

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

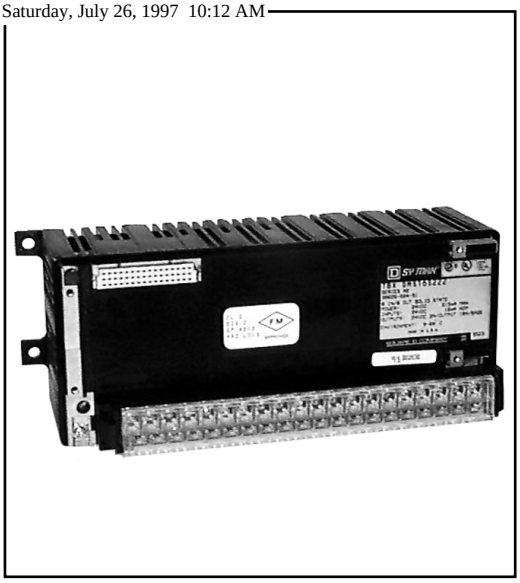
- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Schneider Electric / Square D TBX DMS1625* at our website: *Click HERE*

30598-376-01B1 Text Page 1 Saturday, July 26, 1997 10:12 AM



Instruction Bulletin
30598-376-01B1
July 1997

24 VDC 8 Input/8 Output Relay Base Unit

TBX DMS1625

User's Manual

SQUARE D

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

⚠ WARNING

UNINTENTIONAL EQUIPMENT OPERATION

To avoid improper handling of equipment:

The application of this product requires expertise in the design and programming of control systems. Only persons with such expertise should be allowed to program, install, alter, and apply this product.

Failure to observe this instruction can result in death or serious injury.

⚠ CAUTION

EQUIPMENT DAMAGE HAZARD

To avoid improper handling of equipment:

1. Never remove this device while power is ON.
2. Do not subject to static discharge. This module contains electronic components that are very susceptible to damage from electrostatic discharge.

Failure to observe this instruction can result in equipment damage.

SY/MAX, SY/NET, SY/LINK, and SY/MATE are registered trademarks of Square D Company.
PASSPORT and IO/NET are trademarks of Square D Company.

© 1997 Schneider S.A. All rights reserved. This document may not be copied in whole or in part, or transferred to any other media, without the written permission of Schneider S.A.

Electrical equipment should be serviced only by qualified electrical maintenance personnel. No responsibility is assumed by Schneider S.A. for any consequences arising out of the use of this material.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

30598-376-01B1 Text Page 3 Saturday, July 26, 1997 10:12 AM

DESCRIPTION

The TBX DMS1625 is a distributed input / output base unit containing eight 24 VDC inputs and digital relay outputs. This base unit may be coupled with a compatible communications interface to form a complete distributed block, which is well suited for the control of discrete field devices located some distance from a host programmable logic controller (PLC). The application of distributed I / O blocks saves installation and maintenance cost, as compared to direct wiring of field devices to a centralized I / O system over long distances.

The TBX DMS1625 base unit can be used with either SY / MAX® or Telemecanique PLCs, through the use of a compatible communications interface, or "top hat". The interface mounts directly on the base unit, and allows the PLC to read and write to the I / O points through a suitable control network. The Class 8030 Type CRM275 Distributed Remote IO / NET™ Interface (DRIO) supports connection to the IO / NET control network as part of the PASSPORT™ I / O System. The TBX LEP020 and TBX LEP030 communications interfaces support connection to the FIPIO network. The TBX CBS010 Expansion Interface allows inexpensive connection of a second TBX base unit to a single communications top hat.

The TBX DMS1625 base unit supports the following TBX I / O features:

- *Eight Input and Eight Relay Output Points* - Suitable for use with discrete field devices such as solenoids, contactors and pilot lights.
- *Output Fallback State Control* - Provides point-by-point control over output states when communication is lost.
- *24 VDC Logic Power Supply* - Converts to proper voltage levels for top hat and for on-board electronics; may be wired independently from input or output power supplies.
- *Removable Field Wiring Terminal Strip* - Mounts securely to the base unit without use of screws or fasteners.

This bulletin contains information on the installation and application of the TBX DMS1625 base unit with either SY / MAX or Telemecanique PLCs. For information about programming a SY / MAX PLC for use with the TBX DMS1625 base, refer to the Class 8030 Type CRM275 (DRIO) instruction bulletin (#30598-380). For information about programming a Telemecanique PLC for use with the TBX DMS1625 base, refer to the Telemecanique TBX Distributed I / O Modules manual (TSX DM TBXV52E). Please read and keep all the appropriate manuals close at hand when using TBX base units.

The top hats receive +24 VDC from the primary base, which the top hat converts to logic power for the top hat and base units. For additional information on the DRIO Interface and the Expansion Interface, refer to bulletins 30598-380 and 30598-371 respectively. You may use the TBX SUP10 power supply to provide 24 VDC for TBX bases and sensors from an AC source.

© 1997 Schneider S.A. All Rights Reserved

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

30598-376-01B1 Text Page 4 Saturday, July 26, 1997 10:12 AM

SPECIFICATIONS

Base Unit Power

Operating voltage: 24 VDC nominal; 19-30 VDC

Operating current at nominal voltage:

Configuration	Nominal
Base only	125 mA
Base with comms interface	195 mA
Base, interface and expansion base	310 mA

Inputs

Inputs per base unit	8
Number of input commons	8
Isolation rating	1500 V rms between inputs and earth terminal
Voltage operating range	24 VDC nominal; 19-30 VDC
Nominal input current draw	15 mA
Must turn-on voltage	11 VDC
Must turn-on current	6mA
Must turn-off voltage	5 VDC
Maximum turn-on time	15 ms
Maximum turn-off time	17 ms
Control input voltage monitor trip threshold	18 VDC
I/O status indication	Visual indication provided by communications interface; 1 LED per input point

Outputs

Outputs per base unit	8
Number of output commons	4
Isolation rating	2000 V from contacts to rest of circuit
Voltage operating range	24 VDC nominal (19-30 VDC); 24-240 VAC
Maximum output load ratings	
DC: Resistive	24 W (0.3×10^6 operations)
DC: Inductive (L/R = 60 ms)	10 W (1×10^6 operations)

© 1997 Schneider S.A. All Rights Reserved

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

30598-376-01B1 Text Page 5 Saturday, July 26, 1997 10:12 AM

AC:

Resistive		
Load	**Voltage**	**Operations**
1 A	110/220	0.2×10^6
0.5 A	110/220	2×10^6
1 A	24/48	0.5×10^6
2A	24	0.2×10^6

Inductive		
Load	**Voltage**	**Operations**
50 VA	110/220	1×10^6
0.5 A	24/48	1×10^6
10 VA	48/220	1×10^7
1 A	24	0.2×10^6

Maximum surge current	30 A
Maximum turn-on time	10 ms
Maximum turn-off time	20 ms
I/O status indication	Visual indication provided by communications interface; 1 LED per point
Output protection	Yes, see “INSTALLATION CONSIDERATIONS” on page 9.

Environmental and Physical

Operating temperature rating	0 to 60 °C (32 to 140 °F)
Storage temperature rating	-40 to 80 °C (-40 to 176 °F)
Humidity rating	5-95% RH, non-condensing
Dimensions (H x W x D):	See Figure 1
Base unit w/ terminal strip	3.43 x 9.25 x 2.4 in (87 x 235 x 61 mm)
Base w/ comms. interface or Base w/ CBS Interface	3.43 x 9.25 x 2.91 in (87 x 235 x 73.9 mm)
Weight (Base unit only)	1.3 lb (0.6 kg)

© 1997 Schneider S.A. All Rights Reserved

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

30598-376-01B1 Text Page 6 Saturday, July 26, 1997 10:12 AM

Agency Compliance

Complies with UL508, CSA C22-2 requirements, and FM Class I, Division 2 Hazardous Locations approval requirements.

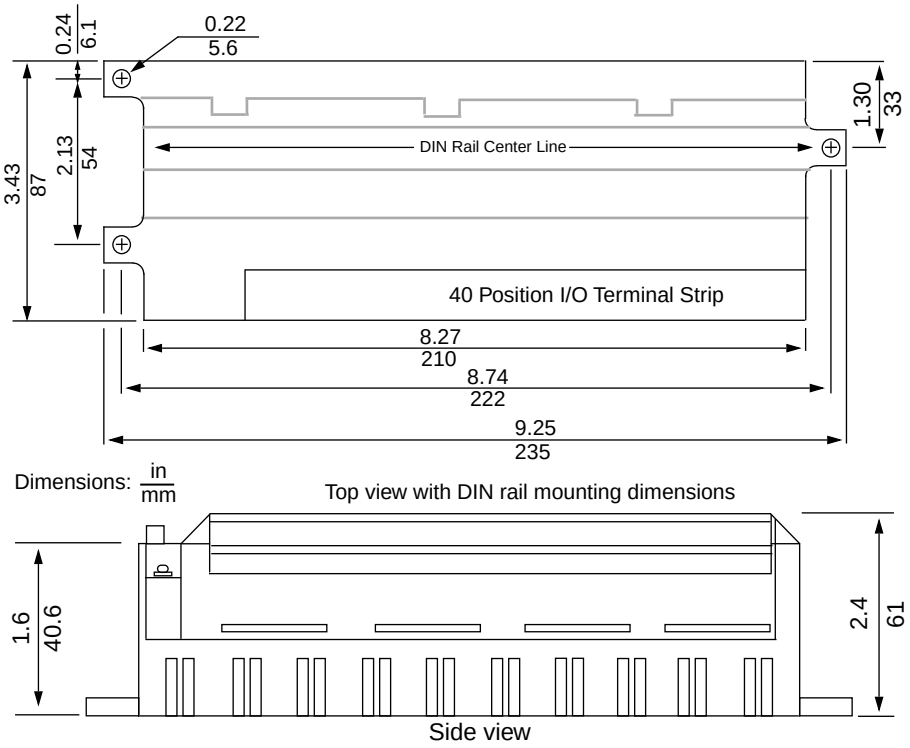


Figure 1: Dimensions

BASE UNIT WIRING

Input and output devices are wired to the terminal strip on the top of the base unit. Figure 2 shows the terminal strip pin-out for the base unit.

Two terminal strip labels are packaged with the base unit. If you are using the base unit with a SY/MAX system, use the terminal strip labels with I/O numbered from **1-16**; if you have a Telemecanique system, use the terminal strip labels with I/O numbered from **0-15**. These are both illustrated in Figure 2.

The TBX DMS1625 provides separate terminals for base voltage and control output voltage. These terminals may be connected to a common 24 VDC supply or may be sourced by independent supplies (terminals 4 and 1 must be at the same potential).

© 1997 Schneider S.A. All Rights Reserved

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

30598-376-01B1 Text Page 7 Saturday, July 26, 1997 10:12 AM

⚠ WARNING

INCORRECT WIRING

The base must be properly grounded before applying power. Equipment MUST be grounded using the screw provided.

Do not use metallic conduit as a ground conductor.

Failure to observe these instructions can result in death or serious injury.

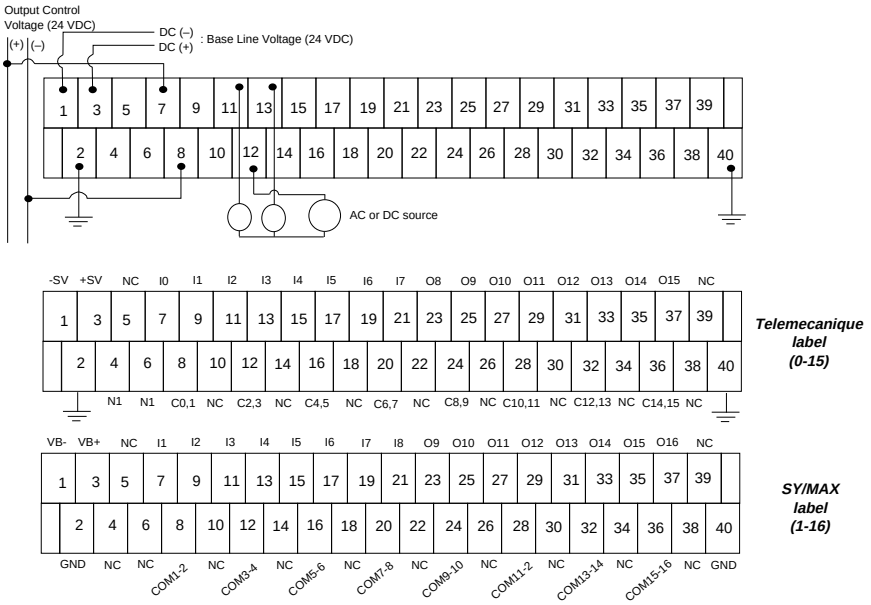


Figure 2: TBX DMS1625 Wiring Connections & Terminal Block Signal Assignments

© 1997 Schneider S.A. All Rights Reserved

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

30598-376-01B1 Text Page 8 Saturday, July 26, 1997 10:12 AM

> **⚠ WARNING**
>
> **UNINTENTIONAL EQUIPMENT OPERATION**
>
> Be sure to use the appropriate SY/MAX or Telemecanique terminal strip label when wiring inputs or outputs. Two terminal strip labels are packaged with the base unit. If you are using the base unit with a SY/MAX system, use the terminal strip label with I/O numbered from 1-16; if you have a Telemecanique system, use the terminal strip label with I/O numbered from 0-15.
>
> **Failure to observe these instructions can result in death, serious injury, or equipment damage.**

MOUNTING INSTRUCTIONS

The base unit can be mounted horizontally or vertically as shown in Figure 3.

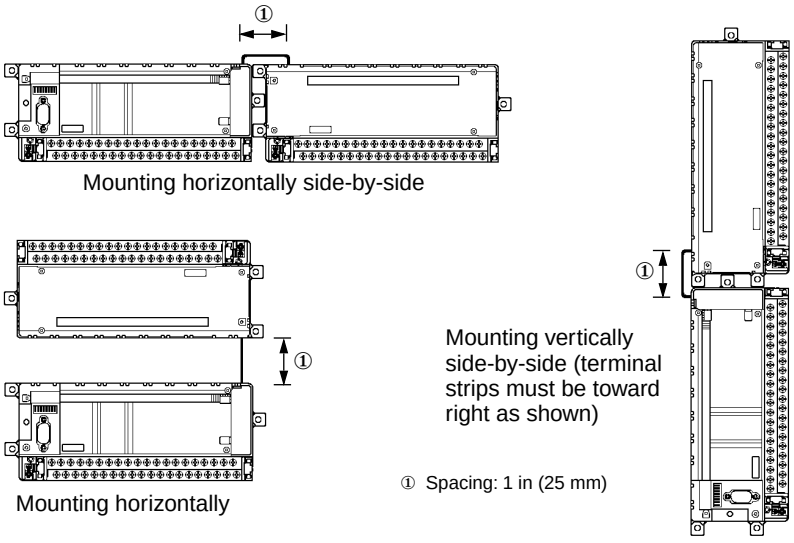


Figure 3: Base Unit Orientation Examples

© 1997 Schneider S.A. All Rights Reserved

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

30598-376-01B1 Text Page 9 Saturday, July 26, 1997 10:12 AM

To mount the base unit on a 35-mm DIN rail:

1. Hook the base unit onto the rail as shown in Figure 4.
2. Press down and toward the DIN rail until the base unit is secure. (There are two spring clips in the top of the groove on the back of the unit.)

To remove the base unit from a DIN rail:

1. Press down on the base unit.
2. Swing the unit outward and lift it off the rail at the same time as pressing down.

NOTE: If the base unit is to be used in a high-vibration environment, mounting the unit on a panel rather than a DIN rail provides more stability. Use cable ties to secure the communication cable.

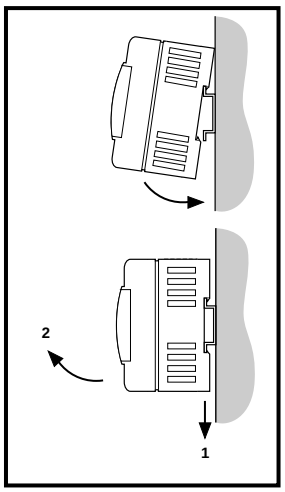


Figure 4: Mounting and Removing the Base Unit

INSTALLATION CONSIDERATIONS

NOTE: The base unit is not compatible with the Type CRM270 interface module.

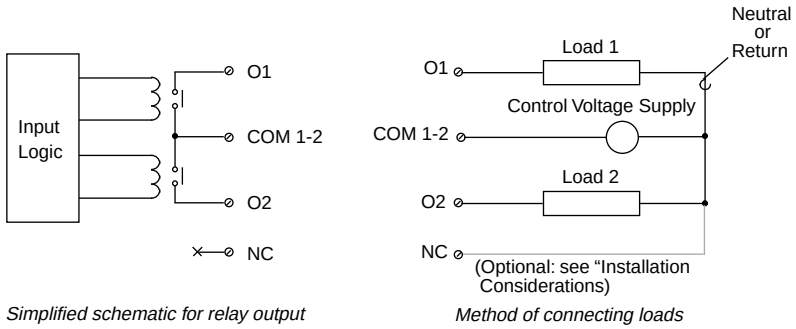
- *Base Voltage* - The TBX DMS1625 base requires a 24 VDC operating voltage to be applied between terminals 3 and 1.
- *Grounding* - The green ground wire must be connected to the ground screw beside the terminal block.
- *Jumper Wire* - A #16 AWG wire must be installed between terminals 2 and 40.
- *Control Output Power* - Output devices can be powered from a supply other than the one used to provide base voltage. **Note that all power supplies must share the same commo**n.

  The control output voltage supply needs to be connected between terminals 5 and 4. In addition, two jumpers must be installed, one from terminal 5 to 39, and one from terminal 4 to 38.
- *Commons* - The TBX DMS1625 base unit has one common terminal for every two outputs.
- *Fusing* - The base and control power lines must be externally fused by the user.
- *External Wiring* - Each terminal accommodates up to two #16 AWG gauge wires.
- *Freeze State Control* - With TBX Distributed I/O, the user may also have the DRIO set the outputs to a pre-defined state. By defining the output fallback states and enabling the Output Fallback function, the DRIO will now set the outputs to the fallback state when communication with the host PLC is lost. When communications are restored, the outputs will return to normal operation. Refer to the Type CRM275 and TSX manuals.

© 1997 Schneider S.A. All Rights Reserved

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

30598-376-01B1 Text Page 10 Saturday, July 26, 1997 10:12 AM



Simplified schematic for relay output

Method of connecting loads

Figure 5: Simplified Schematic and Output Connections for DMS1625 Base Unit

REGISTER USAGE WITH THE SY/MAX CLASS 8030 TYPE CRM275 DRIO MODULE

The TBX DMS1625 base unit supports the assignment of two registers for I/O, diagnostic and configuration registers. Additional information about base unit register usage is contained in the DRIO instruction bulletin (#30598-380).

This base unit supports output fallback state control (Register 4, bits 5-6; Register 6). Refer to Chapter 4 of the DRIO instruction bulletin for more information about register assignments.

⚠ WARNING

UNINTENTIONAL EQUIPMENT OPERATION

Do not use reserved registers and bits in PLC programs. Erratic operation may result.

Failure to observe this instruction can result in death, serious injury, or equipment damage.

© 1997 Schneider S.A. All Rights Reserved

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

30598-376-01B1 Text Page 11 Saturday, July 26, 1997 10:12 AM

© 1997 Schneider S.A. All Rights Reserved

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

GROUPE SCHNEIDER

■ Merlin Gerin ■ Square D ■ Telemecanique

30598-376-01B1 July 1997 Printed in USA DLC

© 1997 Square D All Rights Reserved

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP