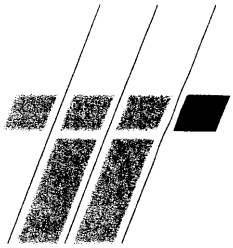
TRIDENT DISPLAYS
A DIVISION WITHIN TRIDENT MICROSYSTEMS LIMITED
Perrywood Business Park, Honeycrock Lane, Salfords
Redhill, Surrey, RH1 5JQ United Kingdom
Tel: (01737) 780790 Fax: (01737) 771908
E-mail Address: sales@trident-uk.co.uk
Website Address: http://www.trident-uk.co.uk



TRIK U100X-8068-5
12.1" DMC RESISTIVE TOUCHSCREEN KIT FOR WIN NT USER GUIDE

PRODUCT INFORMATION

1. INTRODUCTION

This document describes the installation and connection details of the Trident kit TRIK-U100X-8068-5 which is a Resistive Touchscreen kit of parts for fitting to a 12.1" LCD.

The TRIK consists of the following items,

- AST 12.1" - 12.1" Film/Glass Resistive Touchscreen
- COG04.ASY - Resistive Touchscreen Controller
- TSD-NT - Touchscreen Driver (Windows NT)
- HNUL1S/2 - 2m Serial Cable

In the unlikely event of any items in the kit being missing, please contact Trident immediately.

IMPORTANT

The Touchscreen, whilst durable and resistant to most minor abrasions, will mark if it comes into contact with hard objects such as screwdrivers or knives etc. The Touchscreen is inspected for marks and abrasions prior to despatch. Any such marks caused during unpacking and installation will not be covered by the warranty.

The COG04.ASY Touchscreen controller card contains CMOS devices and is therefore static sensitive. Full ESD procedures must be observed when handling and connecting this item.

2. CONNECTION AND ASSEMBLY

2.1 Touchscreen

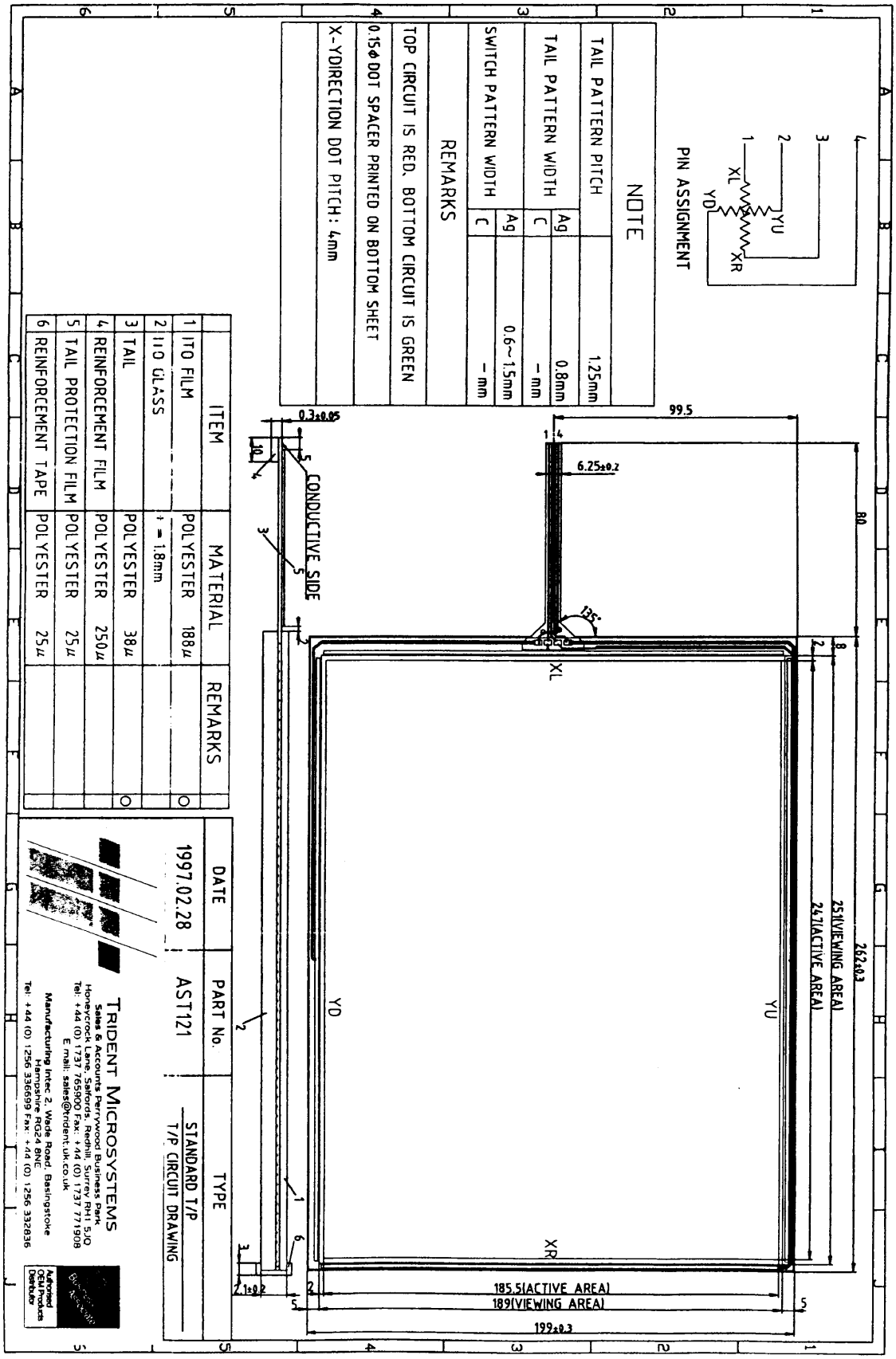
Refer to Page 3 for a mechanical drawing of the AST 12.1".

The AST 12.1" has a 4-wire resistive Touchscreen element. It comprises of two layers of polyester film sprayed on one side with a conductive coating that is transmissive to light. The two conducting surfaces face each other and are held apart by tiny plastic beads printed onto one conductive surface. The beads are approximately 0.25mm in diameter and spaced 4mm apart.

The two layers are bonded together at the edges and then stuck with an optical resin to a backing layer to give the product its mechanical strength. The backing layer or substrate is made of 2mm toughened glass.

The top layer or active layer is made of P.E.T. polyester plastic with an anti-glare surface chemical introduced within the plastic, not sprayed or stuck on. The chemical resistance of this active layer is shown on Page 4.

The Touchscreen may get dirty or fingerprinted from time to time. If this occurs simply wipe it clean with a non-abrasive lint-free cloth. If this doesn't work then use a proprietary non-abrasive glass cleaner. A suitable cleaner is available from Farnell, Part No. 265-159.



TRIK U100X-8068-5-UG
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Resistive Touchscreen Chemical Resistance Table

The Resistance listed below is given after detailed inspection to measure the existence of surface abnormality after a continuous immersion for 72 hours @ 20° C in the listed chemical.

I.T.O = (Conductive coating) transmissivity
H.C. = Surface hard coating transmissivity and appearance.

Chemicals		ITO	HC	Resistence
ion exchange water		O	O	excellent
effervescent drink	ion exchange water	O	O	excellent
salt water	Yamaguchi Pharmacy	O	O	excellent
sodium hydroxide	10wt% NaOH	x	x	very poor
hydrochloric acid	10wt% HC1	x	O	poor
sulfuric acid	10wt% H_2SO_4	x	O	poor
nitric acid	10wt% HNO_3	x	O	poor
acetic acid	10wt% $CH\%_3COOH$	x	O	poor
ethyl alcohol	CH_3CH_2OH	O	O	good
1.1.1. trichloroethane	$CC1_3CH_3$	O	O	good
freon TF	Dupont	O	O	good
acetone	CH_3COOH	O	O	good
ethyl acetate	$CH_3COOC_2H_5$	O	O	good
toluene	$C_6H_5CH_3$	O	O	good
MEK	$CH_3COC_2H_5$	O	O	good
hexane	C_6H_{14}	O	O	good
salad oil	Nisshin Salad	O	O	very good
machine oil	Showa Shell turbine oil	O	O	very good
cutting oil	REX Miyagawa 246	O	O	very good
gasoline	Showa Shell	O	O	very good
kerosene	Showa Shell	O	O	very good
cleaner	Kao Mypet	O	O	very good
cosmetics	Nivea Cream	O	O	very good

2.2. Fitting the Touchscreen

The Touchscreen must be mounted with the polyester active layer uppermost and the glass substrate downwards towards the LCD. The LCD's image must be seen through the window of the Touchscreen. Therefore ensure that the LCD's active area is central in the Touchscreen window.

The Touchscreen may be attached to the LCD via double-sided tape or for a permanent attachment using VHB tape from 3M (Part No. 4949). Ensure that the Touchscreen is the correct way up and orientated correctly with the LCD before permanently fixing in place. It is prudent to affix the Touchscreen temporarily and check that everything is functioning correctly before finally fixing it into place.

Beware also of allowing any tape to overlap into the active area of the Touchscreen as this will cause the Touchscreen to continually register a false touch in that position.

IMPORTANT

Note that if this 3M tape is used it bonds permanently after 24 hours. Once this period has elapsed it will be impossible to remove the Touchscreen from the LCD without breaking it.

Alternatively a plate may be constucted to fit between the Touchscreen and the LCD to prevent any pressure from touches or from being offered up to a front-panel bezel from being transmitted to the LCD. The plate needs to have a correct size aperture in it for the LCD and Touchscreen active area. If a seal is required around the Touchscreen the plate can then form part of the clamping arrangement.

Again if sealing around the Touchscreen ensure that the seal does not overlap the Touchscreen active area to avoid any false touches.

2.3. Connecting the Touchscreen and Controller

Refer to Page 7 for a mechanical drawing of the COG04.ASY card.

The contacts from the Touchscreen come out from the left hand side of the Touchscreen from the active layer via a flexible tail. This tail will mate directly with connector J3 on the COG04.ASY card. The flexible tail is simply a push fit connection into J3. Ensure that the flexible tail is fitted into J3 the correct way up - conductive copper side uppermost. The COG04.ASY would normally be mounted behind the LCD with the Touchscreen flexible tail bent underneath.

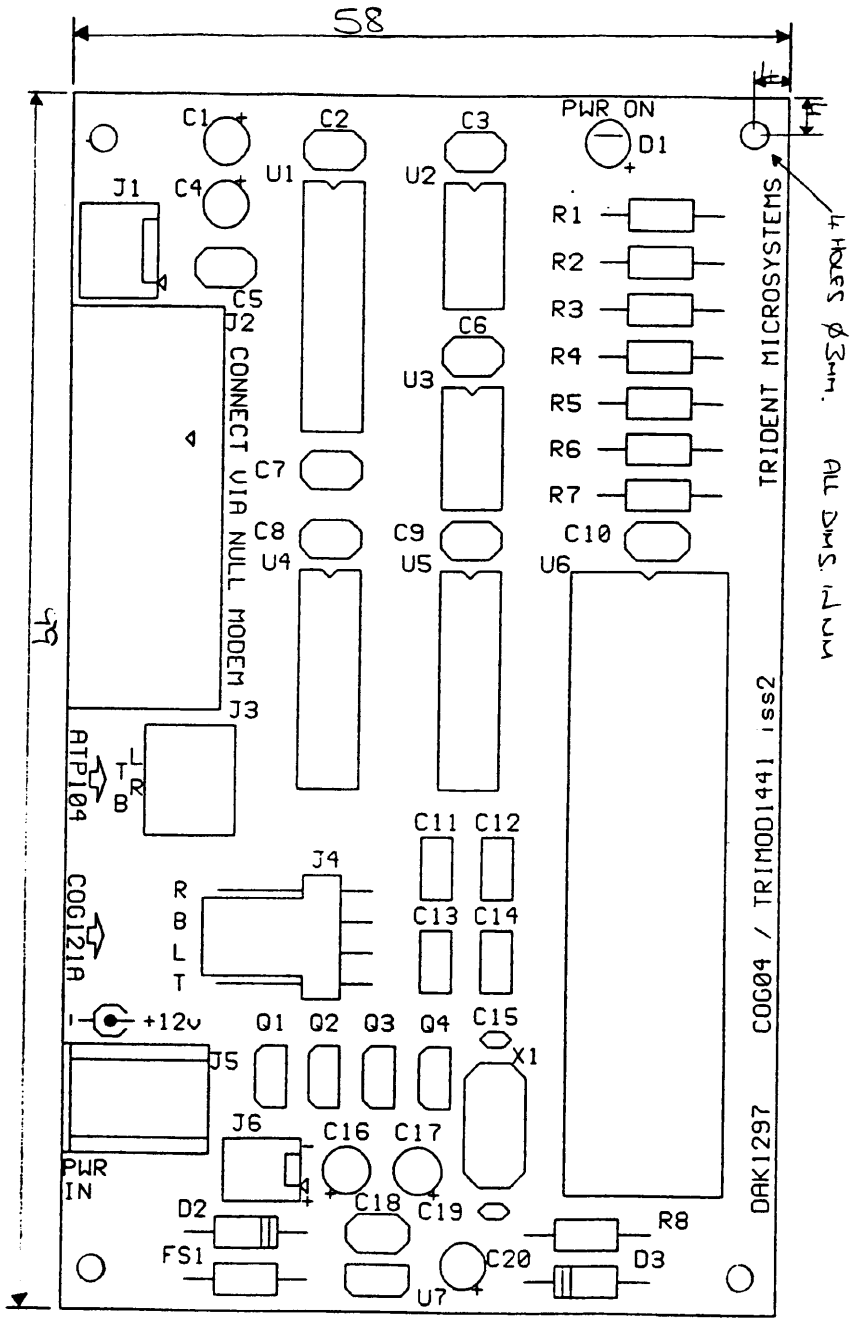
DC power to the COG04.ASY needs to be provided via J5 which is a 2.5mm jack plug (+VE to centre pin). A suitable mating jack socket is Farnell 224-935. The DC input may be anywhere from +9V to +14VDC with a current requirement of approx. 20mA. When DC power is applied a green LED, D1 lights on the card.

The RS232 connection from the COG04.ASY is made via J2 a 9-way D plug. This needs to be connected to the controlling PC's COM1 Serial Port via a Null Modem Cable. Pin-out of the cable required is shown below.

COG04.ASY		PC COM1
TXD 3	----------→	2 RXD
RXD 2	←----------	3 TXD
GND 5	----------	5 GND

A serial cable is supplied in the kit, HNUL1S/2M.

COG04.ASY TOUCHSCREEN CONTROLLER



3. TOUCHSCREEN SOFTWARE

3.1. Installation for Windows NT

Insert the TSD-NT disk in Drive A:

From the Program Manager File menu select **RUN**

Type **A: TNSETUP**

Follow the onscreen prompts and when asked select the **COG-03** driver. The default comm port is **COM1.**

This should complete the installation, the driver is installed but will not be loaded until the next time Windows NT is restarted.

NOTE:- Further information on the touchscreen software may be obtained from the Touch-Base website, HTTP://209.26.73.4/index.cfm

3.2. Calibration

Double click on the Touchscreen Control icon to access calibration hardware and use controls.

Double click on **CALIBRATION.** A cross will appear in the bottom left corner of the LCD. Touch this in the centre of the cross. A cross will appear in the top right corner. Again touch the centre of the cross. The Touchscreen should now be calibrated.

The hardware controls enable the comm ports, interrupts etc. to be altered if required.

The user controls enable the Touchscreen sensitivity, double click time etc to be altered if required.

IMPORTANT

It is strongly recommended that neither the hardware or user controls are altered. If either of these are altered it is possible that some combinations will render the Touchscreen unusable. If they need to be altered make a note of all the default hardware and user controls as the default settings can only be globally reloaded by re-installation of the Touchscreen driver. For all common applications the default settings should be adequate.
The Touchscreen driver will operate co-resident with a PS2 mouse or serial mouse in another comm port with its own driver.

The Touchscreen driver is automatically loaded on entering Windows '95. For further information on the Touchscreen driver refer to the onscreen help within the driver.

4. SPECIFICATIONS

4.1. AST 12.1" Touchscreen

The Touchscreen element has an impact rating of IK07 equivalent to an impact of 2 Joules. This impact may result in a slight marking of the Touchscreen but it should still continue to operate normally.

Storage temp. range	- -20°C to +80°C
Operating temp. range	- 0°C to +70°C
Actuation force	- 30gms to 100gms

4.2. COG04.ASY Controller

Supply voltage	+9 to +14VDC
Supply current	30mA Max.
Baud rate	9600 Max.
Connection	2.5mm jack (centre +VE)