

PANTHER[®]

Panel-Mount Terminal

Division 2 Installation Guide

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	Part / Model Number:
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E-mail Address:	Contact Name:
	Phone Number:

How well did this product meet your expectations in its intended use?	Comments:
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☐ Met all needs	
☐ Met most needs	
☐ Met some needs	
☐ Did not meet my needs	

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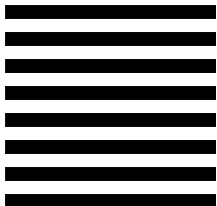
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INTRODUCTION

This publication is provided solely as a guide for individuals who have received Technical Training in servicing and installing the METTLER TOLEDO product.

Information regarding METTLER TOLEDO Technical Training may be obtained by writing to:

METTLER TOLEDO
1900 Polaris Parkway
Columbus, Ohio USA 43240
(US and Canada) 614-438-4511
(All Others) 614-438-4888

NOTICE

This document is associated with an agency-approved product. No changes to this document are permitted without agency approval.

PRECAUTIONS

READ this manual BEFORE installing, operating or servicing this equipment.

FOLLOW these guidelines carefully.

SAVE this manual for future reference.

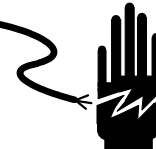
DO NOT allow untrained personnel to operate, clean, inspect, maintain, service, or tamper with this equipment.

ALWAYS DISCONNECT this equipment from the power source before cleaning or performing maintenance.

CALL METTLER TOLEDO for parts, information, and service.

	 WARNING!
	METTLER TOLEDO ASSUMES NO RESPONSIBILITY FOR CORRECT INSTALLATION OF THIS EQUIPMENT WITHIN A DIVISION 2 AREA. THE INSTALLER MUST BE FAMILIAR WITH ALL DIVISION 2 WIRING AND INSTALLATION REQUIREMENTS.

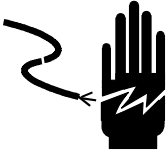
	 WARNING!
	THE PANTHER PANEL-MOUNT TERMINAL IS NOT INTRINSICALLY SAFE! DO NOT USE WITHIN AREAS CLASSIFIED AS HAZARDOUS DIVISION 1 OR ZONE 0/1 BECAUSE OF COMBUSTIBLE OR EXPLOSIVE ATMOSPHERES.

	 WARNING!
	DISCONNECT ALL POWER TO THIS UNIT BEFORE INSTALLING, SERVICING, CLEANING, OR REMOVING THE FUSE. FAILURE TO DO SO COULD RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.

	 WARNING!
	THE PANTHER PANEL-MOUNT TERMINAL HAS A TEMPERATURE RATING OF T4a (120° C). IT MUST NOT BE USED IN AREAS WHERE THE AUTO IGNITION TEMPERATURE OF THE HAZARDOUS MATERIAL IS BELOW THIS RATING.

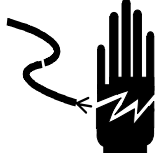
	 WARNING!
	PREVIOUS MODELS OF THE PANTHER PANEL-MOUNT TERMINAL WHICH ARE NOT FACTORY-LABELED FOR DIVISION 2 COMPLIANCE MAY NOT BE INSTALLED INTO A DIVISION 2 ENVIRONMENT. THE PANTHER HARSH ENVIRONMENT TEMRINAL IS NOT APPROVED FOR USE IN AREAS CLASSIFIED AS DIVISION 2.

	 CAUTION
	OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.

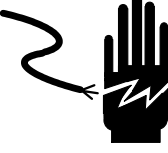
	 WARNING!
	ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY HARM.

	 WARNING!
	FOR CONTINUED PROTECTION AGAINST SHOCK HAZARD, CONNECT TO PROPERLY GROUNDED OUTLET ONLY. DO NOT REMOVE THE GROUND PRONG.

	 WARNING!
	IN ORDER TO USE THE ANALOG PANTHER PANEL-MOUNT TERMINAL IN AN AREA CLASSIFIED AS CLASS I, II OR III, DIVISION 2, GROUPS A, B, C, D, F OR G, METTLER TOLEDO CONTROL DRAWING 155907R MUST BE FOLLOWED WITHOUT EXCEPTION. FAILURE TO DO SO COULD RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.

	 WARNING!
	WHEN THIS EQUIPMENT IS INCLUDED AS A COMPONENT PART OF A SYSTEM, THE RESULTING DESIGN MUST BE REVIEWED BY QUALIFIED PERSONNEL WHO ARE FAMILIAR WITH THE CONSTRUCTION AND OPERATION OF ALL COMPONENTS IN THE SYSTEM AND THE POTENTIAL HAZARDS INVOLVED. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.

	 WARNING!
	IF THIS DEVICE IS USED IN AN AUTOMATIC OR MANUAL FILLING CYCLE, ALL USERS MUST PROVIDE A HARD-WIRED EMERGENCY STOP CIRCUIT OUTSIDE THE DEVICE CIRCUITRY. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN BODILY INJURY AND/OR PROPERTY DAMAGE.

	 WARNING
	POWER OUTLETS MUST BE EASILY ACCESSIBLE AND LOCATED NO FURTHER THAN THE LENGTH OF THE POWER CORD SUPPLIED WITH THE PRODUCT. FAILURE TO DO SO COULD IN RESULT IN PERSONAL INJURY AND/OR PROPERTY.

Mettler-Toledo Inc.
Columbus, Ohio

**Declaration of Conformance to SMA Standard
Production Meets Type**

(Year of Declaration 2002)



We the manufacturer of

Model	Certificate and Number	Issued by
Panther	CoC 96-125	NCWM
Panther Plus	CoC 96-125	NCWM

declare in our responsibility the conformance of the above listed models and types to the mentioned certificates and the requirements of the SMA standard.

This declaration becomes valid when the SMA Compliance Logo, having our name or trademark is applied to the device or its accompanying documentation.

CONTENTS

1	Introduction.....	1-1
	Hazardous Area Classification.....	1-2
	Protection Approaches.....	1-2
2	Installation.....	2-1
	Non-incendive Inputs and Outputs	2-2
	Incendive Inputs and Outputs	2-3
	Temperature Rating	2-3
	Application Example Using Load Cells.....	2-4
3	Special Requirements	3-1
	Enclosures	3-1
	Areas With Different Classifications	3-1
	Replacement Parts	3-2
4	Control Drawings.....	4-1
	KEMA Approval	4-1
	(Europe)	4-1
	Factory Mutual Approval (United States).....	4-1

1

Introduction

This installation guide describes basic concepts about Division 2 hazardous areas and provides installation guidelines for installing the Factory Mutual approved PANTHER panel-mount terminal into hazardous environments rated as Division 2. Only PANTHER panel-mount terminals which are factory-labeled as approved for Division 2 may be installed into Division 2 hazardous areas. Refer to the next chapter for details of the required data plate markings. Previous models of the PANTHER terminal which are not factory-labeled for Division 2 compliance may not be installed into Division 2 environments. The PANTHER harsh environment terminal is NOT approved for use in areas classified as Division 2.

Only analog load cell versions of the PANTHER panel-mount terminal have been approved for use in a Division 2 area. DigiTOL versions of the PANTHER panel-mount terminal are NOT approved for use in areas classified as Division 2.

	 WARNING
	METTLER TOLEDO ASSUMES NO RESPONSIBILITY FOR CORRECT INSTALLATION OF THIS EQUIPMENT WITHIN A DIVISION 2 AREA. THE INSTALLER MUST BE FAMILIAR WITH ALL DIVISION 2 WIRING AND INSTALLATION REQUIREMENTS.

At the end of this guide, there is a METTLER TOLEDO control drawing number 155907R. The PANTHER panel-mount terminal must be installed according to this control drawing. No exceptions are permitted. In addition, the installer must be familiar with all other wiring and installation requirements for Division 2 areas.

	 WARNING
	IN ORDER TO USE THE ANALOG PANTHER PANEL-MOUNT TERMINAL IN AN AREA CLASSIFIED AS CLASS I, II OR III, DIVISION 2, GROUPS A, B, C, D, F OR G, METTLER TOLEDO CONTROL DRAWING 155907R MUST BE FOLLOWED WITHOUT EXCEPTION. FAILURE TO DO SO COULD RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.

The PANTHER panel-mount terminal has been approved for use in an area classified as Division 2. This approval DOES NOT mean that the PANTHER panel-mount terminal can be used in Division 1 areas. Different precautions must be taken when installing equipment into a Division 1 area. Please consult your local METTLER TOLEDO representative regarding applications in a Division 1 area.

	 WARNING
	THE PANTHER PANEL-MOUNT TERMINAL IS NOT INTRINSICALLY SAFE! DO NOT USE WITHIN AREAS CLASSIFIED AS HAZARDOUS DIVISION 1 OR ZONE 0/1 BECAUSE OF COMBUSTIBLE OR EXPLOSIVE ATMOSPHERES.

Hazardous Area Classification

A hazardous (explosive) area is classified as a Division 2 area when the hazard is either not present during normal operating conditions or is present only for very short periods of time. This typically happens in an area adjacent to a Division 1 area. The area must be classified by an agent of the customer. **METTLER TOLEDO DOES NOT CLASSIFY HAZARDOUS AREAS.**

The PANTHER panel-mount terminal has been Factory Mutual approved for use in areas classified as:

Class I, II, III, Division 2, Groups A, B, C, D, F, G Temp = T4a

when installed in a nationally recognized, test laboratory-approved, dust-tight enclosure appropriate for the environment and installed per METTLER TOLEDO control drawing 155907R.



Protection Approaches

Various protection methods are used by manufacturers of equipment located within a Division 2 classified area. METTLER TOLEDO uses non-incendive circuits. All inputs and outputs to the PANTHER panel-mount terminal have been classified as incendive (capable of arcing or sparking – such as switches or relays) or non-incendive (incapable of arcing or sparking). Depending upon how a specific input or output is defined, it must be protected accordingly. For installation in the United States, refer to the current version of the National Electrical Code (NFPA 70, Articles 500 – 504) and ANSI/ISA-RP12.6 for specific requirements. For locations outside the US, refer to the electrical regulations for the country of installation for the specific wiring requirements.

As a general guide, if a signal is rated as non-incendive and is connected to another non-incendive device and the non-incendive field circuit parameters agree in the correct manner, no special protection of the signal is required. The 155907R control drawing and this manual both contain a list of field circuit parameters for each non-incendive output from the PANTHER panel-mount terminal, including voltage, current, capacitance and inductance values. Comparing these values from the PANTHER panel-mount terminal with those of other approved apparatuses (such as load cells) enable the PANTHER panel-mount terminal to be used with METTLER TOLEDO's or other manufacturers' load cells in an approved system. (Refer to Chapter 2.)

If a signal cannot be classified as non-incendive, follow the electrical regulations for the country of installation for specific wiring requirements of incendive equipment in a Division 2 area.

	 WARNING
	TO USE THE ANALOG PANTHER PANEL-MOUNT TERMINAL IN AN AREA CLASSIFIED AS CLASS I, II OR III, DIVISION 2, GROUPS A, B, C, D, F OR G, METTLER TOLEDO CONTROL DRAWING 155907R MUST BE FOLLOWED WITHOUT EXCEPTION. FAILURE TO DO SO COULD RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.



For your notes

2

Installation

Before installing the PANTHER panel-mount terminal in an area classified as Division 2, read and understand the METTLER TOLEDO control drawing 155907R in the last chapter of this guide. Make note of the inputs and outputs that will be used and the type of protection required for each I/O. Also note that the PANTHER panel-mount terminal must be installed into a Nationally Recognized Test Laboratory approved dust tight enclosure appropriate for the environment.

	 WARNING
	METTLER TOLEDO ASSUMES NO RESPONSIBILITY FOR CORRECT INSTALLATION OF THIS EQUIPMENT WITHIN A DIVISION 2 AREA. THE INSTALLER MUST BE FAMILIAR WITH ALL DIVISION 2 WIRING AND INSTALLATION REQUIREMENTS.

	 WARNING
	IN ORDER TO USE THE ANALOG PANTHER PANEL-MOUNT TERMINAL IN AN AREA CLASSIFIED AS CLASS I, II OR III, DIVISION 2, GROUPS A, B, C, D, F OR G, METTLER TOLEDO CONTROL DRAWING 155907R MUST BE FOLLOWED WITHOUT EXCEPTION. FAILURE TO DO SO COULD RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.

Confirm that the data plate on the PANTHER panel-mount terminal indicates that it has been approved for use in Division 2 areas. The data plate is located on the top of the housing near the back panel. If the PANTHER panel-mount terminal is one that has been approved for use in Division 2 areas by Factory Mutual, there will be two data plates present, and the approval data plate will look like the example below.

METTLER TOLEDO	
MODEL: PANTHER	
SUITABLE FOR USE IN CL I GP A-D DIV 2,CL II GP F,G DIV 2,CL III DIV 2	
WHEN INSTALLED PER METTLER TOLEDO DRAWING 155907R.	
Ta = 45°C Temperature ID = T4B (120°C)	
Mettler-Toledo, Inc. Columbus, Ohio 43240 Made in U.S.A.	

If the PANTHER panel-mount terminal data plate does not include the approval information as shown above, the PANTHER panel-mount terminal cannot be installed in a Division 2 area.

	 WARNING
	THE PANTHER PANEL-MOUNT TERMINAL IS NOT INTRINSICALLY SAFE! DO NOT USE WITHIN AREAS CLASSIFIED AS HAZARDOUS DIVISION 1 OR ZONE 0/1 BECAUSE OF COMBUSTIBLE OR EXPLOSIVE ATMOSPHERES.

Non-incendive Inputs and Outputs

If a specific input or output is rated non-incendive, then a list of the field circuit parameters for that I/O will be given. If a Division 2 approved apparatus will be connected to a PANTHER terminal non-incendive input or output, then a comparison must be made between the field circuit parameters of both devices including the connecting cable. These field circuit parameters include voltage, current, capacitance and inductance. The two devices must compare as follows in order for the wiring to be considered non-incendive:

$$V_{\max} \text{ (Maximum voltage permitted)} \geq \underline{V_i \text{ (Total voltage output)}}$$

$$I_{\max} \text{ (Maximum current permitted)} \geq \underline{I_i \text{ (Total current output)}}$$

$$C_i \text{ (Input capacitance)} + C_{\text{cable}} \text{ (Cable capacitance)} \leq \underline{C_a \text{ (Allowable capacitance)}}$$

$$L_i \text{ (Input inductance)} + L_{\text{cable}} \text{ (Cable inductance)} \leq \underline{L_a \text{ (Allowable inductance)}}$$

The field circuit parameters associated with the PANTHER panel-mount terminal are underlined in the above formulas. The other parameters are related to the other approved apparatus or the connecting cable.

If the above conditions are not true, then the circuit must be treated as an incendive input or output and protected accordingly. If the parameters compare favorably as shown above, then no special protection is required for the wiring. Always refer to the electrical regulations for the country of installation for specific wiring requirements.

The following inputs and outputs are rated non-incendive on the PANTHER panel-mount terminal. The field circuit parameters for each I/O are also listed.

- Load Cell

$$V_i = 5.5 \text{ VDC}$$

$$I_i = 166 \text{ mA}$$

$$C_a = 590 \text{ }\mu\text{F}$$

$$L_a = 1.3 \text{ mH}$$

- RS-232 Port

$$V_i = 5.5 \text{ VDC}$$

$$I_i = 166 \text{ mA}$$

$$C_a = 600 \text{ }\mu\text{F}$$

$$L_a = 0.22 \text{ mH}$$

- Analog Output

$$V_i = 13.6 \text{ VDC}$$

$$I_i = 289 \text{ mA}$$

$$C_a = 3 \text{ }\mu\text{F}$$

$$L_a = 0.7 \text{ mH}$$

- Profibus Interface

$$V_i = 5.5 \text{ VDC}$$

$$I_i = 171 \text{ mA}$$

$$C_o = 218 \text{ } \mu\text{F}$$

$$L_o = 0.45 \text{ mH}$$

Incendive Inputs and Outputs

If a specific input or output is rated incendive, then special wiring precautions must be taken to protect the wiring in the Division 2 area. Refer to the electrical regulations for the country of installation for specific wiring requirements.

All inputs and outputs to the PANTHER panel-mount unit not listed above as non-incendive must be treated as incendive. They include:

- AC power input
- Discrete inputs and outputs
- Allen Bradley RIO
- Modbus Plus interface

Temperature Rating

It is important that the temperature rating of the PANTHER panel-mount terminal be appropriate for the environment in which it will be used. FM has approved the PANTHER panel-mount terminal for a temperature rating of T4a. This indicates that the maximum surface temperature of the terminal will not exceed 120°C (248°F). This value must be lower than the Auto Ignition Temperature (AIT) of the hazardous product in order to be safe. If the AIT of the hazardous product is lower than the T4a rating of the PANTHER panel-mount terminal, the panel-mount terminal **MUST NOT BE USED** in that environment.

	 WARNING THE PANTHER PANEL-MOUNT TERMINAL HAS A TEMPERATURE RATING OF T4a (120° C). IT MUST NOT BE USED IN AREAS WHERE THE AUTO IGNITION TEMPERATURE OF THE HAZARDOUS MATERIAL IS BELOW THIS RATING.
---	---

Application Example Using Load Cells

The following is an example of applying the PANTHER terminal in a Division 2 application connecting a model 2158 Vertex floor scale with 50 feet of load cell cable. The field circuit parameters for all devices and cables in the load cell line (including the load cells and junction box) must also be known.

Terminal model:	PANTHER terminal (Division 2 approved)
Base model:	2158 Vertex (with Division 2 approved cells)
Load cell model:	METTLER TOLEDO 0745A
Quantity of load cells:	4
Load cell cable length:	50 feet
Junction box PCB p/n:	13640300A

PANTHER field circuit parameters from control drawing 155907R:

$$V_i = 5.5 \text{ VDC}$$

$$I_i = 166 \text{ mA}$$

$$C_a = 590 \text{ } \mu\text{F}$$

$$L_a = 1.3 \text{ mH}$$

Load cell field circuit parameters from 745A load cell control drawing:

$$V_{\max} = 25 \text{ VDC}$$

$$I_{\max} = 600 \text{ mA}$$

$$C_i = 0 \text{ } \mu\text{F}$$

$$L_i = 29 \text{ } \mu\text{H}$$

Load cell cable default values from PANTHER terminal control drawing 155907R:

$$C_{\text{cable}} = 60 \text{ F / foot}$$

$$L_{\text{cable}} = 0.2 \text{ } \mu\text{H / foot}$$

The 2158 junction box PCB was determined to not have significant capacitance or inductance impact. Values shown below should be used.

$$C_i = 0 \text{ pF}$$

$$L_i = 0 \text{ } \mu\text{H}$$

Compare these values using the formulas provided in the previous section of this chapter and determine if all four criteria pass or fail. Note that the field circuit parameters for capacitance (but not inductance) of the load cell must be multiplied by the quantity of load cells used. Also, the field circuit parameters for the load cell cable must be multiplied by the total load cell cable length.

Formula	Pass or Fail
V_{max} must be $\geq V_i$ $25 \text{ VDC} \geq 5.5 \text{ VDC}$	<u>PASS</u>
I_{max} must be $\geq I_i$ $600 \text{ mA} \geq 166 \text{ mA}$	<u>PASS</u>
$C_i + C_{cable} \leq C_a$ $C_i = 0 \text{ } \mu\text{F} * 4 \text{ cells} = 0 \text{ } \mu\text{F}$ (load cells) $C_i = 0 \text{ } \mu\text{F}$ (junction box) $C_{cable} = 60 \text{ pF / foot} * 50 \text{ feet} = 3 \text{ nF}$ $(0 \text{ } \mu\text{F} + 0 \text{ } \mu\text{F} + 3 \text{ nF}) \leq 590 \text{ } \mu\text{F}$	<u>PASS</u>
$L_i + L_{cable} \leq L_a$ $L_i = 29 \text{ } \mu\text{H}$ (the largest inductance value of a single cell is used) $L_i = 0 \text{ } \mu\text{H}$ (junction box) $L_{cable} = 0.2 \text{ } \mu\text{H / foot} * 50 \text{ feet} = 10 \text{ } \mu\text{H}$ $(29 \text{ } \mu\text{H} + 0 \text{ } \mu\text{H} + 10 \text{ } \mu\text{H}) \leq 1.3 \text{ mH}$	<u>PASS</u>

In addition to the formulas above, the temperature rating of the PANTHER panel-mount terminal must be checked against the AIT (Auto Ignition Temperature) of the hazardous product. For this example, the hazardous product has an AIT of 200°C (393°F) which is higher than the rating of the panel-mount terminal, which is 120°C (248°F). This indicates the temperature comparison test passes.

Since all four field circuit parameters compare favorably and pass the formula evaluation and the temperature comparison test passes, the products listed in this example may be safely installed into a Division 2 area. They must be installed according to control drawing 155907R using all pertinent local and national standards. Note that the load cells must also be approved for use in Division 2 areas and the field circuit parameters and temperature ratings must be known. If the load cells used (regardless of manufacturer) do not have Division 2 approval, they cannot be connected to the PANTHER panel-mount terminal in an area classified as Division 2.



For your notes

3

Special Requirements

When a PANTHER panel-mount terminal is installed inside an area classified as Division 2, some special requirements must be considered. This chapter discusses these items. The METTLER TOLEDO control drawing 155907R must also be reviewed for any special requirements.

Enclosures

Only PANTHER panel-mount terminals which are factory-labeled as approved for Division 2 may be installed into a Division 2 hazardous area. Also note that a Nationally Recognized Test Laboratory approved dust tight enclosure is also required for proper installation. This note is on the METTLER TOLEDO control drawing 155907R.

	 WARNING
	PREVIOUS MODELS OF THE PANTHER PANEL-MOUNT TERMINAL WHICH ARE NOT FACTORY LABELED FOR DIVISION 2 COMPLIANCE MAY NOT BE INSTALLED INTO A DIVISION 2 ENVIRONMENT. THE PANTHER HARSH ENVIRONMENT TERMINAL IS NOT APPROVED FOR USE IN AREAS CLASSIFIED AS DIVISION 2.

Areas With Different Classifications

The PANTHER panel-mount terminal has been approved for use in an area classified as Division 2. This approval **DOES NOT** mean that the PANTHER panel-mount terminal can be used in Division 1 areas. Different precautions must be taken when installing equipment into a Division 1 area.

If any portion of the installation involves an area classified as Division 1, then the complete system should be configured to be compatible with a Division 1 classification. For instance, if the panel-mount terminal will be installed in a Division 2 area but the load cells will be located within a Division 1 area, a load cell barrier is required. These barriers are available through METTLER TOLEDO.

Applications involving a mixture of Division 1 and Division 2 area classifications should be discussed with METTLER TOLEDO. Please consult your local METTLER TOLEDO representative regarding these types of applications.

Replacement Parts

If a failure occurs in a PANTHER panel-mount terminal that is installed in a Division 2 area, note that only certain revisions of some components may be used as replacements. The following parts must be at least the letter revision indicated (or newer) to be installed on a Division 2 PANTHER panel-mount terminal. A newer revision of a part number with a 'D' revision would begin with the letter 'E', 'F', 'G', etc.

PANTHER Main PCB 'D'15201500A

Profibus PCB 'A'15166100A

Keyboard Overlay 'E'14828300A

	 WARNING
	IF THE KEYBOARD, DISPLAY LENS OR ENCLOSURE IS DAMAGED ON A PANTHER PANEL-MOUNT TERMINAL THAT IS USED IN AN AREA CLASSIFIED AS DIVISION 2, THE DEFECTIVE COMPONENT MUST BE REPAIRED IMMEDIATELY. REMOVE AC POWER AND DO NOT REAPPLY AC POWER UNTIL THE DISPLAY LENS, KEYBOARD OR ENCLOSURE HAS BEEN REPLACED BY QUALIFIED SERVICE PERSONNEL. FAILURE TO DO SO COULD RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.

4

Control Drawings

Only PANTHER panel-mount terminals which are factory-labeled as approved for Division 2 may be installed into a Division 2 hazardous area.

	 WARNING
	IN ORDER TO USE THE ANALOG PANTHER PANEL-MOUNT TERMINAL IN AN AREA CLASSIFIED AS CLASS I, II OR III, DIVISION 2, GROUPS A, B, C, D, F OR G, METTLER TOLEDO CONTROL DRAWING 155907R MUST BE FOLLOWED WITHOUT EXCEPTION. FAILURE TO DO SO COULD RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.

KEMA Approval (Europe)

The PANTHER panel-mount terminal has been submitted to KEMA for certification as meeting requirements of EN 50021 : 1999, Electrical apparatus for potentially explosive atmospheres, Type of protection “n” - but the evaluation is not yet complete and a certificate has not yet been issued.

Until this certificate is issued, the PANTHER panel-mount terminal must not be used in areas classified as Zone 2 according to harmonized European standards.

The PANTHER panel-mount terminal is NOT approved for Zone 2 applications!

Factory Mutual Approval (United States)

Factory Mutual has evaluated the PANTHER panel-mount terminal and found that it meets the NEC standards for use in hazardous areas classified as Division 2 when installed per METTLER TOLEDO control drawing 155907R.

A copy of METTLER TOLEDO control drawing 155907R is shown on the next pages. No deviation from this drawing is permitted.

DIVISION 2 HAZARDOUS AREA

NON INCENDIVE
LOAD CELL CIRCUIT ENTITY PARAMETERS

NATIONALLY RECOGNIZED IE
ENCLOSURE APPROPRIATE
CLASS I DIVISION 2 GROUP
CLASS II DIVISION 2 GROUP
CLASS III HAZARDOUS LOCA

(METTLER TOLEDO
LOAD CELLS ONLY)
Vmax=15VDC
Imax=323mA
Ci=2nF
Li=0.2mH
Pmax=1.25W

METTLER TOLEDO JUNCTION BOX CONTAINING
EITHER A (*)13640300A OR (*)14378800A
CIRCUIT BOARD WITH TERMINALS OR OTHER
JUNCTION BOX CONTAINING TERMINALS ONLY.
NO OTHER COMPONENTS ALLOWED.

Ceable=60pt/FOOT
Leable=0.2uH/FOOT

Ceable=60pt/FOOT
Leable=0.2uH/FOOT

Vt= 5.5VDC
It=106 Ma
Co=590 uF
Lo=1.3 mH

ANALOG
LOAD CELL
#1

JUNCTION BOX
(OPTIONAL)

#12 wire
or
outer shield

LOAD CELL CABLE CONFIG.
WHEN JUNCTION BOX IS
UTILIZED, IF A SINGLE
LOAD CELL IS EMPLOYED,
CHECK MFR. DATA SHEET
FOR TYPE AND COLORS.

SENSE JUMPERS
USED FOR 4 WIRE
LOAD CELLS.

LOAD CELL
#2

LOAD CELL
#3

LOAD CELL
#4

ONLY (1) OF THESE OPTIONS
ARE ALLOWED AT A TIME.

LOAD CELL
#5

LOAD CELL
#6

LOAD CELL
#7

LOAD CELL
#8

JUNCTION BOX
(OPTIONAL)
(SAME
SPECIFICATIONS
AS ABOVE)

Panther panel mount instrument
(model PTPN-xxxx0)
Mounted in the enclosure defined above.
(*)15201500A main PCB - analog

CUSTOMER'S ENCLOSURE
GROUND STUD
ALTERNATE
HOME RUN CABLE
TRUCK SCALE
HOME RUN CABLE

(**)TB2

NEUT
100V
120V
230V

GND IN1
OUT3
OUT2
OUT1
+5V
GND RxD
TxD

BLU
SHLD
CLEAR

ALLEN BRADLEY
(*)15098500A
PCB ASSY

OR

MODBUS PLUS
(*)15165700A
PCB ASSY

ANALOG OUTPUT
(*)14882700A
PCB ASSY

4-20
GND
N.C.
0-10V
ALARM
+5V

IF T1
NO I
BE L
+5V

PROFIBUS
(*)15166100A
PCB ASSY

1
2
3
4
5
6
7
8
9
GND
TxRx
RTS
+5V
TxRx

NON HAZARDOUS
SAFE AREA

TO 100/120/240 VAC 50/60 HZ
SETPOINT INTERFACE CIRCUITRY

EARTH GROUND

**TO CUSTOMER'S MODICON MODBUS +
EQUIPMENT.**

V_t = 5.5VDC
I_t = 166 mA
C_o = 600 μ F
L_o = 0.22 mH

V_t = 13.6 Vdc
I_t = 289 mA
C_a = 3.0 μ F
L_a = 0.7 mH

TO CUSTOMER'S PROFIBUS L2-DP
MASTER ACCORDING TO DIN 19 245.

Vt= 5.5 Vdc
It= 171 mA
Co= 218 uF
Lo= 0.45 mH

- 1.) Installation must be in accordance with National Electrical code.
(NFPA 70, Article 504) and ANSI/ISA-RP12.6
- 2.) Maximum nonhazardous voltage for all components is 250V ac/dc.
- 3.) All I/O ports identified as (**) are incandescent and contain energy excessive to intrinsic safe operation. They must have wiring installed in approved conduit.
- 4.) All part numbers with (*) may have a letter prefix.
- 5.) Nonincandescent Field Circuit Connection Rules:
 $V_{max} \geq V_t$, $I_{max} \geq I_t$, $C_a \geq C_t$ + Cable, $L_a \geq L_t$ + Leable.
- 6.) No changes may be made to this drawing without FMRC approval.

THIS ITEM USED IN AGENCY
APPROVED PRODUCT. DO NOT
CHANGE DRAWING WITHOUT
AGENCY APPROVAL. FM

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C
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For your notes

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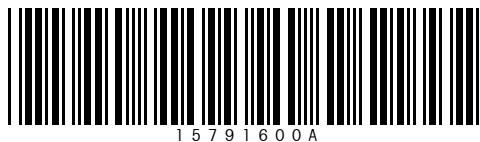
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