, use size #10-32 screws, that are long enough to extend through the panel surface but will not intrude more than 1/4-inch into the holes in the bezel.

9. Connect power to the terminal at the source.

Panel gasket mount

The NEMA 4X Panel Gasket Kit ships with the terminal. When properly installed between the bezel and a wall or panel and when the installation instructions are followed, the panel gasket provides a NEMA 4X/IP66 seal around the front of the terminal.

Important

The information in this section offers only an overview of the panel gasket mounting method. Before installing the panel gasket, refer to the installation instructions that come with the kit.

The terminal is suitable for Pollution Degree 3 environments if installed and tested with the panel gasket in an enclosure that meets NEMA 4X/IP66 ratings. If the terminal is not mounted in such an enclosure or if it is mounted without the gasket, the terminal is suitable for Pollution Degree 2 environments.

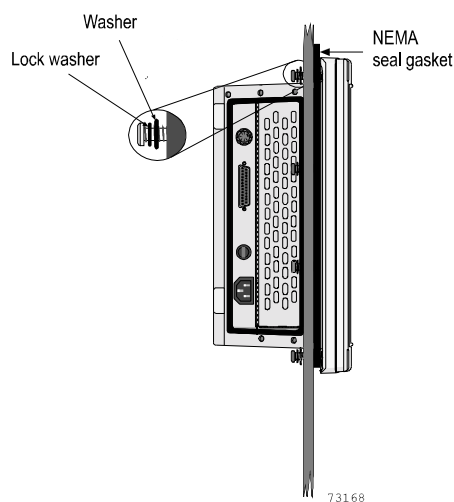


Figure 9: Side view: NEMA panel gasket mount

Optional mounting methods

There are four optional mounting kits available from 3M Touch Systems that allow the terminal to be installed with:

- NEMA 4X hatch (or NEMA 4X extended hatch)
- Rack mount (for mounting in a standard 19-inch equipment rack)
- Boom (or pole)
- Desktop stand

An overview of each optional mounting method appears below. Installation instructions accompany each of the optional mounting kits and should be read and understood before mounting the terminal. Instructions for each mounting kit are available for download at www.3Mtouch.com.

NEMA 4X hatch (and NEMA 4X extended hatch)

If you need a seal over both the communication and power connections of the terminal, a NEMA 4X Hatch Kit is available from 3M Touch Systems.

This kit comes with a standard NEMA 4X hatch and also with an extended hatch that allows more room for bulky connectors or fittings.

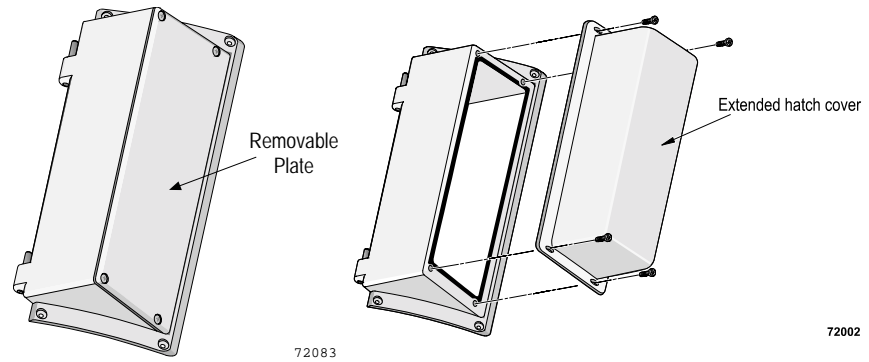


Figure 10: NEMA 4X hatch and extended hatch

Rack mount

You can mount the terminal in a standard 19-inch equipment rack with a rack adapter available in the Rack Mount Kit.

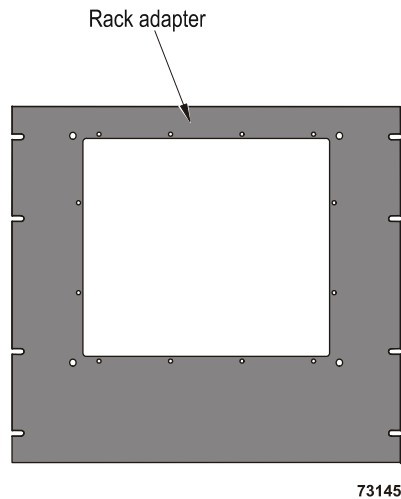
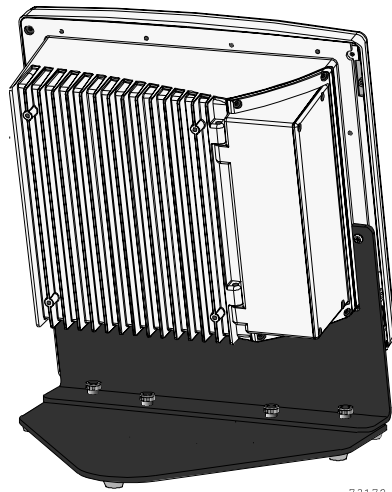


Figure 11: Rack adapter

Desktop stand

An optional stand is available from 3M Touch Systems for mounting the terminal on a desktop, bench, or table.

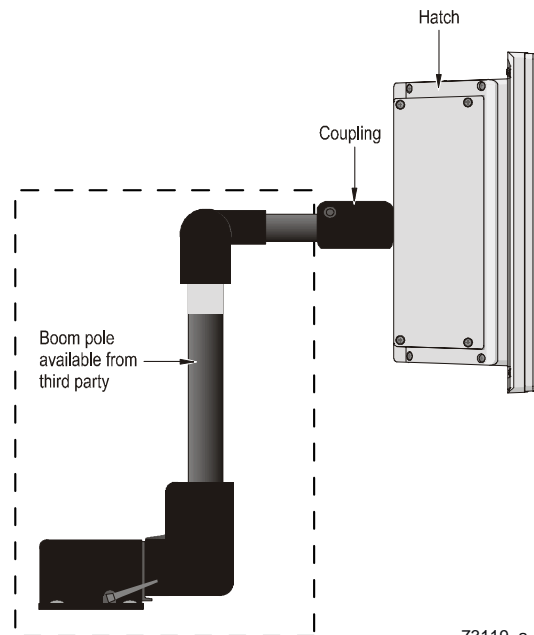


73172

Figure 12: Desktop stand

Boom (or post) mount

The Boom Mount Kit consists of a special hatch and coupling for mounting the terminal to a boom or post.



73119_a

Figure 13: Terminal with boom mount coupling

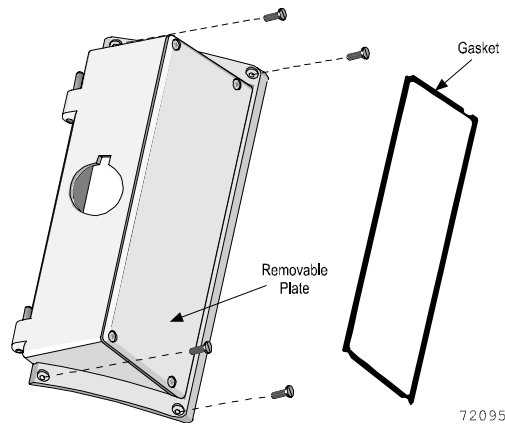


Figure 14: Boom (or post) mount hatch and gasket

The boom mount hatch comes with a precut opening that matches the coupling supplied with the kit. The hatch supplied in the boom mount kit is fastened with the coupling to the post, boom or suspension arm. The boom itself provides a conduit for power and data cables. The terminal is attached to heavy-duty hinges on the hatch.

CHAPTER 5

Configuring

About this chapter

After the ET 3170 terminal is mounted firmly in place and the power and communication cables have been properly attached, it can be configured (customized) for everyday use with your application.

This chapter explains:

- The Power On Self-Test (POST)
- What the Setup screen is, how to call it up, and how to exit it
- How the Setup screen is organized
- How to change and save Setup parameters
- How to test the touch screen

Power On Self-Test (POST)

The terminal enters a Power On Self-Test (POST) mode after power-up and runs several internal tests for a few seconds. The terminal application starts and

`Self-tests OK` is displayed when the tests are completed successfully.

Introducing the Setup screen

The Setup screen is an interactive feature that helps you set the operating parameters of the terminal. You do this by touching selections on the screen (or, if you have an optional keyboard, by pressing keyboard keys).

Some parameters are tailored to user preference, such as the choice of cursor type and background. Others, such as Baud Rate and Parity Sense, determine how the terminal communicates with the host computer.

Before operating the terminal, you may need to configure some of the parameters so that the host computer can communicate with it.

Calling up and exiting the Setup Screen

Use either the Setup switch or an optional keyboard to call up the Setup screen. The Setup switch is a defined touch space as shown in Figure 15.

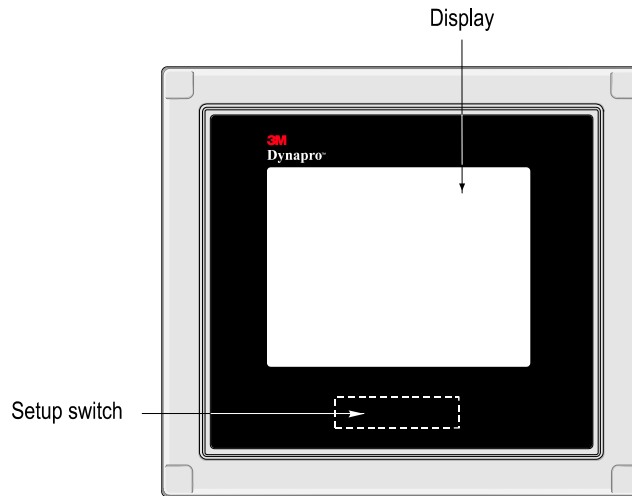


Figure 15: Location of Setup Switch

To call up the Setup screen, double-touch (two quick successive touches at the same location) the Setup switch or press the Setup key (**F10**) on the keyboard.

To exit the Setup screen, touch the Setup switch or press the Setup key again.

Input buffer

While using the Setup screen and any of the screens that can be accessed from the Setup screen, the terminal continues to receive any input the host may send.

Once the Setup screen is called up, input from the host is stored in the terminal input buffer and is not processed until the Setup screen is exited. If the input buffer begins to get full, the terminal automatically stalls transmission from the host to prevent buffer overflow.

Important

The host computer can block user access to the Setup screen by setting the Setup Lockout Mode. In this mode, the Setup switch and the keyboard Setup key are disabled. This can be done by the application software running on the host computer in situations where user access to Setup parameters needs to be restricted. For more information, refer to the application developer's guide (available for download at www.3Mtouch.com).

Organization of the Setup screen

The Setup screen has three functional areas: the Direct Action Area, the Parameter List Area, and the Operational Status Window (Figure 16).

- **Direct Action Area** (left side of the display) is made up of the touch keys that operate the Setup screen and allow you to take immediate actions not necessarily associated with the parameter list, such as resetting the terminal.

Each touch key in the Display Action Area identifies a keyboard key or key combination so that you can use either the touch screen or an optional keyboard. The function of each touch key is shown in Table E.

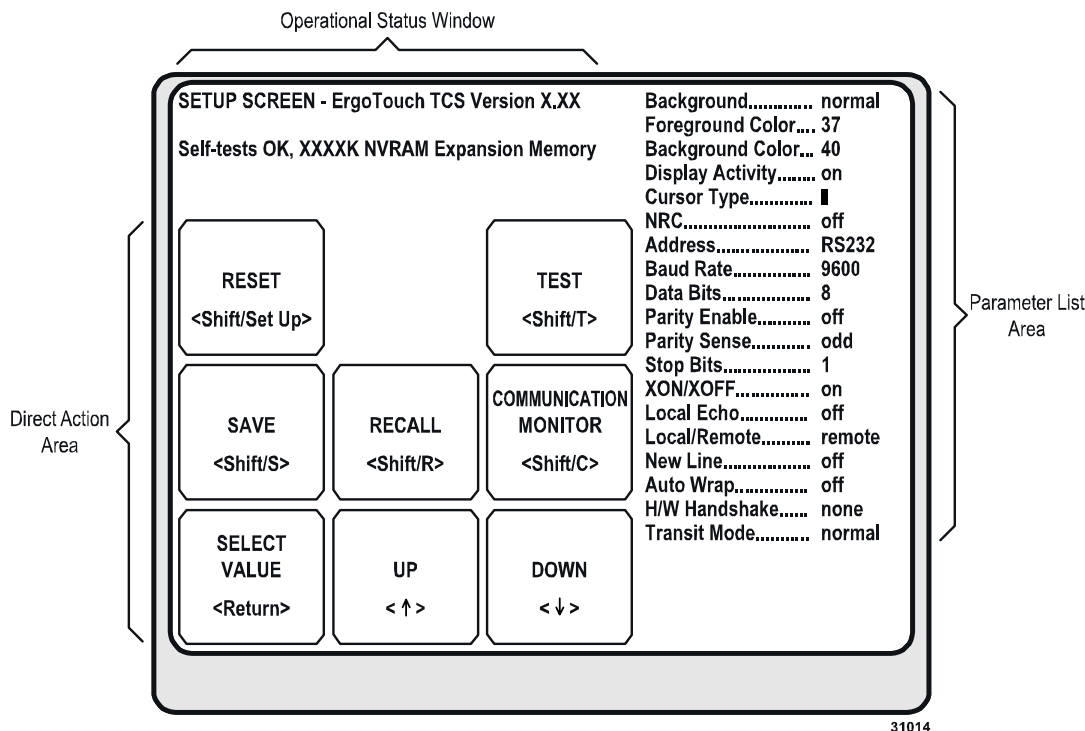


Figure 16: Setup screen

Table E: Touch key functions: Direct Action Area

Touch key (keyboard equivalent)	Function
RESET (Shift/Set Up)	<ul style="list-style-type: none"> Executes a soft reset. Resets all Setup parameters to their last saved values, sounds the beeper, and initiates automatic power-up self-testing. (A hard reset, accessible only by remote command from the host, resets the terminal to its factory-programmed default state.)
TEST (Shift/T)	<ul style="list-style-type: none"> Calls up the test screen that provides touch panel operation of user-selectable tests
SAVE (Shift/S)	<ul style="list-style-type: none"> Executes a Save Setup command. The Save Setup command loads into nonvolatile setup memory all the parameter values as they are programmed in the current session
RECALL (Shift/R)	<ul style="list-style-type: none"> Executes a Recall Setup command. The Recall Setup command overwrites all the parameter values programmed in the current Setup session with the values previously saved in nonvolatile Setup memory with a Save Setup command.

Table E: Touch key functions: Direct Action Area

Touch key (keyboard equivalent)	Function
COMMUNICATION MONITOR (Shift/C)	<ul style="list-style-type: none"> • The Communication Monitor is for use by programmers or service personnel only. • Calls up the Communication Monitor that is used to troubleshoot communications between the host and the terminal. • Once the Communication Monitor is called, all codes that cross the communications link are displayed, but not acted on, by the terminal.
SELECT VALUE (Return or Enter)	<ul style="list-style-type: none"> • Use with UP and DOWN touch keys (to scroll through the values of a Setup parameter) when the value you wish to select appears.
UP (↑ key)	<ul style="list-style-type: none"> • Allows you to select a Setup parameter to be changed. • When a parameter is selected, it is highlighted. Each time the UP touch key is touched, the next parameter upward is selected.
DOWN (↓ key)	<ul style="list-style-type: none"> • Allows you to select a Setup parameter to be changed. • When a parameter is selected, it is highlighted. Each time the DOWN touch key is touched, the next parameter downward is selected.

- **Parameter List Area** (right side of the display) lists all of the Setup parameters and their current values. The highlighted parameter is the one most recently changed since the terminal was last reset. For details on each parameter, see “Parameters”, starting on page 30.
- **Operational Status Window** (upper left corner of the display) shows the software version and release number and the four most recent status reports since the terminal was last powered-up or reset.

A status report is either a list of errors or a report showing that no errors have been encountered. When a new status report occurs, the oldest report is scrolled down in the Operational Status Window to make room for the new report. The most recent report is highlighted so you can find it quickly.

Error messages tell you where to look for a problem. Some problems may require service. If a message contains a checksum or an address, these numbers are displayed in hexadecimal. A message indicating an error in a memory device identifies the reference designator of the device in which the error occurred.

Status messages reported in the Operational Status Window can be any of the following:

- Communications framing error
- Communications overrun error
- Communications parity error
- Communications buffer overflow
- RAM test error at address - <address>, <device>
- Nonvolatile memory checksum error - <checksum>, <device>
- ROM checksum error - <checksum>, <device>
- Expansion memory full error
- Expansion memory uninitialized error

- Expansion memory is volatile
- Self-tests OK, <size> <type> Expansion Memory
- For the ET 3170 terminal, the term Expansion Memory refers to the user-accessible memory for storing screens and dynamic fonts.

Changing and saving Setup parameters

To select a Setup parameter and assign a value to it, follow these steps:

1. Move the highlighted field over the parameter desired by touching the UP or DOWN touch keys (to the left of the Parameter List in the Direction Action Area), or by pressing the up or down arrow keys on the optional keyboard.
2. Scroll through the range of the parameter's values until the desired value appears by touching the SELECT VALUE touch key (or by pressing Return/Enter on the optional keyboard).

As soon as a parameter's value appears, the setting takes effect. The only exception is setting the Display Activity parameter to off, which takes effect upon exiting the Setup screen.

3. Select and change the settings of all other parameters that you want to adjust. For details on each parameter, see "Parameters", starting on page 30
4. When you are satisfied with the parameter settings, you can save them in nonvolatile Setup memory by touching the SAVE touch key in the Direct Action Area (or pressing **Shift/S** on an optional keyboard).

After the Setup parameters are saved, they remain selected even after power is turned off. The next time power is turned on, the terminal will be programmed with the previously saved parameter values.

The only exception is the Local/Remote parameter value, which cannot be saved in memory. The Local/Remote parameter is always set to Remote at power-up so the host can communicate with the terminal when it is turned on.

A soft reset is executed at power-up or when you touch the RESET touch key on the Setup screen. On soft reset, the terminal recalls the Setup parameter values saved in the last Setup screen session.

Important

See "How to test the touch control screen" in this chapter for information about Setup parameter values.

Parameters

Defaults

The first time that power is applied to the terminal, each Setup parameter is set to its original, factory-programmed default value (see Table F).

Table F: Default values of Setup parameters

Parameter	Default Value
Background	normal
Foreground Color	37
Background Color	40
Display Activity	on
Cursor Type	slow-blinking block
NRC	off
Address	RS-232
Baud Rate	9600
Data Bits	8
Parity Enable	off
Parity Sense	odd
Stop Bits	1
XON/XOFF	on
Local Echo	off
Local/Remote	remote
New Line	off
Auto-Wrap	off
H/W Handshake	none
Transmit Mode	normal

Programmable

Parameters that can be programmed by the user using the Setup screen are described in the following paragraphs. Parameters that can also be programmed by remote commands from the host computer are identified as “remote programmable.”

Background (remote programmable)

- Normal video: Light characters against dark background (**Default**)
- Reverse video: Dark characters against a light background.

Foreground Color (remote programmable) sets foreground color of the touch screen. For instructions on setting foreground color, see the application developer's guide (available for download at www.3Mtouch.com).

- 37 (Default)

Background Color (remote programmable) sets background color of the touch screen. For instructions on setting background color, see the application developer's guide (available for download at www.3Mtouch.com).

- 40 (Default)

Display Activity (remote programmable) allows you to change the following display activity options:

- On (Default): Display is on as long as power is on.
- Off: Display is turned off. The display remains off, even if there is user or host activity, until the display activity is changed to On or Timeout or you press the Setup key or Setup switch.

Important

If the display activity is set to Off and saved in nonvolatile setup memory, the next time power is applied, the terminal starts with display activity off.

- Timeout: Display turns off automatically after 30 minutes of inactivity. The timeout can be used to extend the life of the backlight.
After the display has timed out, any activity by the user or host causes the display to be turned back on. The first touch, keystroke, or activation of the Setup switch by you that turns the display back on only serves to reactivate the display; any other action normally caused by that entry does not occur.
- No host: Display turns off automatically after 30 minutes of inactivity (similar to Timeout). After the display has timed out, only activities by the user will turn the display on again. In other words, touch or keystroke activities will turn the display on again, but the host's communication activities will not do so.

Regardless of the Display Activity parameter setting, the Setup screen always becomes visible when you touch the Setup switch or press the keyboard Setup key. A Display Activity parameter setting of Off takes effect only when the Setup screen is exited.

Cursor Type (remote programmable) permits the cursor to be set to appear in any of the following ways. (Note: The parameter does not appear as a value, but as the type of cursor you choose.)

- Reverse-video block
 - Slow blinking (Default)
 - Fast blinking
 - Steady
- Underline character
 - Slow blinking
 - Fast blinking
 - Steady
- Invisible

NRC (Remote Programmable), the National Replacement Code parameter, enables you or the host to select a substitute set of international characters for screen display. The NRC parameter options are:

- Off (**Default**)
- Danish
- Dutch
- French
- Canadian (Canadian French)
- Finnish
- German
- Italian
- Spanish
- Swedish
- Swiss
- UK

The international characters replace the normally represented ASCII characters printed on the keycaps on the optional keyboard. Table G shows the NRC parameter value for each set of international characters available and shows which ASCII characters are replaced by the NRC characters.

Example: A German user, after setting the **NRC parameter to German**, can use the terminal and host computer to create a text file that contains international characters that appear in German printing. For instance, if a text file contains the ASCII characters “Pr}fung,” those characters appear on the screen as “Prüfung.” Any time this file is viewed with the NRC parameter set to German, the text appears as intended.

However, if the same file is viewed with the **NRC parameter set to Off**, international characters particular to German appear as standard ASCII symbolic characters (such as @, []). This occurs because the keyboard, the host computer, and the file communicate using the standard ASCII codes for the special characters.

Table G: National Replacement Code Characters

Nationality	Character Received	Character Displayed	Description of Displayed Character
Danish	@	Ä	A umlaut
	]	Å	A ring
	[	Æ	A E ligature
	\	Ø	O slash
	^	Û	U umlaut
	‘	ä	a umlaut
	}	å	a ring
	{	æ	a e ligature
	|	ø	o slash
	~	ü	u umlaut

Table G: National Replacement Code Characters

Nationality	Character Received	Character Displayed	Description of Displayed Character
Dutch	#	£	pound symbol
	@	$\frac{3}{4}$	fraction 3/4
	[	ij	i j ligature
	\	$\frac{1}{2}$	fraction 1/2
	]	|	vertical bar
	{	"	umlaut (bare)
	|	f	script f
	}	$\frac{1}{4}$	fraction 1/4
~	'	single quote	
French	#	£	pound symbol
	]	§	section sign
	[	°	degree sign
	@	à	a grave
	\	ç	c cedilla
	}	è	e grave
	{	é	e acute
	|	ù	u grave
~	"	umlaut (bare)	
Canadian	@	à	a grave
	[	â	a circumflex
	\	ç	c cedilla
	}	è	e grave
	{	é	e acute
	]	ê	e circumflex
	^	î	i circumflex
	'	ô	o circumflex
|	ù	u grave	
~	û	u circumflex	
Finnish	[	Ä	A umlaut
	]	Å	A ring
	\	Ö	O umlaut
	^	Ü	U umlaut
	{	ä	a umlaut
	}	å	a ring
	'	è	e grave
	|	ö	o umlaut
~	ü	u umlaut	
German	@	§	section sign
	[	Ä	A umlaut
	\	Ö	O umlaut
	]	Ü	U umlaut
	~	ß	German small sharp s
	{	ä	a umlaut
	|	ö	o umlaut
	}	ü	u umlaut

Table G: National Replacement Code Characters

Nationality	Character Received	Character Displayed	Description of Displayed Character
Italian	#	£	pound symbol
	@	§	section sign
	[	°	degree sign
	~	ì	i grave
	{	à	a grave
	\	ç	c cedilla
	}	è	e grave
	]	é	e acute
	|	ò	o grave
	'	ù	u grave
Spanish	#	£	pound symbol
	[	¡	inverted !
	@	§	section sign
	{	°	degree sign
	]	¿	inverted ?
	\	Ñ	N tilde
	}	ç	c cedilla
|	ñ	n tilde	
Swedish	@	È	E grave
	[	Ä	A umlaut
	]	Å	A ring
	\	Ö	O umlaut
	^	Ü	U umlaut
	{	ä	a umlaut
	}	å	a ring
	'	è	e grave
	|	ö	o umlaut
~	ü	u umlaut	
Swiss	@	à	a grave
	{	ä	a umlaut
	\	ç	c cedilla
	_	è	e grave
	[	é	e acute
	]	ê	e circumflex
	^	î	i circumflex
	'	ô	o circumflex
	|	ö	o umlaut
	~	û	u circumflex
}	ü	u umlaut	
UK	#	£	pound symbol

Important

The keyboard displayed by the Keyboard Test reflects the NRC selected so you can easily identify the characters used by the selected NRC and keys under which these characters reside. See "Keyboard Test" in this chapter.

Address allows you to set the following addresses:

- **RS-232 (Default)**
- **RS-422 (RS-422 is also the setting for RS-485)**

A multi-drop address is not available with the ET 3170 terminal.

Baud Rate sets the data transmission and reception speed to one of eight baud rates. Note that the baud setting selects both transmit and receive speeds. With the ET 3170 terminal, you cannot transmit at one speed and receive at another speed.

- **9600 (Default)**
- 110
- 300
- 600
- 1200
- 2400
- 4800
- 19200

Data Bits allows you to set the number of data bits per ASCII code for sending and receiving data:

- **8 (Default):** After a start bit is received, the next eight bits are interpreted as data. Operation with eight data bits allows the host computer to directly address both the Standard Character Set and the Extended Character Set
- **7:** After a start bit is received, only the next seven bits are interpreted as data. Operation with seven data bits allows direct addressing of only the Standard Character Set and requires the host to use the Select Character Set command to display the Extended Character Set.

Parity

The Parity Enable and Parity Sense parameters are used to enable or disable parity checking and to choose odd or even parity. Parity checking is a method of detecting communication errors. By setting these two parameters, a parity bit can be used in five different ways, as shown in Table H.

- **Parity enable**
 - **Off (Default).**
 - **On.** When parity checking is on, the terminal tests each received code for correct parity. A parity bit is appended to the data bits of each transmitted code and checked on each code received.

If a code fails the parity test, the terminal prints the parity error character (PE) on the screen and logs an error message in the Operational Status Window.
 - **Ignore**

- Parity Sense

The terminal uses either odd (default) or even parity checking:

- **Odd (Default):** The parity bit and the data bits together contain an odd number of binary 1s. For example, for the data bits 1010100, the parity bit is 0, making the total number of 1s odd (in this example there are a total of three 1s).
- **Even:** The parity bit and the data bits together contain an even number of binary 1s. For example, for the data bits 1010100, the parity bit is 1, making the total number of 1s even (in this example there are a total of four 1s).

Table H: Touch Control Screen Parity Settings

Parity Enable Setting	Parity Sense Setting	Effect
Off	Even or odd	<ul style="list-style-type: none"> ▫ Parity checking and generation are disabled. ▫ ET 3170 terminal does not transmit a parity bit and does not expect parity bits in the data it receives. ▫ If the terminal receives data containing a parity bit, the data is displayed as a framing error (FE).
On	Even	<ul style="list-style-type: none"> ▫ Parity checking and generation are enabled. ▫ The terminal transmits even-parity data by appending a parity bit and expects received data to have even parity. ▫ If the ET 3170 terminal receives data containing odd parity, the data is displayed as a parity error (PE).
On	Odd	<ul style="list-style-type: none"> ▫ Parity checking and generation are enabled. ▫ The terminal transmits odd-parity data by appending a parity bit and expects received data to have odd parity. ▫ If the terminal receives data that has even parity, the data is displayed as a parity error (PE).
Ignore	Even	<ul style="list-style-type: none"> ▫ Parity checking is disabled, but even parity generation is enabled. ▫ The terminal transmits even-parity data by appending a parity bit and expects received data to have a parity bit. ▫ However, the terminal does not check the parity of the received data.
Ignore	Odd	<ul style="list-style-type: none"> ▫ Parity checking is disabled, but odd parity generation is enabled. ▫ The terminal transmits odd-parity data by appending a parity bit and expects received data to have a parity bit. ▫ However, the terminal does not check parity of the received data.

Stop Bits sets the terminal to send and receive codes with either one or two stop bits.

- **1 (Default):** If the Stop Bits parameter is set to 1, only one stop bit per code is used for both transmitting and receiving over the communication link.
- **2:** If the Stop Bits parameter is set to 2, two stop bits are used for both transmitting and receiving.

XON/XOFF parameter determines how the terminal handles flow control when communicating with the host.

- **On (Default):** When this parameter is set to On, the terminal can use either XON and XOFF codes or dedicated control lines for automatic flow control. When the XON/XOFF parameter is set to On, the ET 3170 terminal handles Ctrl/Q and Ctrl/S keystrokes specially. It assigns priority to the XON or XOFF code and transmits it immediately, preceding any other output in the terminal output buffer. This gives you instantaneous manual control over data flow from the host.
- **Off:** When XON/XOFF is set to Off, the ET 3170 terminal relies solely on control lines for automatic flow control.

Important

- Although all hardware handshake lines are available in an RS-232 configuration, it is customary to only use software handshaking by enabling the XON/XOFF feature in Setup.
 - Because RS-422/485 does not use hardware handshaking, XON/XOFF should always be enabled.
 - The terminal can still transmit XON and XOFF codes when the XON/XOFF parameter is set to Off, but you must type Ctrl/Q (for XON) or Ctrl/S (for XOFF) on the keyboard
-

Local Echo determines if keyboard input is echoed to the display as well as sent to the host computer.

- **Off (Default):** Keyboard input is only sent to the host. The host may or may not echo the data back to the terminal to be displayed or acted on.
- **On:** All keyboard input is echoed to the display and is also sent to the host. Normally, the host echoes keyboard entries to the terminal, in which case the Local Echo parameter should be set to Off. Touch panel input is not affected in any way by the setting of the Local Echo parameter; touch panel input is never echoed.

Local/Remote controls whether the ET 3170 terminal accepts commands from the host (remote) or optional keyboard (local).

- **Remote (Default):** Commands received from the host are interpreted normally. Keyboard input is merely passed on to the host. (This setting is used in normal operation.)
- **Local:** Commands received from the host are temporarily ignored. Instead, input received from the keyboard is interpreted as if it had come from the host. This allows you to generate remote commands locally from the keyboard. All keyboard input is interpreted as coming from the host except for Setup key input, and input while the Setup, Test, and Communication Monitor screens are called up.

Important

The Local/Remote Setup parameter is the only Setup parameter not stored and recalled by the Save Setup and Recall Setup commands. See "After the Setup parameters are saved, they remain selected even after power is turned off. The next time power is turned on, the terminal will be programmed with the previously saved parameter values." in this chapter for details.

New Line (remote programmable) permits the following settings:

- **Off (Default)**
- **On:** The New Line parameter selects the control code or codes that the terminal transmits when you press the Return key and, if the auxiliary keypad is in the numeric mode, when you press the Enter key. The New Line parameter also determines the action taken by the terminal when it receives the ASCII codes line feed <LF>, form feed <FF>, or vertical tab <VT> from the host.

The choices for the New Line parameter and the resulting effects on codes sent to the host are shown in Table I.

Table I: Effects of New Line Parameter on characters sent to host

KEYBOARD INPUT	CHARACTERS SENT TO THE HOST	
	New Line Off	New Line On
Return or Enter*	Terminal sends <CR>	Terminal sends <CR><LF>

*When in numeric mode

The effects of the New Line parameter on cursor movement are shown in Table J.

Table J: Effects of New Line Parameter on characters sent from host

HOST INPUT	RESULTING CURSOR MOVEMENT	
	New Line Off	New Line On
<LF>, <FF>, or <VT>	Moves cursor to next line, same column.	Moves cursor to next line, left margin.

Auto Wrap (remote programmable) determines whether the cursor moves to the beginning of the next line when the terminal tries to display characters that run off the right margin (column 80) of the display.

- **Off (Default).** When the Auto Wrap parameter is set to Off, a character displayed when the cursor is at the right margin replaces the previously displayed character, and the cursor remains stationary
- **On.** When the Auto Wrap parameter is set to On, and the cursor is at the right margin, the next character to be displayed is placed on the following line at the left margin. (Note that the tab code <HT> never moves the cursor to the next line.)

H/W Handshake determines which RS-232 handshake signals must be asserted before the terminal transmits.

- **None (Default):** The terminal does not check any RS-232 signals before transmitting.
- **CTS:** The terminal transmits only when CTS is asserted.
- **DSR:** The terminal transmits only while DSR is asserted.
- **CTS/DSR:** Both CTS and DSR must be asserted for the terminal to transmit.

In RS-232 systems, both CTS and DSR must be asserted before the transmission occurs.

In three-wire systems (RX, TX, and GND) where CTS and DSR are not supported, the H/W Handshake parameter must be set to None or the ET 3170 terminal will not transmit.

Transmit Mode sets the terminal transmit buffer mode.

- **Normal (Default):** The terminal doubles buffer characters. As a result, up to two characters can be sent to the host after it has stalled the ET 3170 terminal.
- **Single:** The terminal single buffers the transmit characters. As a result, no more than one character is sent to the host after the host stalls the terminal.

How to test the touch control screen

The Test screen is accessible from the Setup screen and has two pages. Table K shows the tests available on each page of the Test screen.

Use the following procedure to call up and exit the Test screen:

1. Call up the Setup screen by touching the Setup switch (or pressing the setup key on the optional keyboard).
2. Call up the *first page* of the Test screen by touching the TEST touch key (or pressing **Shift/T** on the keyboard).

If you wish to run a test listed on the *second page* of the Test screen, touch the NEXT PAGE OF TESTS touch key (or pressing **Shift/N** on the keyboard) on the first page of the Test screen.

3. Once a user-selected test is started, the test may take control of the display screen
4. To end a test and return to the Test screen, touch the Setup switch or press the Setup key on the keyboard.

Touching the touch panel also ends any user-selected test *except* the Touch Panel Test, Continuous Integrity Test, and Stored Screens Test.

Important

Throughout the above steps, the terminal continues to receive any input the host may send. However, once the Setup screen is called up, input from the host is stored in the terminal input buffer and is not processed until the Setup screen is exited. If the input buffer begins to get full, the ET 3170 terminal automatically stalls transmission from the host to prevent buffer overflow.

Table K: Tests available from the Test screen pages

Tests	For details, see page
First page	
Touch Panel Integrity Test	41
Display Geometry Test	42
Standard Character Set Test	43
Extended Character Set Test	43
Keyboard Test	43
Raw Keyboard Test (for use by service personnel only)	44
Continuous Integrity Test (for use by service personnel only)	44
Stored Screens Test	45
Re-initialize Expansion Memory	46
Second page	
Static ASCII Character Font Test	47
Static Special Character Font Test	47
Dynamic Character Font 1 Test	48
Dynamic Character Font 2 Test	48

The terminal tests are described in the following sections. Contact your local service representative if the terminal fails any of these tests.

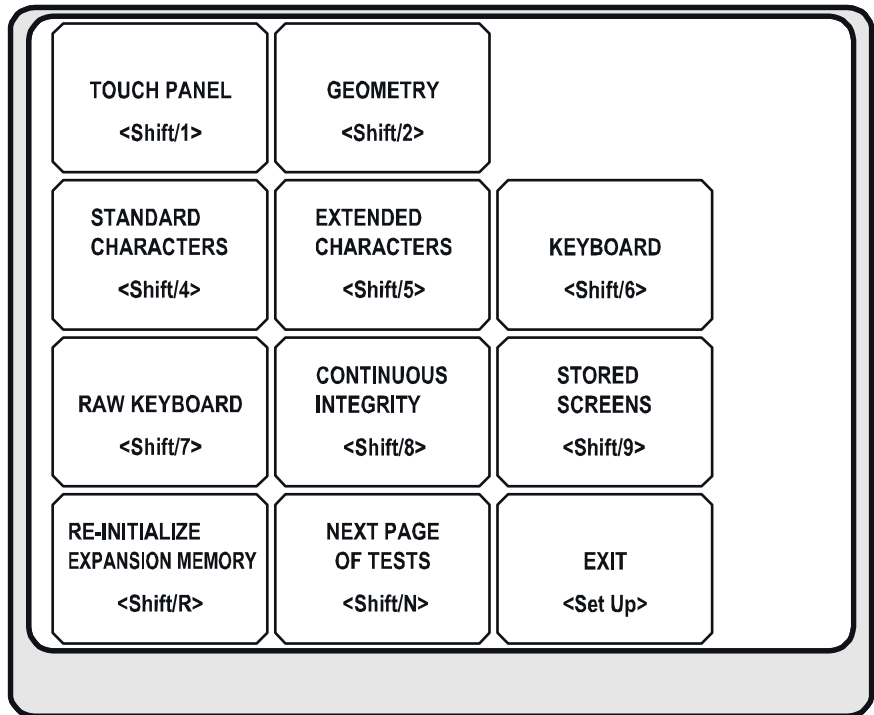
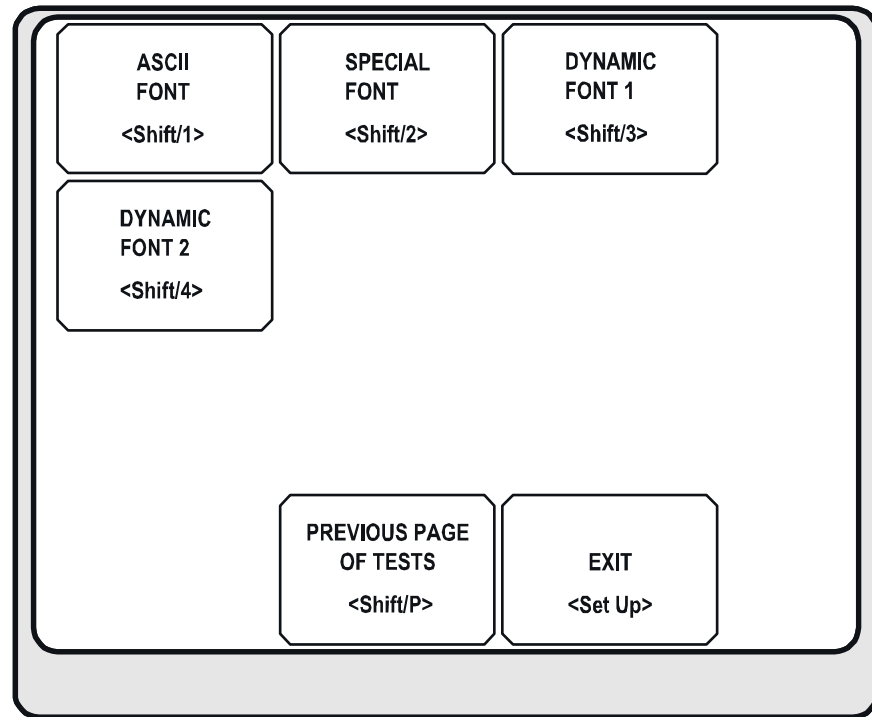


Figure 17: Test screen: First page

31015



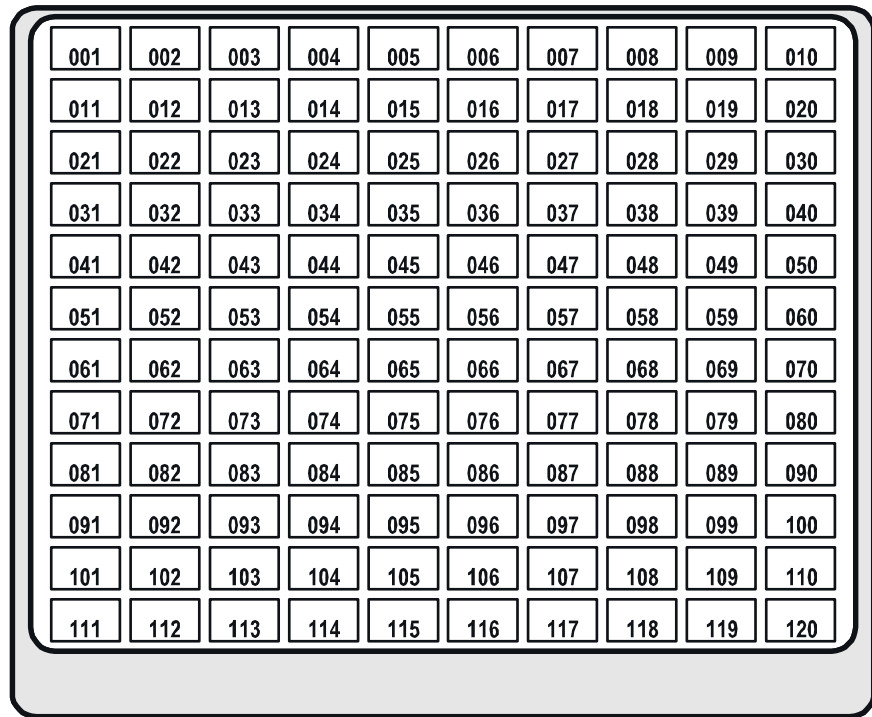
31016

Figure 18: Test screen: Second page

Touch Panel Integrity Test

The Touch Panel Integrity Test checks the touch cells to ensure they are working correctly. Use the following procedure to test the touch panel:

1. To begin the test, touch the TOUCH PANEL key on the Test screen, or press **Shift/1** on the optional keyboard. Each touch key is identified on the screen by a three-digit key number in the above diagram.
2. Press each touch key and make sure it changes to reverse video indicating that the touch cell works properly. If the touch key is touched again, it reverts to normal video.



31008

Figure 19: Touch Panel Integrity Test screen

3. Press the touch key positions along one row and one column in the touch cell matrix to quickly check the touch panel for opens, shorts, or decoding errors. This method quickly verifies all rows and columns are operational.
4. To do a comprehensive touch panel test, touch each touch key to verify its operation.
5. To stop the test, press the Setup key on the keyboard or touch the Setup switch. This returns the terminal to the Test screen.

Display Geometry Test

This test is not necessary for the operation of the touch screen.

The Display Geometry Test enables you to check the linearity and geometry of the display. To begin the test, touch the GEOMETRY touch key on the Test screen, or press **Shift/2** on the keyboard.

The Display Geometry Test provides a pattern so you can see how straight the lines and how square the corners of the display are. In a well-aligned display, lines are straight and uniform within the area provided for them on the display.

The test remains active until the Setup key on the keyboard is pressed or the Setup switch is touched. This returns the terminal to the Test screen.

Standard Character Set Test

The Standard Character Set Test provides a detailed view of the contents of the Standard Character Set. To begin the test, touch the **STANDARD CHARACTERS** touch key on the Test screen, or press **Shift/4** on the optional keyboard. The characters in the Standard Character Set (including those underlying control codes) are displayed in double size. The characters on the screen are arranged in a checkerboard pattern for easy recognition.

Unless changed by the host application program, the Standard Character Set uses the Static ASCII Character Font, which can be viewed in detail by running the Static ASCII Character Font Test. See “Static ASCII Character Font Test” on page 47.

The test remains active until you press the Setup key on the keyboard or touch the Setup switch. This returns the terminal to the Test screen.

Extended Character Set Test

The Extended Character Set Test provides a detailed view of the contents of the Extended Character Set. To begin the test, touch the **EXTENDED CHARACTERS** on the Test screen, or type **Shift/5** on the optional keyboard.

Each character in the Extended Character Set is displayed in double size, including characters that underlie control codes. The characters on the screen are arranged in a checkerboard pattern for easy recognition. Unless changed by the host application program, the Extended Character Set uses the Static Special Character Font, which can be viewed in detail by running the Static Special Character Font Test. See “Static Special Character Font Test” on page 47.

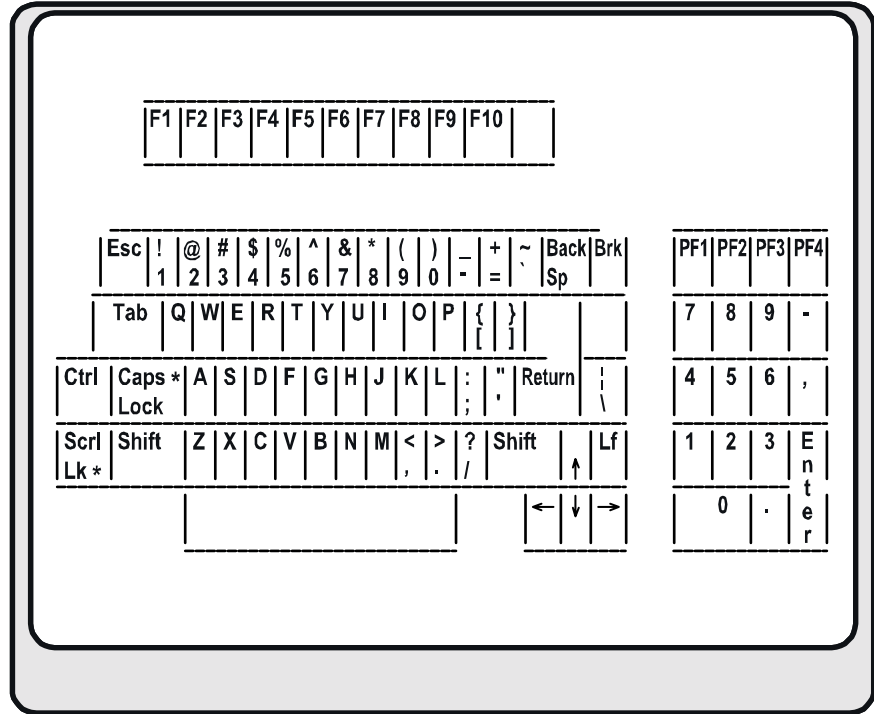
The test remains active until you press the Setup key on the keyboard or touch the Setup switch. This returns the terminal to the Test screen.

Keyboard Test

Important

The current Keyboard Test is set up to map an older keyboard than you may be using currently. Not all key presses will correspond to what is on your keyboard.

You can verify correct operation of all keys on the optional keyboard with the Keyboard Test. To begin the test, touch the **KEYBOARD** touch key on the Test screen, or press **Shift/6** on the keyboard. This calls up a picture of the keyboard (without the setup key) on the display. The outline of each key is initially lit in normal video (Figure 20).



31009

Figure 20: Keyboard Test screen (example)

To verify correct operation of the keys, touch each key on the keyboard except the setup key. (The setup key is tested when it is pressed to exit the Keyboard Test.) When a key is pressed, the corresponding key on the display toggles from normal to reverse video. Continue until the entire keyboard is in reverse video. The characters on the Keyboard Test screen reflect the NRC setting currently selected. This test can be used to see which ASCII characters are replaced by the current NRC.

The test remains active until you press the Setup key on the keyboard or touch the Setup switch. This returns the terminal to the Test screen.

Raw Keyboard Test

This test is intended for service personnel only. It tests the raw key code for each key on an optional keyboard. (The raw key codes are unprocessed codes sent directly from the keyboard). To begin the test, touch the RAW KEYBOARD TEST key on the touch screen or press **Shift/F7** on the keyboard.

If the test is activated, it can be exited by touching the Setup switch on the touch screen or pressing the Setup key on the keyboard. This returns the terminal to the Test screen.

Continuous Integrity Test

This test is intended for service personnel only. The terminal can continuously test itself using the Continuous Integrity Test. To begin the test, touch the CONTINUOUS INTEGRITY TEST key on the touch screen or type **Shift/8** on the keyboard.

If the test is activated, it can be exited by touching the Setup switch on the touch screen or by pressing the Setup key on the keyboard.

Stored Screens Test

You can display all the screens currently stored in Expansion Memory with the Stored Screens Test. To begin the test, touch the STORED SCREENS TEST touch key or press **Shift/9** on the optional keyboard. The Stored Screens Directory is displayed. (Figure 22)

1	13	25	37	49	61	73	85	SCREEN DIRECTORY 131 Used 52 Remaining 71 % Full
2	14	26	38	50	62	74	86	
3	15	27	39	51	63	75	87	
4	16	28	40	52	64	76	88	
5	17	29	41	53	65	77	89	
6	18	30	42	54	66	78	90	
7	19	31	43	55	67	79	91	
8	20	32	44	56	68	80	92	
9	21	33	45	57	69	81	93	
10	22	34	46	58	70	82	94	
11	23	35	47	59	71	83	95	
12	24	36	48	60	72	84	96	
								NEXT PAGE <Shift N>
								EXIT <Set Up>

31010

Figure 21: Stored Screens Test screen

If the terminal has no stored screens, the directory is displayed with an EXIT touch key and the following message:

NO STORED SCREENS CREATED

The upper right portion of the Stored Screens Directory contains the following information:

- **Used:** This indicates the number of screens currently stored in Expansion Memory. If no stored screens have been created, 0 (zero) is displayed here.
- **Remaining:** This indicates the number of additional screens that can be stored, based on the average size of the screens currently stored. If the terminal has no stored screens, 256 is displayed here. As screens are stored, this number decreases.
- **% Full:** This indicates the percentage of total user-accessible memory occupied by the screens currently stored. If the terminal contains no stored screens, 0 (zero) is displayed here.

The left side of the Stored Screens Directory contains a touch key for each stored screen, identified by screen number. If there are more than 96 stored screens, the directory has multiple pages. In that case, the lower right portion of each directory page has a NEXT PAGE or PREVIOUS PAGE touch key.

When first accessed, the directory always displays the first stored screen's touch key in reverse video. With the optional keyboard, you can press the arrow keys to toggle successive touch keys to reverse video. Pressing the Return key displays the stored screen for the touch key currently in reverse video. Or, to display any stored screen from the directory, you can simply touch the touch key with the appropriate number.

Once a stored screen is displayed, you can display the next stored screen, or return to the Stored Screens Directory. Touching the touch panel anywhere, or pressing any key other than Setup, immediately displays the next stored screen. It is possible to scroll through all the stored screens without ever going back to the directory. However, to determine the number of any given screen, you must go back to the directory to see which touch key is in reverse video. To return to the directory from a stored screen, touch the Setup switch or press the Setup key.

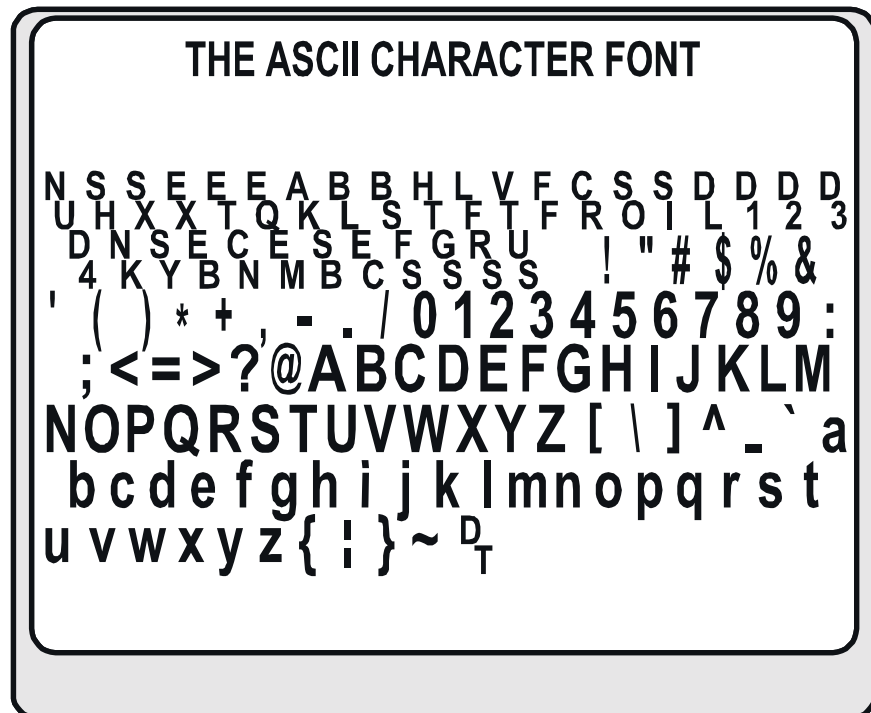
Re-initialize expansion memory

Re-initializing expansion memory destroys any screens currently stored in memory and resets the terminal parameters to the factory defaults. To accomplish this, touch the RE-INITIALIZE EXPANSION MEMORY touch key or press **Shift/R** on an optional keyboard.

The terminal re-boots and the following feedback message will appear:
Nonvolatile memory checksum error 0000,U23. You can ignore this message and clear it by resetting the unit (by touching the hidden RESET button on the touch screen or by power cycling the terminal).

Static ASCII Character Font Test

The Static ASCII Character Font Test provides programmers with a detailed view of the Static ASCII Character Font that resides in ROM. To begin the test, touch the ASCII FONT touch key on the second page of the Test screen, or type **Shift/1** on the optional keyboard. Each character in the Static ASCII Character Font is displayed in double size, including characters that underlie control codes. The characters on the screen are arranged in a checkerboard pattern for easy recognition (Figure 22).



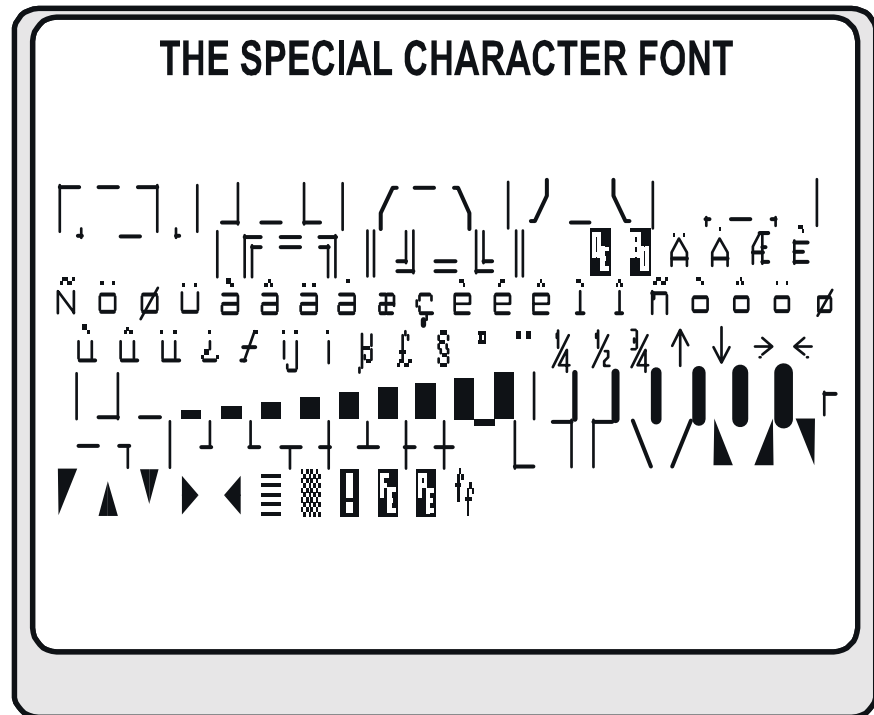
31011

Figure 22: Static ASCII Character Font Test screen

The test remains active until you press the keyboard Setup key or touch the Setup switch. This returns the terminal to the Test screen.

Static Special Character Font Test

The Static Special Character Font Test provides programmers with a detailed view of the Static Special Character Font that resides in ROM. To begin the test, touch the SPECIAL FONT touch key on the second page of the Test screen, or type **Shift/2** on the optional keyboard. Each character in the Static Special Character Font is displayed in double size, including characters that underlie control codes. The characters on the screen are arranged in a checkerboard pattern for easy recognition (Figure 23).



31012

Figure 23: Static Special Character Font Test screen

The test remains active until you press the keyboard Setup key or touch the Setup switch. This returns the terminal to the Test screen.

Dynamic Character Font 1 Test

The Dynamic Character Font 1 Test provides programmers with a detailed view of the Dynamic Character Font 1 contents. To begin the test, touch the DYNAMIC FONT 1 touch key on the second page of the Test screen, or type **Shift/3** on the optional keyboard. Each character in the Dynamic Character Font 1 is displayed in double size, including characters that underlie control codes. The characters on the screen are arranged in a checkerboard pattern for easy recognition.

The test remains active until you press the keyboard Setup key or touch the Setup switch. This returns the terminal to the Test screen.

Dynamic Character Font 2 Test

The Dynamic Character Font 2 Test provides a detailed view of the Dynamic Character Font 2 contents. To begin the test, press the DYNAMIC FONT 2 touch key on the second page of the Test screen, or type **Shift/2** on the optional keyboard. Each character in the Dynamic Character Font 2 is displayed in double size, including characters that underlie control codes. The characters on the screen are arranged in a checkerboard pattern for easy recognition.

The test remains active until you press the keyboard Setup key or the Setup switch. This returns the terminal to the Test screen.

CHAPTER 6

Maintaining

About this chapter

Typical tasks for maintaining the ET 3170 terminal include regularly cleaning the touch screen and enclosure and replacing the fuse.

 **WARNING**

To reduce the risks associated with fire and explosion which, if not avoided, could result in death or serious injury and/or property damage:

- Do not open the power supply in the ET unit. It contains hazardous voltages. The power supply has no user-serviceable parts or adjustments inside.

 **WARNING**

To reduce the risks associated with fire and explosion which, if not avoided, could result in death or serious injury and/or property damage:

- Do not use flammable or combustible cleaners.

 **CAUTION**

To reduce the risks associated with skin contact with or swallowing of cleaning solutions or fluids which, if not avoided, may result in minor or moderate injury:

- Refer to the cleaner manufacturer's material safety data sheet and follow all instructions and recommendations.

Cleaning

Cleaning the touch screen

Front surface of touch screen

Although the front surface of the touch screen will function even if it is pitted or damaged by a chemical, use a cleaner that does not corrode glass.

Back of touch screen

Do not attempt to clean the back of the touch screen (inside the enclosure). This task may be performed only by qualified service personnel.

Important

Only qualified service personnel should attempt to clean the back of the touch screen (the surface that is inside the touch screen that is exposed to the graphic underlay). Only cleaning solutions and materials designed for coated optics should be used. The back of the touch screen is covered with a coating that is easily damaged by commercial glass cleaners or a regular cloth.

Cleaning the enclosure exterior

Clean the enclosure with a non-combustible, non-flammable cleaner.

Replacing backlights

For information on replacing backlights for the terminal, contact 3M Touch Systems customer service (see “3M Touch Systems support services” on page 3) to purchase a Backlight Replacement Kit. The kit comes with instructions for replacing the backlights.

Replacing the fuse

There are different procedures for changing the terminal's fuse, depending on whether the power to the terminal has standard AC wiring with IEC connector or fixed field wiring.

 WARNING
To reduce the risks associated with electrical shock or fire which, if not avoided, could result in death or serious injury and/or property damage:
• When replacing a fuse of other part, use a part of the type and rating specified by 3M Touch Systems.

For terminal with AC power cable/IEC connector

To change the fuse of the terminal that has an AC power cable with IEC connector, follow these steps:

1. Turn off the power to the terminal at the source.
2. Find the fuse on the back of the terminal (Figure 2 on page 11).
3. Use a flat-blade screwdriver to turn the fuse holder counter-clockwise until the fuse holder pops out.
4. Remove the fuse from the holder.
5. Replace the fuse with another fuse of the same type. For fuse specifications, see page 58.
6. Re-insert the holder and use the screwdriver to turn it clockwise until it locks.

For terminal with AC fixed field wiring

To change the fuse of a terminal that has fixed field wiring, follow these steps:

 **WARNING**

To reduce the risks associated with electrical shock or fire which, if not avoided, could result in death or serious injury and/or property damage:

When connecting power with fixed field wiring, the power cable must be double insulated. A clear, flexible insulator (supplied) must cover the portion of the cable that is not double insulated when connecting to a terminal strip connector.

1. Turn off the power to the terminal at the source.
2. Find the fuse on the back of the terminal (Figure 5 on page 16).
3. Release the cable tie fastening the insulator to the power cable.
4. Move the insulator close enough to the terminal block to allow access to the fuse holder.
5. Use a flat-blade screwdriver to turn the fuse holder counter-clockwise until the fuse holder pops out.
6. Remove the fuse from the holder.
7. Replace the fuse with another fuse of the same type. For fuse specifications, see page 58.
8. Re-insert the holder and use the screwdriver to turn it clockwise until it locks.
9. Move the insulator up the cable to its original position and use a new cable tie to secure the insulator to the cable.

Checking gaskets

Follow these guidelines to check and clean the gaskets on your terminal:

- Make sure there is no debris on gaskets that will prevent a seal.
- If debris needs to be cleaned from gaskets, do so gently, taking care not to damage the gasket.
- If gaskets are torn or damaged, return to 3M Touch Systems for servicing.

CHAPTER 7

Troubleshooting

About this chapter

If you have trouble with your terminal, try the troubleshooting strategies outlined below.



WARNING

To reduce the risks associated with electrical shock which, if not avoided, could result in death or serious injury and/or property damage:

- Do not open the power supply in the ET unit. It contains hazardous voltages. The power supply has no user-serviceable parts or adjustments inside.

Troubleshooting strategies

Trouble	Suggested strategy
General problems with touch screen responsiveness and accuracy.	<ol style="list-style-type: none">1. Clean the touch screen and remove any moisture that may be on it. Follow the cleaning recommendations in Chapter 6.2. Power cycle the terminal: Power off the unit, wait for about 5 seconds, and then power up the terminal. Note: While the terminal is re-booting and for about 10 seconds after re-boot is completed, make sure that no objects (including your hands) touch the screen or bezel.
Terminal does not power up.	<ol style="list-style-type: none">1. Check power connections (for details on power and other connections, see Chapter 3).2. Check the fuse. For instructions on replacing the fuse, see "Replacing the fuse" on page 50.3. Contact 3M Touch Systems technical support.¹

¹See "3M Touch Systems support services" on page 3.

Trouble	Suggested strategy
Terminal powers up but the display does not seem to function.	<ol style="list-style-type: none"> 1. If the Display Activity configuration was changed recently, press the Setup key or Setup switch to change Display Activity configuration to "on". For details, see "Display Activity" on page 31 . 2. Contact 3M Touch Systems technical support. You may need to order a Backlight Replacement Kit for the terminal.
Error messages appear on the screen during power up.	<ol style="list-style-type: none"> 1. Check that communications cables are properly connected. 2. Failing (1), contact 3M Touch Systems technical support.¹ Note: As an interim solution, you may be able to use the terminal by connecting a keyboard. Not all keyboard keys will function, however, so this is a short-term solution only.
The terminal is having trouble communicating with an external keyboard or a host computer.	<ol style="list-style-type: none"> 1. Double-check the pin-out and connections of any communications cable that you have constructed for use with the terminal. 2. Verify that your communication settings (baud rate, parity) are correct. 3. Make sure that you have set the communications port for RS-232 or RS-422/485 communications in the configuration utility.

¹See "3M Touch Systems support services" on page 3.

APPENDIX A

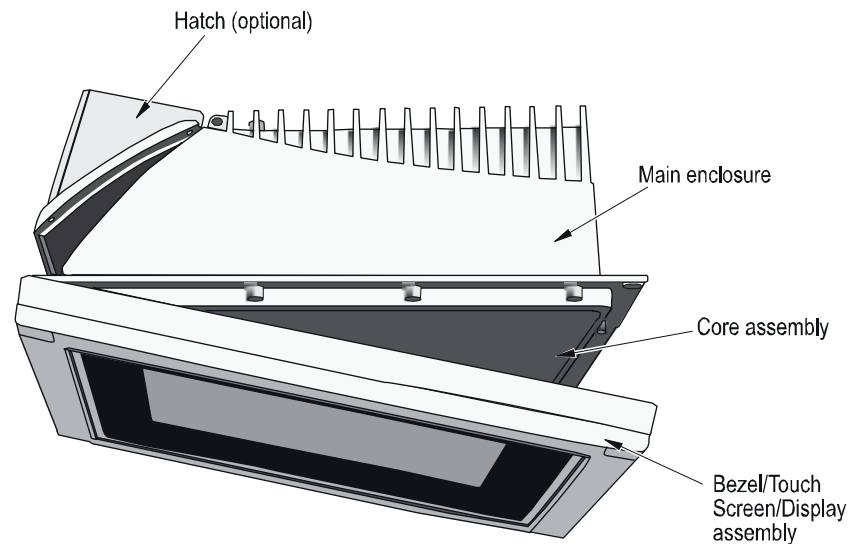
Specifications and certifications

Enclosure components

The enclosure of the 3M Dynapro™ ET 3170 terminal consists of the following main components:

- Bezel/touch screen/display assembly
- Core electronics assembly
- Main enclosure
- Rear access hatch (optional)

Figure 24 shows the components of the ET 3170 terminal. The core electronics assembly is part of the bezel assembly. The enclosure and access hatch are made of cast aluminum.



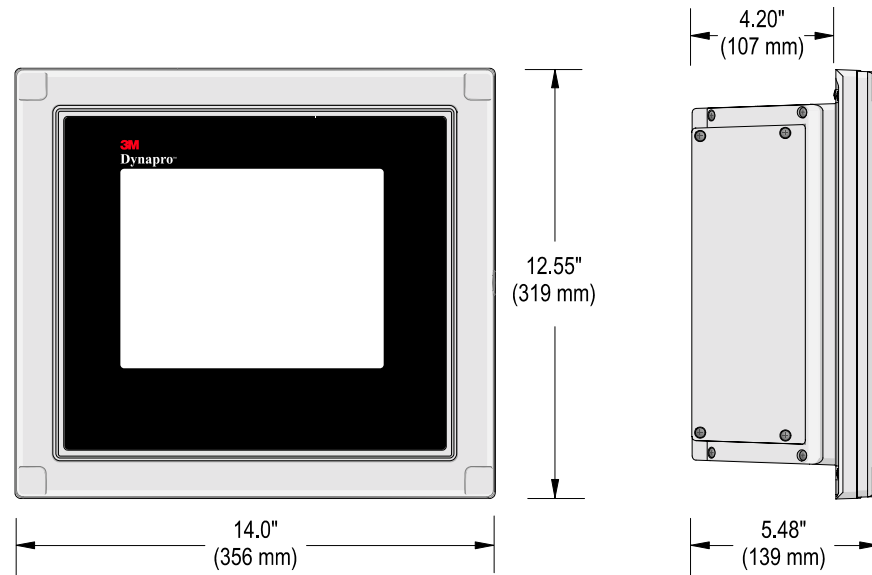
73173

Figure 24: Components

Enclosure dimensions

	Imperial	Metric
Active touch area (wide x high)	10.5" x 9.2"	267 mm x 234 mm
Overall size (wide x high x deep)	14.0" x 12.55" x 5.48"	356 mm x 319 mm x 139 mm
Mounting cutout size (wide x high)	12.060" x 10.660"	306.32 mm x 270.76
Depth	5.25" (min.)*	133.35 mm (min.)*
Weight	16.2 lb	7.3 kg

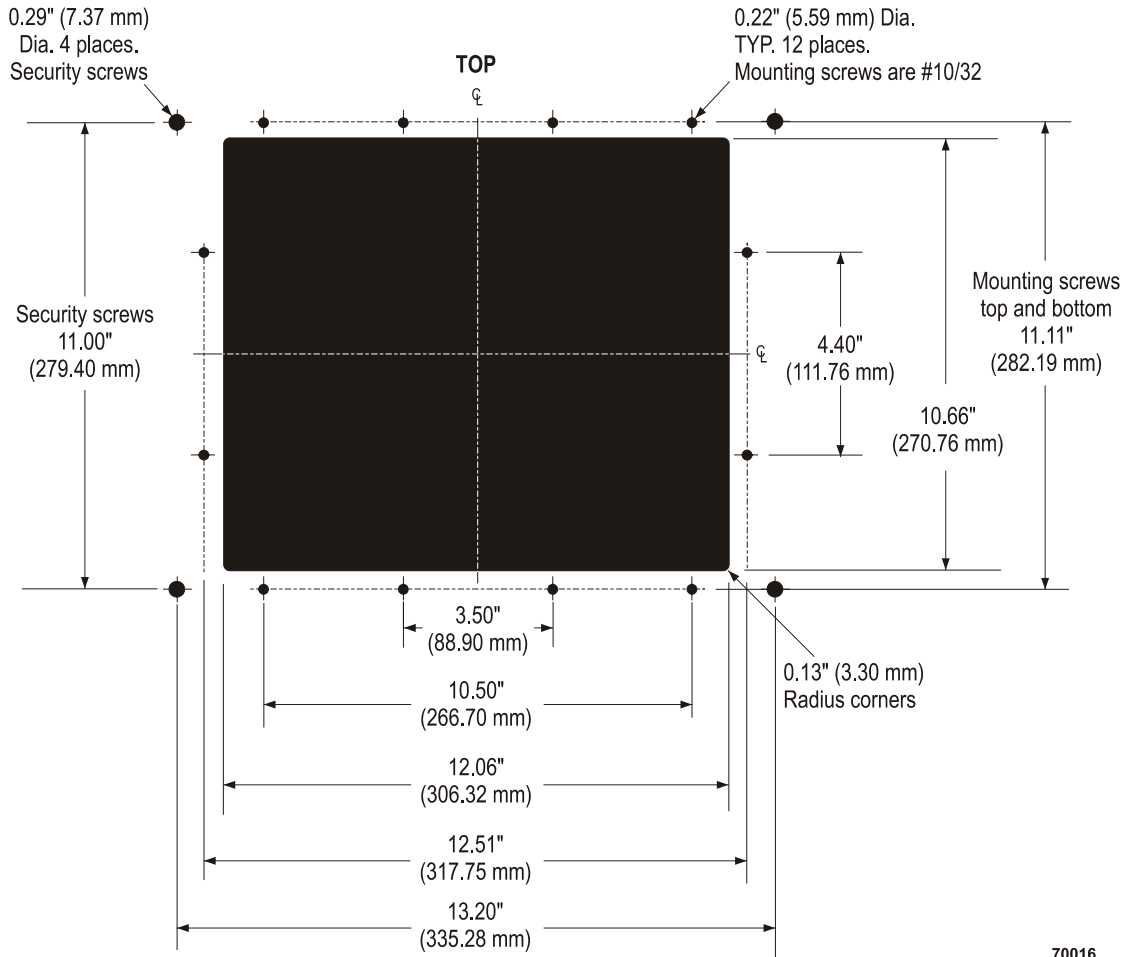
*Note: The depth of 5.25 inches (133.35 mm) includes 1 inch (25.4 mm) of clearance behind the unit so air can circulate over the heat-radiating fins on the back and provide convection cooling. In warm working environments, this depth should be increased.



73167

Figure 25: Enclosure dimensions

Cutout dimensions



Chemical resistance

The MicroTouch™ Near Field Imaging™ (NFI) touch screen is made of glass and will withstand most chemicals and their concentrations that do not corrode glass. If the touch screen's front surface is pitted or damaged by a chemical, the screen continues to function.

Display specifications

Size	10.4 inches (264.16 mm)
Type	TFT active matrix color LCD
Panel colors	16
Contrast ratio (minimum)	150:1
Touch resolution	VGA 640 x 480
Viewing angle	Horizontal: -70 to +70 degrees Vertical: -70° to +40 degrees
Backlights	Two tubes
Backlight life expectancy	50,000 hours (typical)

Serial Communications

Type	16550 compatible asynchronous serial communication channel
Port	Male DB-25 connector may be selected as an RS-232 or RS-422/485 port.
Bytes per second	110 to 19,200 bps full duplex

AC power supply

Voltage	115 to 230 VAC, autoranging
Frequency	50 to 60 Hz

Fuse

Type	<ul style="list-style-type: none">Type T (slow blow) 250 VAC 0.63 A5 mm x 20 mm fuseMaximum power: 60 Watts
Suggested manufacturers	<ul style="list-style-type: none">Littlefuse (p/n 218.630)Bussman (p/n GDC 630mA)

Memory

Non-volatile memory for storing frequently used screens and dynamic character fonts.

Battery

Lithium. Operating life of more than seven years.

Operating conditions

Condition	Range
Operating Temperature	0° C to 50°C (32°F to 122°F)
Humidity	0° to 50° C, 95% non-condensing
Maximum Operating Altitude	10,000 feet (3,048 meters)
Vibration	5–57 Hz 0.006 in. peak displacement 58–2000 Hz 1.0G acceleration
Shock	15 G, 11 ms Pulse

Non-operating conditions

Condition	Range
Storage Temperature	-25° C to 60°C (-13°F to 140°F)
Maximum Storage Altitude	40,000 feet (12,192 meters)
Vibration	5–57 Hz 0.015 in. peak displacement 58–2000 Hz 2.5G acceleration
Shock	30 G, 11 ms Pulse

Documentation

The following documents ship with the terminal:

- *ET 3170 Terminal User's Installation Guide and Service Guide*
- *Installing the NEMA 4X panel gasket*

These documents accompany optional kits available from 3M Touch Systems:

- *Installing the NEMA 4X hatch*
- *Installing the desktop stand*
- *Installing the rack mount*
- *Replacing the backlight*

An application developer's guide is also available for download at www.3Mtouch.com.

Safety standards

UL 60950 (3rd edition)	for Information Technology Equipment
EN 60950	for Information Technology Equipment
CSA C22.2 No. 950-1995	for Information Technology Equipment via UL's C-UL certification

Dust and moisture resistance

NEMA 250	Electrical Enclosures, Type 12, Type 4, Type 4X
IEC 529	Degrees of Protection Provided by Enclosures, IP66

FCC compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide a reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if installed and used in accordance with the instruction manual, may cause interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

CE and EMC emissions compliance

This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

- The ET 3170 terminal complies with the CE mark related to the Low Voltage Directive 73/23/EEC as confirmed in the Declaration of Conformity.

Canadian emissions compliance

The ET 3170 terminal complies with the CE mark related to the EMC Directive 89/336/EEC as confirmed in the Declaration of Conformity.

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Electromagnetic compatibility immunity standards

Electromagnetic compatibility immunity standards	EN61000-6-2
ITE immunity	EN55024
Electrostatic discharge	EN61000-4-2
Radiated immunity	EN61000-4-3
Electrical fast transient	EN61000-4-4
Surge transient	EN61000-4-5
Conducted immunity	EN61000-4-6
AC sags and dropouts	EN61000-4-11

Electromagnetic emission standards

EN55022 Class A

ICES-003 Class A

FCC CFR 47, Part 15, Subpart B, Class A

Product certifications

UL Information Technology Equipment — United States

C-UL Information Technology Equipment — Canada

CE Information Technology Equipment — Europe

C-Tick — Australia, New Zealand

APPENDIX B

Request Identification Command

About the Request Identification command [DA] (Remote)

The Request TCS Identification command allows the host computer to determine the following information about the TCS:

- Type of TCS with which it is communicating
- Firmware version installed in the TCS
- Programmable options installed in the TCS

Operator usage

None. This is a remote command only.

Host usage

This command has two equivalent forms:

<ESC>[c

<ESC>[0c

Either of these strings requests TCS identification. The TCS responds with the following string:

<ESC>[<Pt>;<Pv>;<Pm>;<Pd>;<Pw>;<Po>c

where <Pt> is the TCS type.

If <Pt> is 1, 1020 series

If <Pt> is 2, 1030 series or 2170 EL series (mono units)

If <Pt> is 3, 1050 series or 2170 DSP Series or 3170 (color units)

<Pv> is the firmware version, given as two digits mn, meaning the <tcs> has firmware version m.n installed.

<Pm> designates the number of bytes in decimal of Expansion Memory installed.

If <Pm> is n, that number of bytes is installed

<Pd> is the Expansion Memory device type.

If <Pd> is 0, NVRAM

<Pw> is the write protection status of Expansion Memory.

If <Pw> is 0, write protection is disabled (can write)

<Po> is a reserved parameter.

Example

An example of a TCS identification sequence sent to the host in response to this command is:

```
<ESC>[2;10;98304;0;0;0c
```

The TCS type is Model 1030 (2), with firmware version 1.0(10) containing 96K bytes (98304) of Expansion Memory.

APPENDIX C

Terms and acronyms

Terms

The following terms relate to the ET 3170 terminal.

This Term	Refers to:
Bezel	The front rim of the terminal, containing the touch screen and the faceplate.
Boom mount	An extended hollow arm on the end of which the terminal can be suspended. Power and data cables are carried inside the arm.
Display area	The part of the touch screen that overlays the video display. Touches in this area emulate the movements and actions of a mouse.
Hatch	A cover over the connectors on the back of the terminal. You can choose the NEMA 4X sealed hatch or the post/boom mount hatch for use with the Boom Mount kit. Both types of hatches can be fitted with an extension that allows space for bulky connectors or fittings.
MicroTouch™ Near Field Imaging™ (NFI)	A form of touch screen that uses a proprietary imaging technique to generate a precise profile of a touch from voltage changes in the electrostatic field local to the point of contact.
Touch screen	The front surface of the terminal, comprising the Display Area and the TouchSurround.
TouchSurround	The area on the front of the terminal, not including the Display Area. This area is touch-sensitive and can be used to access a “hidden” Setup switch.

Abbreviations and Acronyms

The following abbreviations and acronyms are used in this manual.

ASCII	American Standard Code for Information Interchange
BIOS	Basic Input Output System
CPU	Central Processing Unit
DRAM	Dynamic Random Access Memory
EPROM	Erasable Programmable Read-Only Memory
KB	Kilobyte; 1024 (2 ¹⁰) bytes
LCD	Liquid Crystal Display
MB	Megabyte; 1,048,576 bytes, or 1024K
NFI	Near Field Imaging
OEM	Original Equipment Manufacturer
POST	Power On Self-Test
RAM	Random Access Memory
SRA	Service Return Authorization
TFT	Thin Film Transistor
TSC	Touch Screen Controller
VGA	Video Graphics Array

Index

A

- Abbreviations and acronyms ■ 66
- AC power supply ■ 14
- Address parameter ■ 35
- Auto Wrap parameter ■ 38

B

- Backlights
 - replacing ■ 50
- Battery
 - operating life of ■ 58
- Boom/post mounting ■ 23

C

- Cleaning
 - enclosure ■ 50
 - touch screen ■ 49
- Communications
 - types of ■ 6
- Configuration overview ■ 6
- Continuous Integrity Test ■ 44
- Cursor Type parameter ■ 31

D

- Desktop stand ■ 23
- Direct Action Area ■ 26
- Display Geometry Test ■ 42
- Documentation ■ 59
- Dust and moisture resistance ■ 60
- Dynamic Character Font 1 Test ■ 48
- Dynamic Character Font 2 Test ■ 48

E

- Electromagnetic compatibility immunity standards ■ 60
- Electromagnetic emission standards ■ 61
- Electrostatic discharge (ESD) and electromagnetic susceptibility standards ■ 60
- Enclosure
 - cleaning ■ 50
 - components of ■ 55
- Error messages ■ 28, 54

- Expansion Memory
 - re-initializing ■ 46
- Extended Character Set Test ■ 43

F

- FCC compliance ■ 60
- Foreground and Background Color ■ 31
- Fuse
 - replacing ■ 50
 - types ■ 58

H

- H/W Handshake ■ 38
- Hatches ■ 22

L

- Local Echo parameter ■ 37
- Local/Remote parameter ■ 37

N

- National Replacement Code parameter ■ 32
- NEMA 4X panel gasket mount ■ 21
- New Line parameter ■ 38

P

- Panel mounting ■ 19
- Parity Enable and Parity Sense parameters ■ 35
- Parity settings ■ 36
- Power
 - specifications ■ 58
- Power on Self-Test ■ 25
- Power supply ■ 6

R

- Rack mounting ■ 22
- Raw Keyboard Test ■ 44
- Request Identification Command ■ 63
- RS-232 communication ■ 12
- RS-422 communication ■ 13
- RS-485 communication ■ 13

S

- Safety
 - notices ■ i
 - standards ■ 59
- Security screws ■ 18
- Serial communication ■ 12
- Setup Parameters
 - changing ■ 29
 - saving ■ 29
 - volatility of ■ 29
- Setup screen ■ 25
- Soft reset ■ 29
- Specifications ■ 55
 - dust & moisture resistance ■ 60
- Standard Character Set Test ■ 43
- Standards
 - Canadian emissions compliance ■ 60
 - CE and EMC emissions compliance ■ 60
 - electromagnetic compatibility immunity standards ■ 60

- electromagnetic emission ■ 61
- FCC compliance ■ 60
- safety ■ 59

Static ASCII Character Font Test ■ 47

Static Special Character Font Test ■ 47

Status messages ■ 28

Stop Bits parameter ■ 36

Stored Screens Test ■ 45

T

Touch Panel Integrity Test ■ 41

Touch screen

- cleaning ■ 49

- resistance to chemicals ■ 57

- testing ■ 39

Transmit Mode ■ 39

Troubleshooting strategies ■ 53

X

XON/XOFF parameter ■ 37

Service Guide

For Service Personnel Only

3M

Dynapro™

ET 3170 Terminal (Series B)

Service Guide

**Read and understand all safety information
before installing and using this product.**

Copyright

This manual is © 3M 2002. All rights reserved.

Reproduction of the contents of this copyrighted manual in whole or in part, by any means, electronic or mechanical, for any purpose, without written permission of 3M Touch Systems, a subsidiary of 3M, is prohibited.

Notice

Given the variety of factors that can affect the use and performance of a 3M Touch Systems Product (the "Product"), including that solid state equipment has operation characteristics different from electromechanical equipment, some of which factors are uniquely within User's knowledge and control, it is essential that User evaluate the 3M Touch Systems Product and software to determine whether it is suitable for User's particular purpose and suitable for User's method of application. 3M Touch Systems' statements, engineering/technical information, and recommendations are provided for User's convenience, but their accuracy or completeness is not warranted. 3M Touch Systems products and software are not specifically designed for use in medical devices as defined by United States federal law. 3M Touch Systems products and software should not be used in such applications without 3M Touch Systems' express written consent. User should contact its sales representative if User's opportunity involves a medical device application.

Important notice to purchaser

Specifications are subject to change without notice. These 3M Touch Systems' Products and software are warranted to meet their published specifications from the date of shipment and for the period stated in the specification. **3M Touch Systems makes no additional warranties, express or implied, including but not limited to any implied warranties of merchantability or fitness for a particular purpose.**

User is responsible for determining whether the 3M Touch Systems Products and software are fit for User's particular purpose and suitable for its method of production, including intellectual property liability for User's application. If the Product, software or software media is proven not to have met 3M Touch Systems' warranty, then 3M Touch Systems' sole obligation and User's and Purchaser's **exclusive remedy**, will be, at 3M Touch Systems' option, to repair or replace that Product quantity or software media or to refund its purchase price. 3M Touch Systems has no obligation under 3M Touch Systems' warranty for any Product, software or software media that has been modified or damaged through misuse, accident, neglect, or subsequent manufacturing operations or assemblies by anyone other than 3M Touch Systems. **3M Touch Systems shall not be liable in any action against it in any way related to the Products or software for any loss or damages, whether non-specified direct, indirect, special, incidental or consequential (including downtime, loss of profits or goodwill) regardless of the legal theory asserted.**

Edition

Document Number: 19914 (Rev. 1.0).
October 2002
(Supersedes 11754)

Trademarks

3M Dynapro, MicroTouch, and Near Field Imaging are trademarks of 3M.

Important Safety Information

Read and understand all safety information before using the 3M Dynapro™ ET 3170 terminal. Follow all instructions marked on the product and described in this document. Pay close attention to the statement of intended use and the safety notices.

Intended use

The 3M Dynapro ET 3170 terminal is intended to provide touch screen functions for industrial applications when the terminal is connected to a host computer. The ET 3170 terminal is *not* intended for use in hazardous locations. Using the terminal in conditions exceeding these ratings will invalidate the warranty and will be solely the user's risk and responsibility. The ET 3170 terminal is a component. After the terminal is installed, the whole system of which it is a part must be inspected to confirm seal ratings and compliance with all local electrical codes.

Safety notices

DANGER

To reduce the risks associated with fire and explosion which, if not avoided, will cause death or serious injury and/or property damage:

- Do not install or use the ET unit in a hazardous location.

WARNING

To reduce the risks associated with fire and explosion which, if not avoided, could result in death or serious injury and/or property damage:

- Refer to the cleaner manufacturer's material safety data sheet and follow all instructions and recommendations.
- Do not use flammable or combustible cleaners.

WARNING

To reduce the risks associated with electrical shock or fire which, if not avoided, could result in death or serious injury and/or property damage:

- Engineer the installation of the ET unit to take into account the operating environment (e.g., thermal, shock/vibration factors).
- Install the ET unit close to the power source so the unit can be easily and quickly disconnected. For permanently connected equipment, a readily accessible disconnect device must be incorporated in the fixed wiring.
- Follow all product and accessory installation instructions.
- Any servicing or other procedures not described in this manual are to be performed only by 3M Touch Systems service personnel.
- To ensure compliance with electrical codes and safe operation of the ET unit, have a licensed journeyman electrician familiar with local and federal codes perform all wiring tasks.
- When connecting power with fixed field wiring, the power cable must be double insulated. A clear, flexible insulator (supplied) must cover the portion of the cable that is not double insulated when connecting to a terminal strip connector.

 **WARNING**

To reduce the risks associated with electrical shock or fire which, if not avoided, could result in death or serious injury and/or property damage:

- Provide a clean, reliable grounding.
- When installing the ET unit, ensure that specifications for supply circuit overcurrent protection and wiring are not exceeded.
- Properly install the ET unit with a NEMA 4X/IP66 gasket that is undamaged and effective.
- Do not use an ET unit that is not rated to NEMA 4X/IP66 in an environment that requires a NEMA 4X/IP66 seal.
- When replacing a fuse of other part, use a part of the type and rating specified by 3M Touch Systems.

 **WARNING**

To reduce the risks associated with electrical shock which, if not avoided, could result in death or serious injury and/or property damage:

- Do not open the power supply in the ET unit. It contains hazardous voltages. The power supply has no user-serviceable parts or adjustments inside.
- Make sure that the ground potential difference between the ET unit and the host computer is less than 2V.
- Qualified service personnel should avoid exposed electrical contacts inside the ET unit.
- Before removing the ET unit from its mounting or performing any other service to the unit, disconnect power to the unit.
- Provide adequate strain relief for all communications and power cables.

 **CAUTION**

To reduce the risks associated with fire and electrical shock that may result in personal injury or property damage:

- If the ET unit will be used in corrosive environments, it is the responsibility of the user to test and evaluate the unit in those environments. The ET unit, as shipped, has not been evaluated for use in corrosive environments and using it in such environments, without evaluation and testing, may lead to unsafe conditions.

 **CAUTION**

To reduce the risks associated with fire which, if not avoided, could result in property damage:

- Use only installation materials supplied. Use of materials other than those supplied may result in uneven mechanical loading and will invalidate the warranty.

 **CAUTION**

To reduce the risks associated with muscle strain which, if not avoided, may result in minor or moderate injury:

- Avoid using the ET unit for long periods of time without breaks.

 **CAUTION**

To reduce the risks associated with eye strain which, if not avoided, may result in minor or moderate injury:

- Use the ET unit where there is neither too much ambient light nor glare on the screen.






 **CAUTION**

To reduce the risks associated with environmental contamination which, if not avoided, may result in minor or moderate injury and/or cause property damage:

- Dispose of the ET unit according to applicable government regulations.

Safety labels

The following safety symbols appear on your 3M Dynapro industrial product and its packaging materials:

Symbol	Meaning
	Consult user instructions.
	Caution: Risk of electric shock.
	Caution: Item is susceptible to electrostatic discharge (ESD) damage if proper precautions are not taken.
 	Lifting hazard

Contents

Chapter 1	About the Service Guide	1
	Who should read this Service Guide	1
	What it's about	1
Chapter 2	Setting jumpers.....	3
	Tools required	3
	Setting jumpers on the logic board.....	3
	Setting jumpers on the I/O filter board.....	6
	Connector pin-outs and cable diagrams	8

CHAPTER 1

About the Service Guide

Who should read this Service Guide

The *ET 3170 Terminal Service Guide* is for qualified service personnel who need to make adjustments inside the enclosure of the 3M Dynapro™ ET 3170 terminal.

 WARNING
--

<p>To reduce the risks associated with electrical shock or fire which, if not avoided, could result in death or serious injury and/or property damage:</p>

- | |
|--|
| <ul style="list-style-type: none">• Follow all product and accessory installation instructions.• Any servicing or other procedures not described in this manual are to be performed only by 3M Touch Systems service personnel. |
|--|

What it's about

This service manual explains how to:

- Set jumpers on the logic board for RS-232, RS-422, and RS-485 communications.
- Set jumpers on the I/O filter board to add 100 ohm termination resistors across the TX+, TX- or RX+, RX- signal lines.

Before performing service on the terminal, check the label on the chassis to confirm that the unit is a “Series B” terminal.

If the label on your unit indicates that it is a “Series A” terminal, you have an earlier version of the product and you should refer to the *ErgoTouch 3170 TCS Terminal Installation Guide* (document 11754). This document may be downloaded from archived technical documents at www.3Mtouch.com.

CHAPTER 2

Setting jumpers

About this chapter

This chapter explains how to:

- Set jumpers on the logic board for RS-232, RS-422, and RS-485 communications. To be sure that you have the correct version of the logic board, check the series number of the terminal, as described in “What it’s about” on page 1.
- Set jumpers on the I/O filter board to add 100 ohm termination resistors across the TX+, TX- or RX+, RX- signal lines.

Tools required

You will need the following tools:

- 5/32-inch Allen key
- Needle nose pliers
- No. 2 Phillips torque screwdriver

Setting jumpers on the logic board

This procedure is only necessary if you wish to switch the jumper on the logic board from the RS-232 header (the default) to the RS-422 or the RS-485 headers.

 **WARNING**

To reduce the risks associated with electrical shock or fire which, if not avoided, could result in death or serious injury and/or property damage:

- To ensure compliance with electrical codes and safe operation of the ET unit, have a licensed journeyman electrician familiar with local codes perform all wiring tasks.

To set the jumpers on the logic board:

1. Put on a grounding strap.



Important

To prevent damage from electrostatic discharge, be sure you are wearing a grounding wrist or ankle strap before touching any components inside the enclosure.

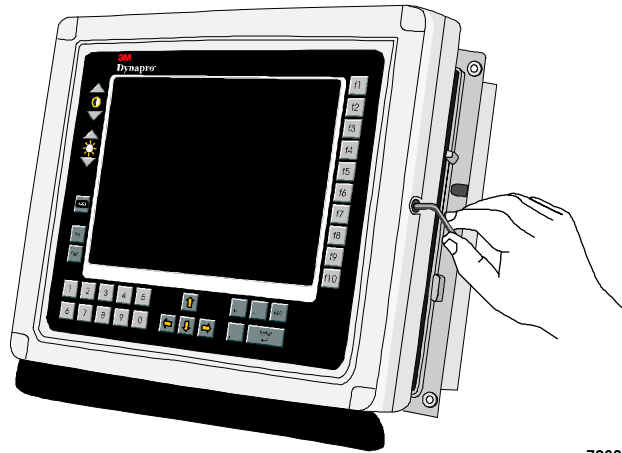
2. Disconnect power to the terminal.

WARNING

To reduce the risks associated with electrical shock or fire which, if not avoided, could result in death or serious injury and/or property damage:

- Before removing the ET unit from its mounting or performing any other service to the unit, disconnect power to the unit.

3. Remove security screws, if there are any installed.
4. Use the Allen key to open the enclosure (Figure 1), turning the key counter-clockwise one quarter turn.



72027

Figure 1: Opening enclosure using Allen key

5. Open the unit by grasping the front right side and pulling to the left.
6. Inside the enclosure, locate the 6-pin header with the JP2 jumper (Figure 2).

WARNING

To reduce the risks associated with fire and explosion which, if not avoided, could result in death or serious injury and/or property damage:

- Do not open the power supply in the ET unit. It contains hazardous voltages. The power supply has no user-servicable parts or adjustments inside.

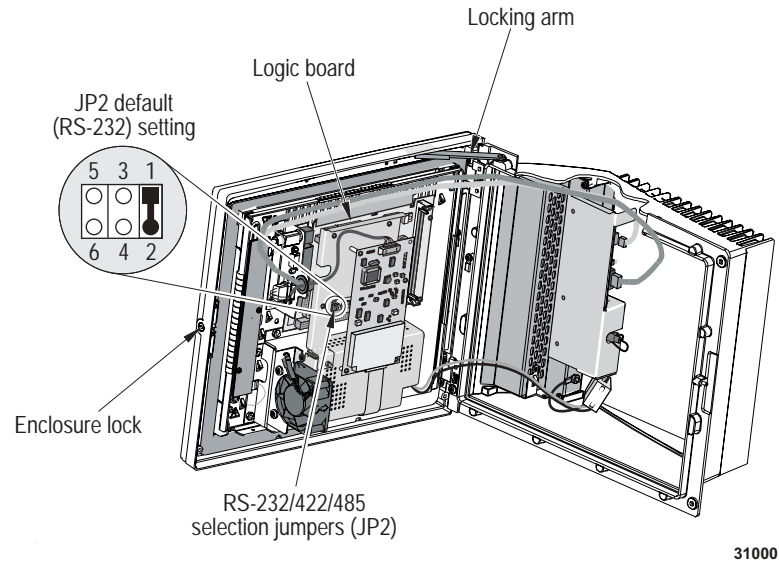


Figure 2: Location of logic board jumpers

7. Using needle nose pliers, pull the jumper off the header.
8. Use the pliers to install the jumper at another position on the header (Figure 3). The position of the jumper will configure the serial port to operate in RS-232, RS-422, or RS-485 modes.

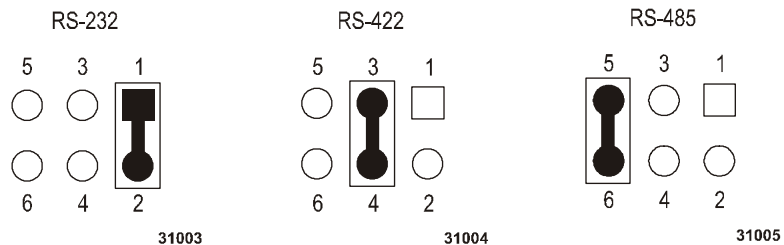


Figure 3: Heading settings on logic board

9. If you are switching the position of the jumper on the logic board to operate in RS-422 or RS-485 modes, set the jumpers on the I/O filter board before closing the terminal. See “Setting jumpers on the I/O filter board”, page 6.
10. If you will not be setting jumpers on the I/O filter board, close the unit by releasing the locking arm and then locking the unit with the Allen key.
11. If your unit had security screws, replace them now.
12. Reconnect power to the unit.

Important

Make sure that the setup screen is correctly set for your communication needs. If you are using RS-422 or RS-485, set and save the Address parameter at RS-422. There is not a separate Address parameter for RS-485.

Setting jumpers on the I/O filter board

This procedure is necessary only if you wish to add jumpers on the I/O filter board. These jumpers add 100 ohm termination resistors across the TX+, TX- or RX+, RX- signal lines.

 **WARNING**

To reduce the risks associated with electrical shock or fire which, if not avoided, could result in death or serious injury and/or property damage:

- To ensure compliance with electrical codes and safe operation of the ET unit, have a licensed journeyman electrician familiar with local codes perform all wiring tasks.

To set the jumpers on the I/O filter board:

1. Put on a grounding strap.



Important

To prevent damage from electrostatic discharge, be sure you are wearing a grounding wrist or ankle strap before touching any components inside the enclosure.

2. Disconnect power to the unit.

 **WARNING**

To reduce the risks associated with electrical shock or fire which, if not avoided, could result in death or serious injury and/or property damage:

- Before removing the ET unit from its mounting or performing any other service to the unit, disconnect power to the unit.

3. Remove security screws, if any are installed.
4. Use the Allen key to open the enclosure of the unit (Figure 1 on page 4), turning the key counter-clockwise one quarter turn.
5. Open the unit by grasping the front right side and pulling to the left.

 **WARNING**

To reduce the risks associated with fire and explosion which, if not avoided, could result in death or serious injury and/or property damage:

- Do not open the power supply in the ET unit. It contains hazardous voltages. The power supply has no user-servicable parts or adjustments inside.

6. Locate the two headers marked J1 and J2. They are found on the component side of the I/O filter board.

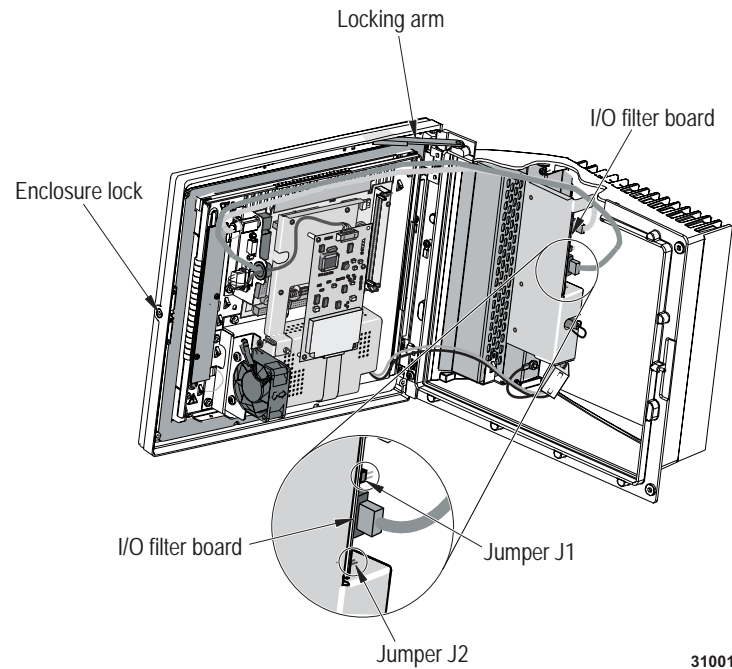


Figure 4: Location of jumpers on I/O filter board

7. Using needle nose pliers, push the first jumper on J1 and the second jumper on J2.
 - Adding a jumper to J1 adds a 100 ohm termination resistor between the TX+ and TX- pins.
 - Adding a jumper to J2 adds a 100 ohm termination resistor between the RX+ and RX- pins.
8. Close the unit by releasing the locking arm and then locking the unit with the Allen key.
9. If your unit had security screws, replace them now.
10. Reconnect power to the unit.

Connector pin-outs and cable diagrams

The following illustrations show the suggested connector pin-outs and cable diagrams for RS-422 and RS-485 communications.

Your host system may have a different pin-out than presented in the drawing. Refer to the documentation of the host for the correct pin-out.

RS-422 communications

For reliable operation, termination resistors should be installed on both sets of lines. For more information, see “Setting jumpers on the I/O filter board” on page 6.

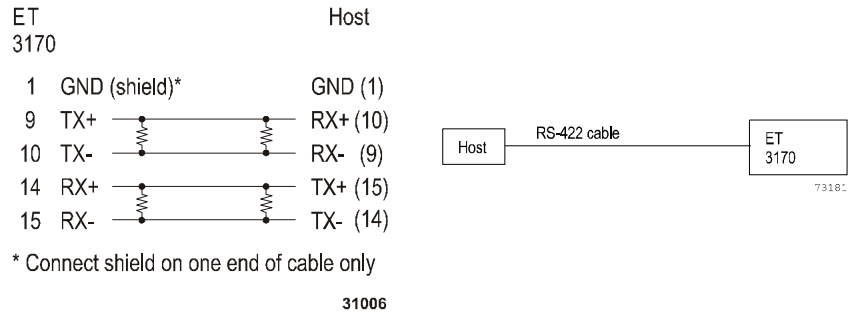


Figure 5: RS-422 cable: Connector pin-out and cable diagram

RS-485 communications

Termination resistors should be installed on both sets of lines for reliable operation. For more information, see “Setting jumpers on the I/O filter board” on page 6.

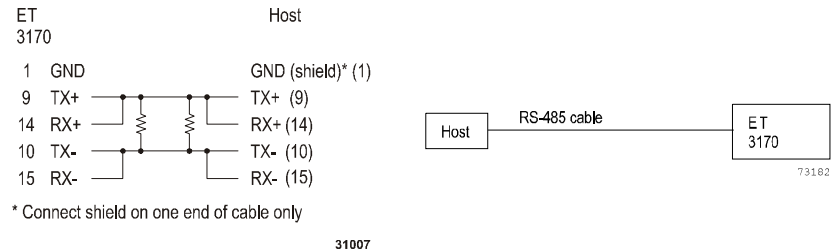


Figure 6: RS-485 cable: Connector pin-out and cable diagram

RS-232 communication

Use a standard cable for RS-232 communications. Alternatively, make a cable for RS-232 communications using the pin-out shown in Table A. The maximum cable length is 50 feet.

Table A: COM A RS-232 connector pin-out

Pin	Signal	Description	In/Out
1	CGND	Shield Ground ¹	---
2	TXD	Transmit Data	OUT
3	RXD	Receive Data	IN
4	RTS	Request To Send	OUT
5	CTS	Clear To Send	IN
6	DSR	Data Set Ready	IN
7	SGND	Signal Ground	---
8	DCD	Data Carrier Detect	IN
20	DTR	Data Terminal Ready	OUT
22	RI	Ring Indicator	IN

¹Connect only one end of the cable to shield ground.

RS-422 communication

To make a cable for RS-422 communications, use the pin-out shown in Table B. For maximum cable length, refer to the EIA RS-422 Specification Standard.

Table B: COM A RS-422 connector pin-out (full duplex)

Pin	Signal	Description	In/Out
1	GND	Shield Ground ¹	---
9	TX+	Balanced Transmit data +	OUT
10	TX-	Balanced Transmit data -	OUT
14	RX+	Balanced Receive data +	IN
15	RX-	Balanced Receive data -	IN

¹Connect only one end of the cable to shield ground.

RS-485 communication

To make a cable for RS-485 communications, use the pin-out shown in Table C. For maximum cable length, refer to the EIA RS-485 Specification Standard.

Table C: COM A RS-485 connector pin-out (half duplex)

Pin	Signal	Description	In/Out
1	GND	Shield Ground ¹	---
9	TX/ RX +	Balanced Transmit data + Connect to pin 14	IN/ OUT
10	TX/ RX -	Balanced Transmit data - Connect to pin 15	IN/ OUT
14	TX/ RX+	Balanced Receive data + Connect to pin 9	IN/ OUT
15	TX/ RX-	Balanced Receive data - Connect to pin 10	IN/ OUT

¹Connect only one end of the cable to shield ground.