

G5 POCKET QUICK START GUIDE



Operation manual for the Wireless Remote control



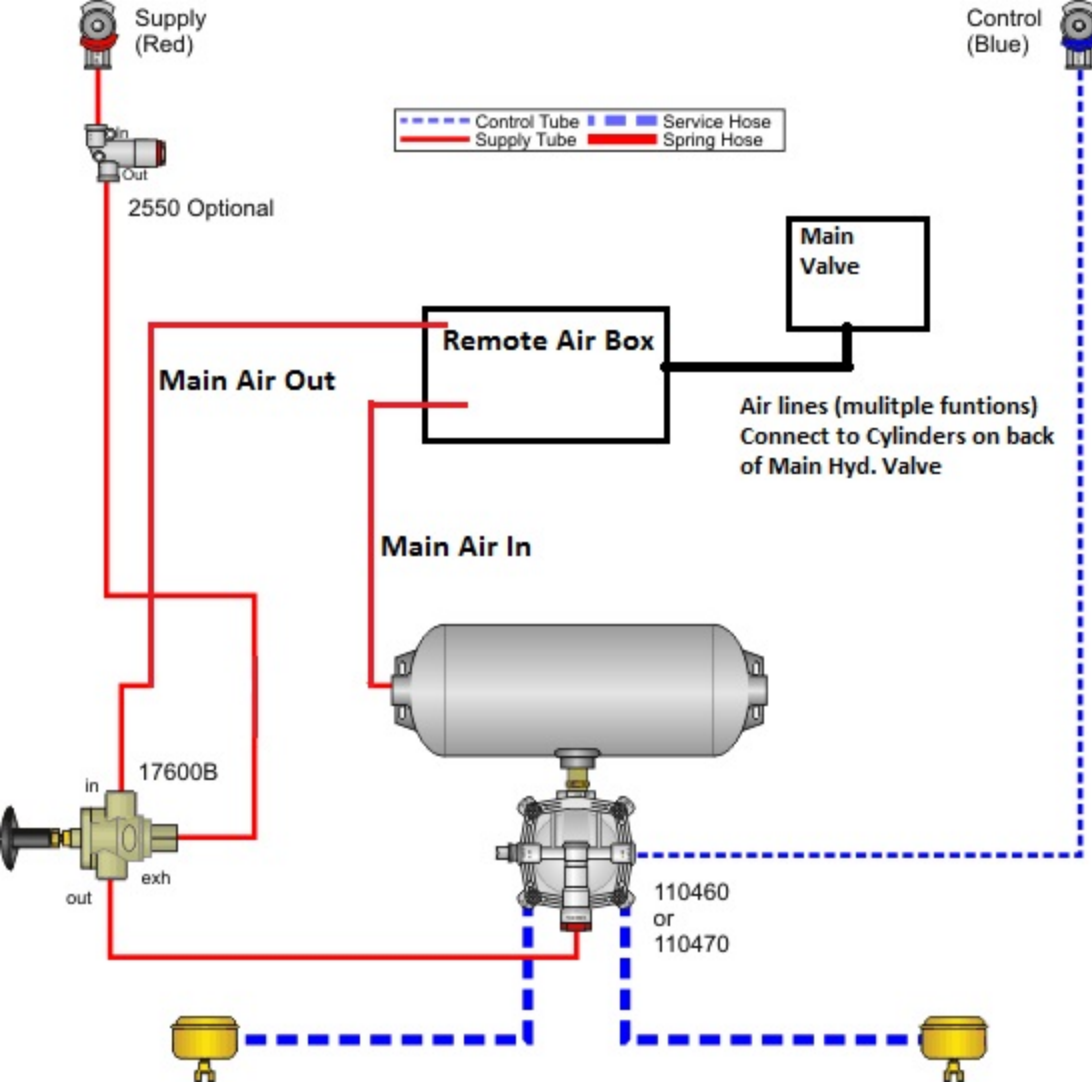
Installations:

Make sure trailer is in the LOCK OUT Positions and all safety equipment is engaged.

- (1) Identify a safe location in install control box.
- (2) Install control box on trailer (some were close to the valve)
- (3) Install Air cylinders on back of valve
 - a. Each Valve is different installations. (Read installation guide that comes with cylinders)
- (4) Main Power Connect, 12Vdc, (labeled red or white) connect to Aux blue wire on trailer wiring harness, Neg (black) connect to the ground on the trailer. * **Note MAKE SURE THE POWER SWITCH ON REMOTE IS TURNED OFF WHEN CONNECTING**

Supply Line coming from the rear air tank that would normally go to the inlet side of the brake switch, insert Remote Box, connect the supply line from the air tank to the main air in on remote, the brake out connect to the inlet side of the brake switch. (you're putting the remote in the line of the Aux, brake switch) ***Note Brake remote only work if the brake switch is opened, automatically shut off will not work. 17600B manual is the switch will work.**

- (5) Connect all the air 1/4 airline to the appropriate air cylinder on the back of the valve the operates the individual functions.
- (6) Connect remote electric wires to inline solenoids that control the electric functions
- (7) Turn on Remote control, activate transmitter, operate functions to see if everything works.



General information

This instruction manual describes the ACE G5 Pocket system, this instruction manual should be seen as a compliment to the instruction manual for the application which the ACE G5 Pocket is intended to operate with.

The ACE G5 pocket is a complete remote control system for the mobile and stationary applications where durability and functionality is in high demand, the ACE G5 Pocket offers the system installer a flexible and configurable remote control system with speed, precision, and control under maximum security.

To ensure the safety of the remote control system and the application you should carefully study this instruction manual. This will ensure you are familiar with the system and ready to use it in it's intended application.

Notice to reader:

TO THE SYSTEM INSTALLER:

Pay special attention to the chapters Safety Information, Installation recommendations and Programming.

TO THE OPERATOR:

Pay special attention to the chapters Safety Information, Product description, and Product Care.

TO THE SERVICE TECHNICIAN:

Pay special attention to the chapters Safety Information, Product Care, Trouble Shooting and Spare Parts.

The following labels are used throughout this document to create awareness about important recommendations or warning. It is important that these recommendations or warning are considered by the installer, operator, and service personnel.



IMPORTANT!

This information must be followed, potential hazards for the operator and environment if instructions are not followed.



ATTENTION!

General recommendations that may cause the system not to perform at full capacity if not followed



NOTE!

General Notice.

Safety information

General



READ THE SAFETY INSTRUCTIONS CAREFULLY BEFORE INSTALLING, CONFIGURATING, AND OPERATING THIS PRODUCT!

MAKE SURE THE YOU, THE OPERATOR OR SERVICE TECHNICIAN, HAVE FULLY UNDER-IMPORTANT!

The system installer is responsible for producing an instruction manual for the application where the ACE G5 Pocket has been installed and intended to control.

The system installer is responsible for producing a product approval, if such is required, for the application where the ACE G5 Pocket has been installed. Prior to operation, the system installer is required to train the operator on all functions available using the ACE G5 Pocket. Prior to operation, the system installer is required to inform the operator of all potential hazardous situations that may appear when operating the application with the ACE G5 Pocket. The system installer must take into account the specific installation instructions declared in this manual.

Due to the unlimited variety of applications (cranes, machines, objects, vehicles, and other equipment) on which the remote control system is used, and the numerous standards which are frequently the subject of varying interpretation, it is impossible for the personnel at ACE to provide expert advice regarding the suitability of a given remote control for a specific application. It is the responsibility of the purchaser and system installer to determine the suitability of any ACE remote control product for an intended application and to ensure that it is installed and guarded in accordance with all country, federal, state, local, and private safety and health regulations, codes, standards and the ACE instructions in this document.

If the ACE G5 Pocket will be used in a safety critical application. The purchaser/system installer must undertake appropriate testing and evaluation for the final application to prevent injury to the ultimate user.

ACE does not take responsibility for any damage or injury.

Unauthorized tampering with any of the products will automatically void the ACE guarantee and product responsibility.

Pre-operational

In order to ensure safety of the operator, bystanders and the machine, the user should study and learn all provided instructions regarding how to use the ACE G5 Pocket as well as all safety instructions and the location of all emergency stop controls. This will enable the user to quickly get familiar with the new remote control system and how to safely utilize it.

The operator must understand and follow the below instructions at all times.

Prior to operation, the operator must ensure that he/she:

- Is fully trained by the system installer in proper use of the application and knows all functions available through the ACE G5 System.
- Is responsible to ensure that non-qualified personnel **never** gain control of the ACE G5 Pocket.
- Has fully understood this instruction manual.
- Has fully understood the instruction manual given by the system installer.
- Is well aware of the positioning of all emergency stop arrangements.
- The correct transmitter is used with correct receiver unit.
- Has at all times full view of the work area where the application is used.
- Always keeps the ACE G5 Pocket deactivated if not used.
- Never leaves the ACE G5 Pocket unsupervised.
- The ACE G5 Pocket is stored in such way that unauthorized personnel cannot gain control of it.
- On a daily basis, or immediately if suspicion of such is defective; ensure that all safety related functions and emergency stop functions works accordingly.
- Always reports faults that may have appeared during operation to the system installer
- Is aware of, and obeying, any local rules applied regarding operation the application the ACE G5 pocket is operating.

System information

System Overview

The ACE G5 Pocket system has been specially developed for hydraulically driven mobile machinery. The system is a digital remote control system based on advanced microprocessor technology which can cope with the roughest of environments. The system is protected against electromagnetic and radio frequency radiation. The G5 pocket system is comprised of a Handheld Control Unit (HCU) with ON/OFF buttons. The Central Unit (CU) provides the connection points for connecting to the electro-hydraulic valves as well as through a CANopen bus system to other components of the control system. Each system utilizes two way communication; digitally coded control information is sent in both directions via radio between the HCU and the CU.



Typical system setup:

No	Description	Qty
1	Handheld G5 Pocket Transmitter	1
2	G5 Pocket Receiver	1

G5 Pocket Transmitter

Product Description

The G5 Pocket HCU is a light weight, impact and water resistant handheld unit equipped with up to eight ON/OFF function buttons. The HCU has five configurable LED for machine and status feedback. The buttons and the LED's can be configured for a variety of different operations. The unit is powered with 3 standard AAA batteries and the backside has a belt clip for convenient attachment on the operator's belt.



Technical information

Attribute	Information
Housing material	Plastic PC-ABS
IP-class	IP67
Ambient temperature	-25 °C to +70 °C
Supply	3 x AAA battery
Operating time	Several months (depending of usage and application)
Weight	160 g (0,35lb.) including battery

Dimensions:



G5 receiver

Product Description

The Central Unit (CU) is manufactured in robust plastic housing and provides contacts for the connection of power supply and electro-hydraulic valves. Several of the outputs can also be used as digital inputs. Depending on the version the G5 Central Unit, it can either be equipped with MOSFET outputs and Deutsch connectors or can have relay outputs with screw terminals.

Since the central unit can be exposed to very tough environments, the box is encapsulated to give protection from damp, heat, cold, dust, vibration, and corrosive environments.

The Central Unit has short circuit protected inputs and outputs and has protections against reverse polarity, over-voltage, large incoming voltage transients and EMC/RF.



IMPORTANT!

The Central Unit ESTOP function is not equipped with internal fuse and therefore an external fuse is required at an appropriate rating (10A or lower).



The G5 Pocket Central unit exists in different versions. The main difference between the version type is the output type which can be either MOSFET or normal relay output. Versions with MOSFET output have two 12 pin Deutsch connectors while versions with relay output have cable glands with internal screw terminals.



Model	Functions
G5-CU M19A	Two 12-pin Deutsch connectors. 19 Digital MOSFET outputs where 14 can be configured as digital inputs.
G5-CU RX	Two cable glands. Relay output where X indicates the number of outputs.

FUNCTIONALITY

The G5 Pocket System is required to be configured prior to operation, refer to programming section in this document for further information.



NOTE!

The system installer is requested to fill out the template in chapter 14 with the final configuration or provide equal description for the end user.

MOSFET Digital Output

The MOSFET digital outputs are designed to drive electro-hydraulic valves but can also be used to load other accessories such as lamps or motors. The maximum load for each channel is described in table below.

Max load:

- 3A/Output
- 5A/Bank
- 10A/System

Bank	1	2	3	4	5	6	7	8	9	10
Output	1	2,3	4,5	6,16	7,9	8,10	11,12	13,17	18,19	14,15

Technical Data Central Unit

Attribute	Information
Housing material	Plastic PC-PBT
IP-class	IP67 (for versions with cable glands IP65)
Ambient temperature	-25 °C to +70 °C
Supply voltage	9-36VDC
Fuse	For Estop digital out. Use appropriate rating (10A or lower)
Current consumption at idle	<30mA
MOSFET Output load	3 A, Max simultaneously load for each CU is 10A. See section that describes the allowed load for each output/bank.
Relay Output load	Max 10 A
Housing screw torque	0,8 Nm
Weight	MOSFET output approx. 0,5Kg Relay output approx. 0,35Kg



Size: approx. ~
127 x 117 x 57 mm / ~ 5,0 x 4,6 x 2,2 in.

Installation recommendation

General Information



This chapter covers general recommendations for assembling of the G5 Pocket System.

ATTENTION: Assembly of the system in ways other than recommended in this chapter may affect the systems performance and life-span and may void any warranties given.

Installation of Central Unit

The Central Unit should be installed using the mounting holes in the edges on the unit.



The Central Unit should be installed vertically or horizontally with cable glands facing downwards or horizontally. The Central Unit should never be assembled with cable glands facing upwards or in any ways where it is exposed to accumulation of water, moisture, and other debris.



Engineering note: CU equipped with Deutsch connectors require M4 screws in the two lower holes. The due to a design fault. It will be fixed in upcoming versions.

Changing Battery

The G5 Pocket transmitter is equipped with 3 standard AAA cell batteries; to change batteries follow the instructions below

1. Remove the belt clip by unscrewing the top middle screw.
2. Unscrew the three screws holding the lid.
3. Remove the batteries.
4. Remove all dirt/dust to ensure no water can enter the unit.
5. Insert new batteries, mind the polarity!
6. Reassemble the lid and the belt clip. Hand tighten the screws.



General Description

When a G5 system is delivered, configuration is normally done by OPS after final test. There should not be any need for further programming or pairing. Despite this, if there has been a change to the machine there may be need to reconfigure the system. Follow the steps below to pair the HCU to CU.

Pairing of multiple HCU to CU

Multi HCU pairing is used to get a unique assignment between Multiple Pocket HCUs and a single G5 CU. To exchange the HCU and CU ID's when replacing either the CU or HCU in a system follow the Pairing procedure below:

- A.** Remove power form CU (unplug the Grey connector for G5 24) and remove the cover.

- B.** Simultaneously press button #2 and button #3. LED will light indicating the HCU is ready for Safe Pairing

- C.** Re-apply power to the CU

- D.** The Cu LED Display will flash

Step C must be done within 10 sec of C

Repeat steps for any subsequent HCUs.

LED Indication

After installation of the Central unit and the batteries have been inserted into the HCU, the system should be fully operational.

The system can be configured to have an activation button before a radio link can be established. This button is normally Fn/On (button #7). Each buttons should now activate the central unit outputs according to the specification. If unit is configured with activation button there is also a deactivation button. This is the normally the STOP button (button #8).

The LED display on the central unit is used to indicate radio link or output activation. The list below described the different indications.

LED Display	Meaning
	Link is Established
	Standby
	Output 1 Activated
	Output 2 Activated
	Output 3 Activated
	Output 4 Activated
	Output 5 Activated
	Output 6 Activated
	Output 7/15 Activated
	Output 8/16 Activated
	Output 9/17 Activated
	Output 10/18 Activated
	Output 11/19 Activated
	Output 12 Activated
	Output 13 Activated
	Output 14 Activated

Radio Receiver Special Logic

OUTPUTS

Output 1 will be active while Button 1 is pressed .	(Hoist UP)
Output 2 will be active while Button 2 is pressed .	(Container ON)
Output 3 will latch/unlatch respectively when Button 3 is pressed.	(Brake ON/OFF)
Output 4 will be active while Button 4 is pressed .	(Hoist DOWN)
Output 5 will be active while Button 5 is pressed.	(Container OFF)
Output 6 will latch/unlatch respectively when Button 6 is pressed.	(Aux ON/OFF)
Output 7 will be active while SHIFT is active and Button 1 is pressed.	(Gantry UP)
Output 8 will be active while SHIFT is active and Button 2 is pressed.	(Tarp IN)
Output 9 will be active while SHIFT is active and Button 3 is pressed.	(Tail IN)
Output 10 will be active while SHIFT is active and Button 4 is pressed.	(Gantry DOWN)
Output 11 will be active while SHIFT is active and Button 5 is pressed.	(Tarp OUT)
Output 12 will be active while SHIFT is active and Button 6 is pressed.	(Tail OUT)

INTERLOCKING

Output 1 (Hoist UP)	and Output 4 (Hoist DOWN)	are interlocked with each other.
Output 2 (Container ON)	and Output 5 (Container OFF)	are interlocked with each other.
Output 7 (Gantry UP)	and Output 10 (Gantry OFF)	are interlocked with each other.
Output 8 (Tarp IN)	and Output 11 (Tarp OUT)	are interlocked with each other.
Output 9 (Tail IN)	and Output 12 (Tail OUT)	are interlocked with each other.

Hold ON button to turn transmitter ON and establish link with receiver.

Hold OFF button to turn transmitter OFF and break link with receiver.

Transmitter will turn off after 10 minutes of inactivity.

LED Logic

LED 1 will flash when transmitter is linked

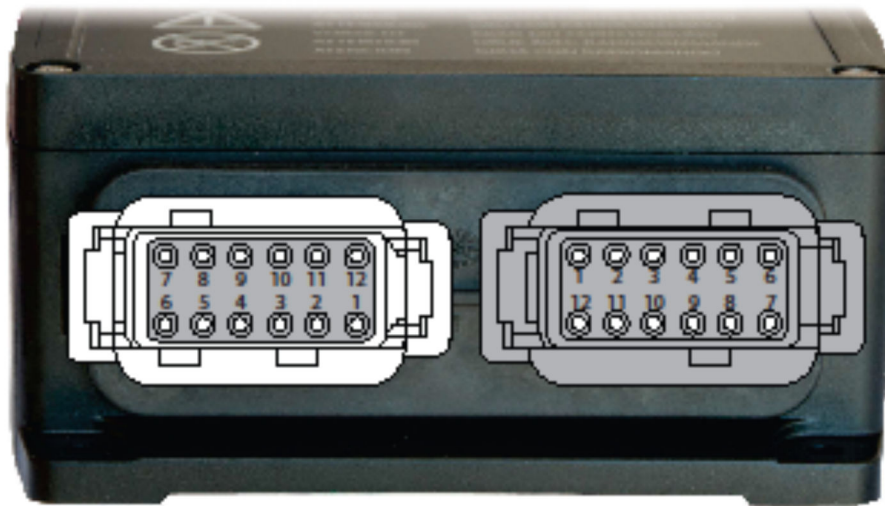
LED 2 will be lit solid while SHIFT is active

LED 3 will be lit solid while BRAKE output is active.

LED 4 will be lit solid while AUX output is active.

LED 5 will be lit when transmitter batteries are low

Terminal Schematic G5



Wire	Gray Connector	Wire	Black Connector
BL/BK	1 = Output/Input 16	WT/RD/BK	1 = Gantry UP
BK/WT	2 = Output/Input 15	RD/BK/WT	2 = Tarp IN
BK	3 = GND	GN	3 = Tail IN
GN/BK	4 = Output/Input 14	GN/BK/WT	4 = Gantry DOWN
BK/WT/RD	5 = Estop	WT	5 = Tarp OUT
RD	6 = Power Supply +	OR	6 = Tail OUT
OR/GN	7 = Hoist UP	NA	7 = RS232 TX
RD/GN	8 = Container ON	NA	8 = RS232 RX
WT/RD	9 = Brake ON	RD/WT	9 = Output/Input 13
OR/BK	10 = Container OFF	BL/WT	10 = Output/Input 17
BL/RD	11 = Hoist DOWN	WT/BK	11 = Output/Input 18
OR/RD	12 = Aux ON	BK/RD	12 = On with Link



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Programming

Pocket

9.1 General Description

When a G5 system is delivered, configuration is normally done by Ace after final test. There should not be any need for further programming or pairing. Despite this, if there has been a change to the machine there may be need to reconfiguration the system. There are two ways to do this; connecting the system to a computer using RS232 with WinSCI software or so called "on-line" programming which is a simple method with less options. See chapter Online programming for more information.



IMPORTANT!

Changes and modifications not expressly approved by the responsible system installer will void the operator's authority to operate the application.

9.2 Safe Paring of HCU to CU

Safe pairing is used to get a unique assignment between a single Pocket HCU and a single G5 CU. To exchange the HCU and CU ID's when replacing either the CU or HCU in a system follow the Safe Paring procedure below:

A. Remove power from CU (unplug the Grey connector for G5 24) and remove the cover

C. Simultaneously press button #1 and button #3. LED#3 will light indicating the HCU is ready for Safe Pairing

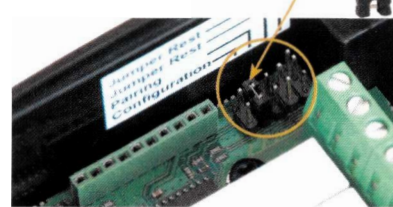


(Step D must be done within 10 seconds of C)

F. The HCU will confirm the download is complete by flashing LED#3 five



B. Install the "Paring" jumper into the position indicated



D. Re-apply power to the CU

E. The CU LED Display will flash



F. Remove the "Paring" jumper, return it to a "Jumper Rest", cycle power to CU and re-install the CU cover

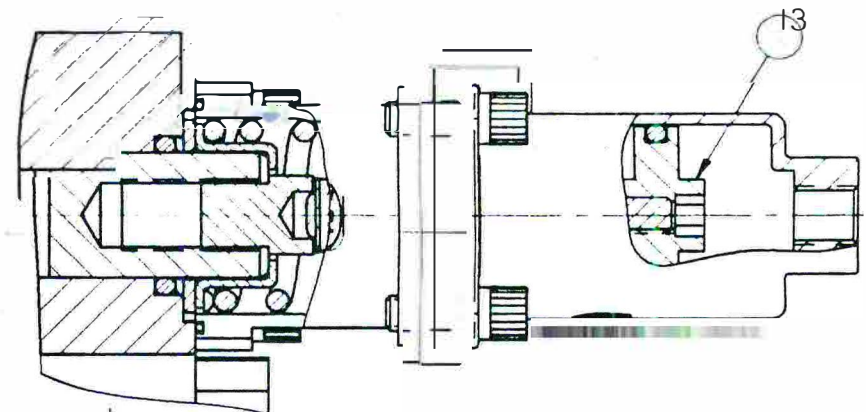
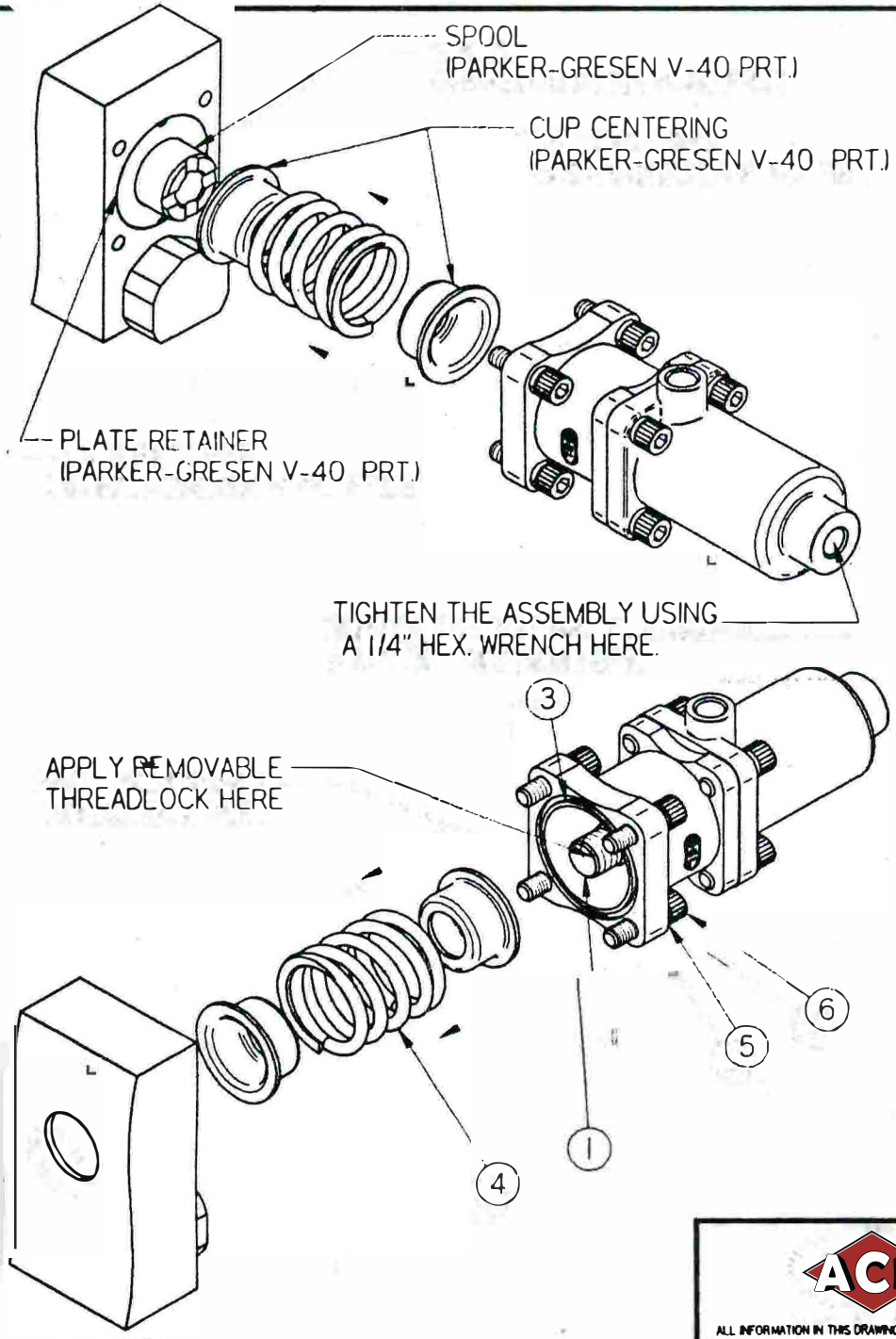
9.3 Set to factory defaults

If for any reason it is needed to reset all settings to factory defaults this is possible by setting the jumpers on "Pairing" and "Configuration" mode. Do this without power supply connected and restart unit.

PLEASE READ INSTRUCTIONS BEFORE ATTEMPTING ASSEMBLY.
 THIS AIR SHIFTER HAS BEEN ASSEMBLED AND PRE-LUBRICATED
 FOR EASE OF FIELD INSTALLATION.
 THE AIR SHIFTER DOES NOT HAVE TO BE DISASSEMBLED TO INSTALL.

1. Remove valve spring cover, original retainer screws (1/4), shoulder bolt (1/2) and centering spring as these items will not be used with the DEL shifter. Keep the original plate retainer in the initial position on the valve. Keep the original cups centering. Make sure that the valve spool and valve face are free of any foreign particle.
2. Replace the original centering spring with DEL centering spring (4)
3. Apply a small bead of removable threadlock to the threads of the spool adaptor (1). Holding spool on opposing end, tighten the assembly into the end of spool by using a 1/4 hex wrench in rear fitting port at the end of piston (13). Ensure that the spindle assembly enters the cups centering spring without binding.
4. Secure the assembly to the valve body using the four supplied socket head screws and lock washers (5 & 6), ensuring that the o-ring (3) is in place. Test for proper alignment by turning valve spool. The spool should rotate freely.
6. Install fittings and air lines and test for free movement and no air leaks.

FOR SHIFTER REMOVAL, FOLLOW ASSEMBLY PROCEDURE IN REVERSE ORDER.



**E-Z FIT AIR SHIFTER, 3 POSITION
 ASSEMBLY INSTRUCTIONS**

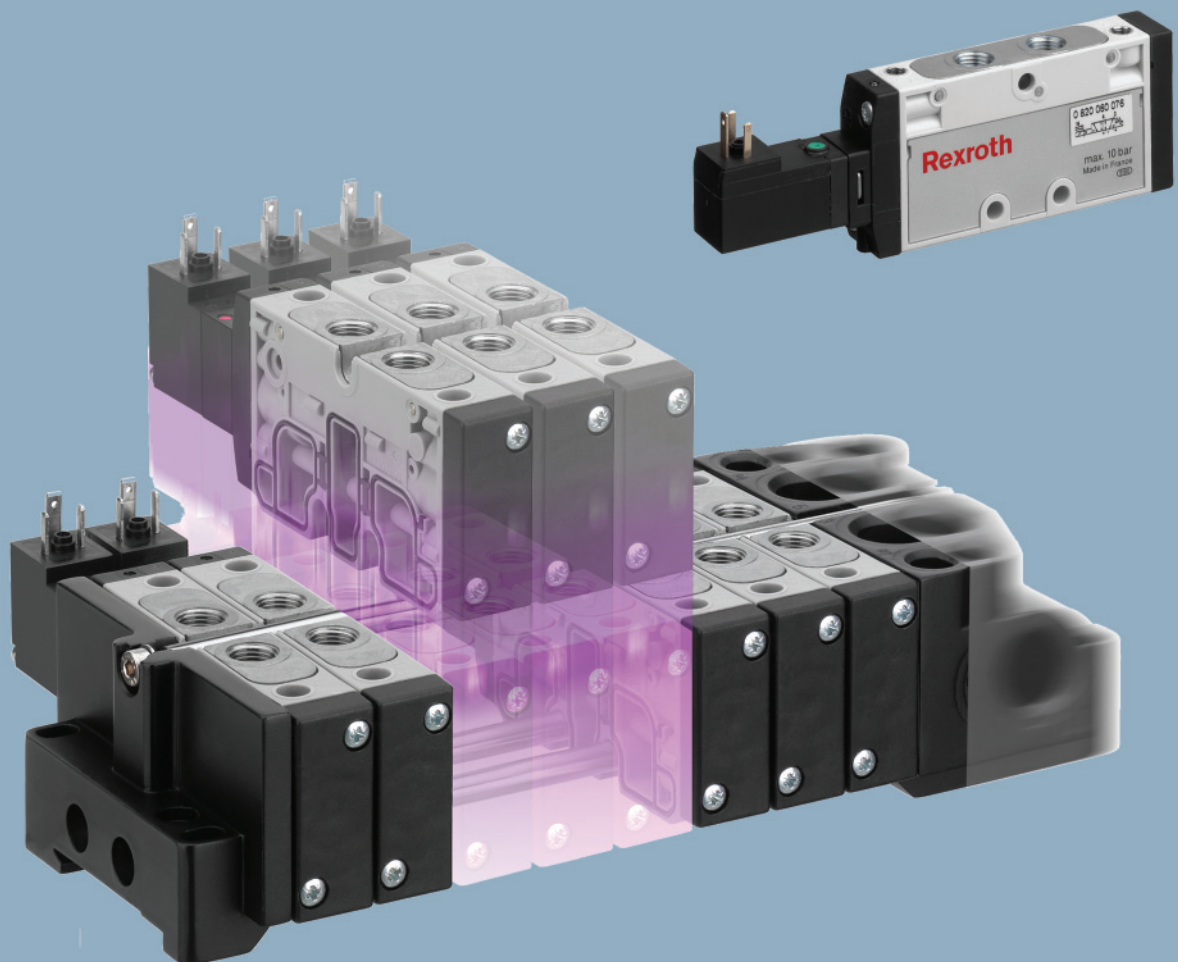
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UNITS: INCHES | SCALE: NTS

CHKD
 DRWN: 05 Dec 17/02
 REVD
 SHEET SIZE: A | REV

Series TC08 & TC15 Valves

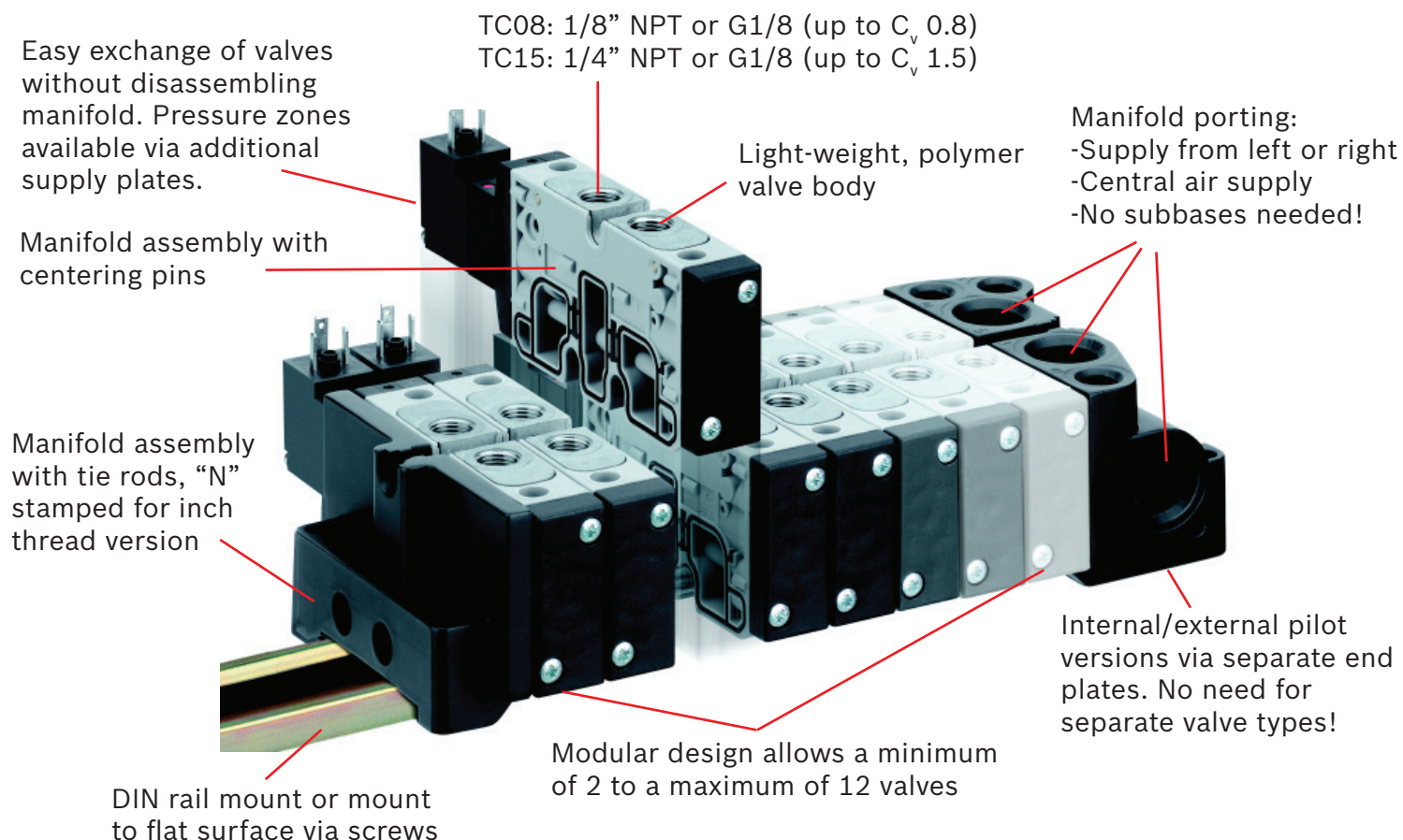
Pneumatic Directional Control



Series TC08 & TC15 Valves

Pneumatic Directional Control, Manifolds or Single In-line Valves

Series TC08 and TC15 valve families provide a highly reliable, high-flow, cost effective solution to a wide variety of applications. Use of polymer technology results in a light-weight, compact design for use in tight spaces. The easy-to-assemble manifold system has a reduced height because it does not require subbases, and quick valve changes make it maintenance friendly. Offering inch and metric porting options plus in-line and manifoldable valves widens customer choice.



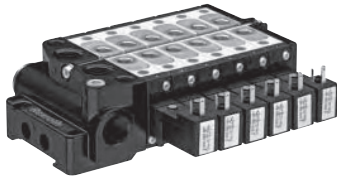
How to Order:

Our on-line configurator allows you to design your own custom, factory-assembled manifold—preventing the selection of impossible configurations, and get a part number and CAD drawing immediately.



★ Valve Terminal System, series TC15, 1/4" NPTF thread connection

2 - 12 valves



Version	single wiring
Working pressure min/max	-0.9 / 10 bar [-13 / 145 psi]
Ambient temperature min. / max.	-10°C/+50°C (+14°F/+122°F)
Medium	compressed air acc. to ISO 8573-1: 2001
Compressed air acc. to ISO 8573-1:2001	class 6-4-3, class 7-5-4
Medium temperature	-10°C/+50°C (+14°F/+122°F)
Nominal flow	$C_v = 1.5$
Operational voltage electronics:	12 V DC, 24 V DC, 110 V AC, 230 V AC
Protection class according to DIN EN 60529:2000, with electrical connections	IP65 (NEMA 4)
Materials:	
Housing	polyamide
End plate	die-cast aluminum
Seal	acrylonitrile butadiene rubber (NBR)

An example configuration is illustrated. The delivered product may differ from the illustration.

Note:

For technical data for the valves, see the end of this series.

The total weight is composed of the sum of the individual parts.

Configurable product



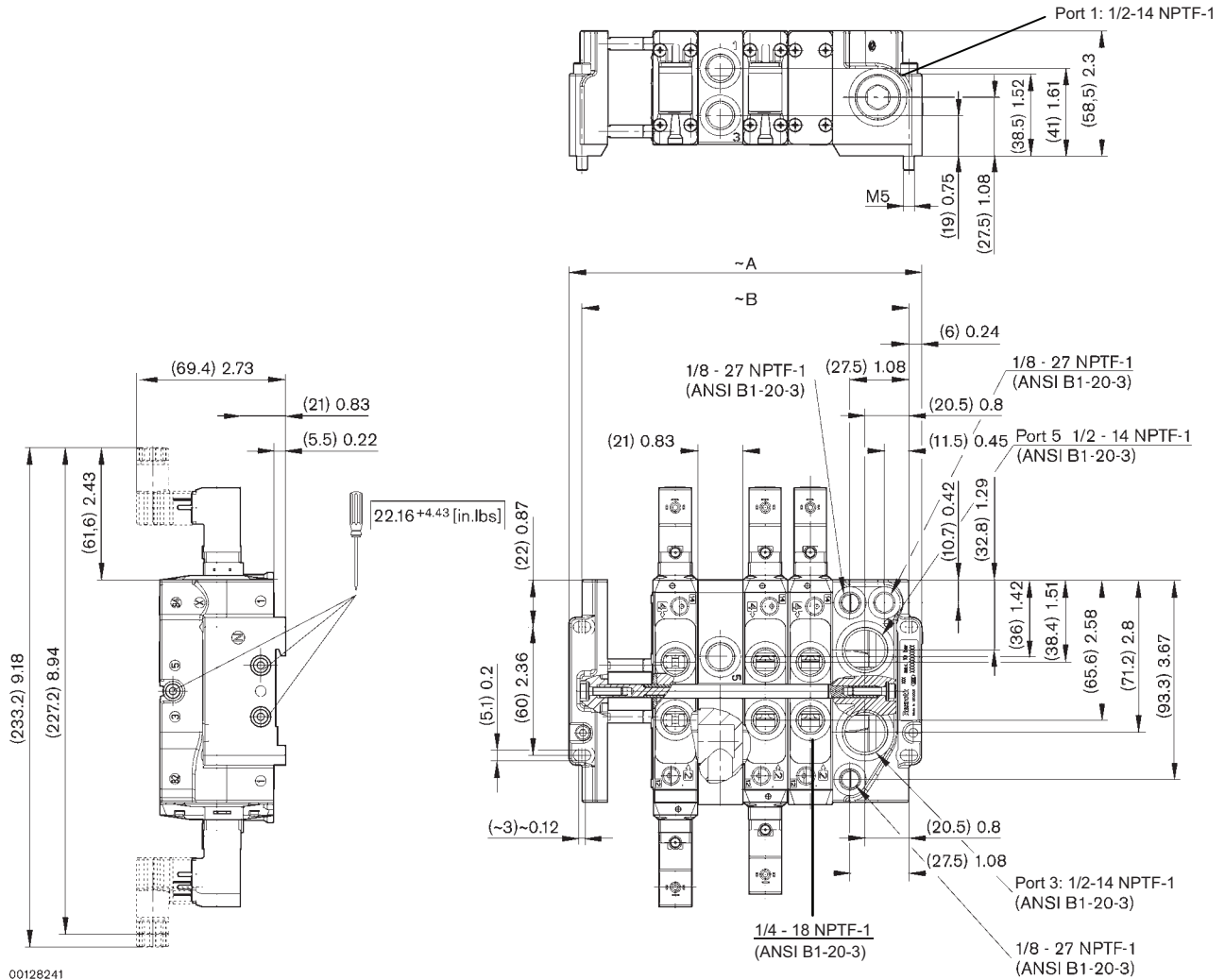
This product can be freely configured in our online catalog in the Internet.
See – www.boschrexroth.com/pneumatics
If Internet access is not available, please contact the nearest Bosch Rexroth sales office.

2D and 3D CAD files for TC08 & TC15 manifolds are available for download from the TC valve internet configurator.

★ Valve terminal system, series TC15, 1/4" NPTF
2 - 12 valves

Dimensions in inches

(mm dimensions in brackets)



00128241

An example configuration is illustrated. The delivered product may differ from the illustration.

n ¹⁾	2	3	4	5	6	7	8	9	10	11	12
~ A	3.996 (101.5)	4.823 (122.5)	5.650 (143.5)	6.476 (164.5)	7.303 (185.5)	8.130 (206.5)	8.957 (227.5)	9.783 (248.5)	10.610 (269.5)	11.437 (290.5)	12.264 (311.5)
~ B	3.524 (89.5)	4.350 (110.5)	5.177 (131.5)	6.004 (152.5)	6.831 (173.5)	7.657 (194.5)	8.484 (215.5)	9.311 (236.5)	10.138 (257.5)	10.965 (278.5)	11.791 (299.5)

¹⁾ number of valve positions

(Metric dimensions in brackets)

★ Valve Terminal System Accessories (inch version)

for series TC15



00119228

Spare Coils (incl. coil, mtg. bracket & seal)

(Form C, for Series TC08 & TC15)

Part No.	Voltage	Manual Override
R422000471	24VDC	locking
R422000472	24VDC	non-locking
R422000473	110VAC	locking
R422000474	110VAC	non-locking
R422000475	230VAC	locking
R422000476	230VAC	non-locking
R422000477	24VAC	locking
R422000478	24VAC	non-locking
R422000479	12VDC	locking

Type	Weight [lbs]	Part No.
End plate kit: internal pilot (inch version)	0.364	R422101300
End plate kit: external pilot (inch version)	0.946	R422101301
Additional supply plate, 1/3/5 closed (for separate pressure zones) (inch version)	0.540	R422101302
Additional supply plate, 1 closed, 3/5 open (for multiple common supply ports) (inch version)	0.540	R422101303
Blanking plate	0.540	R422000502
Tie rod, 2 valve stations	0.026	1823053258
Tie rod, 3 valve stations	0.037	1823053259
Tie rod, 4 valve stations	0.046	1823053260
Tie rod, 5 valve stations	0.057	1823053261
Tie rod, 6 valve stations	0.068	1823053262
Tie rod, 7 valve stations	0.079	1823053263
Tie rod, 8 valve stations	0.088	1823053264
Tie rod, 9 valve stations	0.101	1823053265
Tie rod, 10 valve stations	0.110	1823053266
Tie rod, 11 valve stations	0.121	1823053267
Tie rod, 12 valve stations	0.150	1823053268
Tie rod extension kit for 1 valve position	0.010	1823503999
10 spare gaskets for valve terminal systems	-	R422000141

Note: Additional supply plates occupy 1 valve position each. Take this into account when selecting tie rods.

Note: Order 3 tie rods per manifold

Solenoid Connectors - Form C:



Solenoid Connector, Non-Lighted

Part No. 8941012202



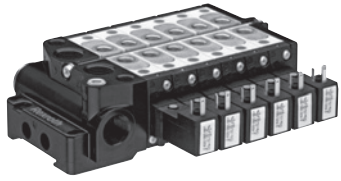
Solenoid Connector, Lighted

Voltage	Part Number
120VAC/DC (without lead)	R432011981
120VAC/DC (with 3' lead)	R432011961
120VAC/DC (with 6' lead)	R432011963
24VAC/DC (without lead)	R432011982
24VAC/DC (with 3' lead)	R432011962
24VAC/DC (with 6' lead)	R432011964

Recommended Wire Size for these solenoid connectors:
18-22 gauge wire, cable diameter 0.80" to 0.265" O.D.

★ Valve Terminal System, series TC15, G1/4 thread connection

2 - 12 valves



00123217

Version	plug-in wiring
Working pressure min./max	-0.9/10 bar (-13/145 psi)
Ambient temperature min./max.	-10°C/+50°C (+14°F/+122°F)
Medium	compressed air acc. to ISO 8573-1: 2001
Compressed air class	class 6-4-3, class 5-4-4
Medium temperature	-10°C/+50°C (+14°F/+122°F)
Nominal flow Qn	1500 l/min
Protection class according to EN 60529:2000, when mounted	IP65
materials:	
Housing	polyamide
Subbase	die-cast aluminum
End plate	die-cast aluminum
Seal	acrylonitrile butadiene rubber (NBR)

An example configuration is illustrated. The delivered product may thus deviate from the illustration.

Note:

For technical data for the valves, see the end of this series.

The total weight is composed of the sum of the individual parts.

max. 12 valves

configurable product

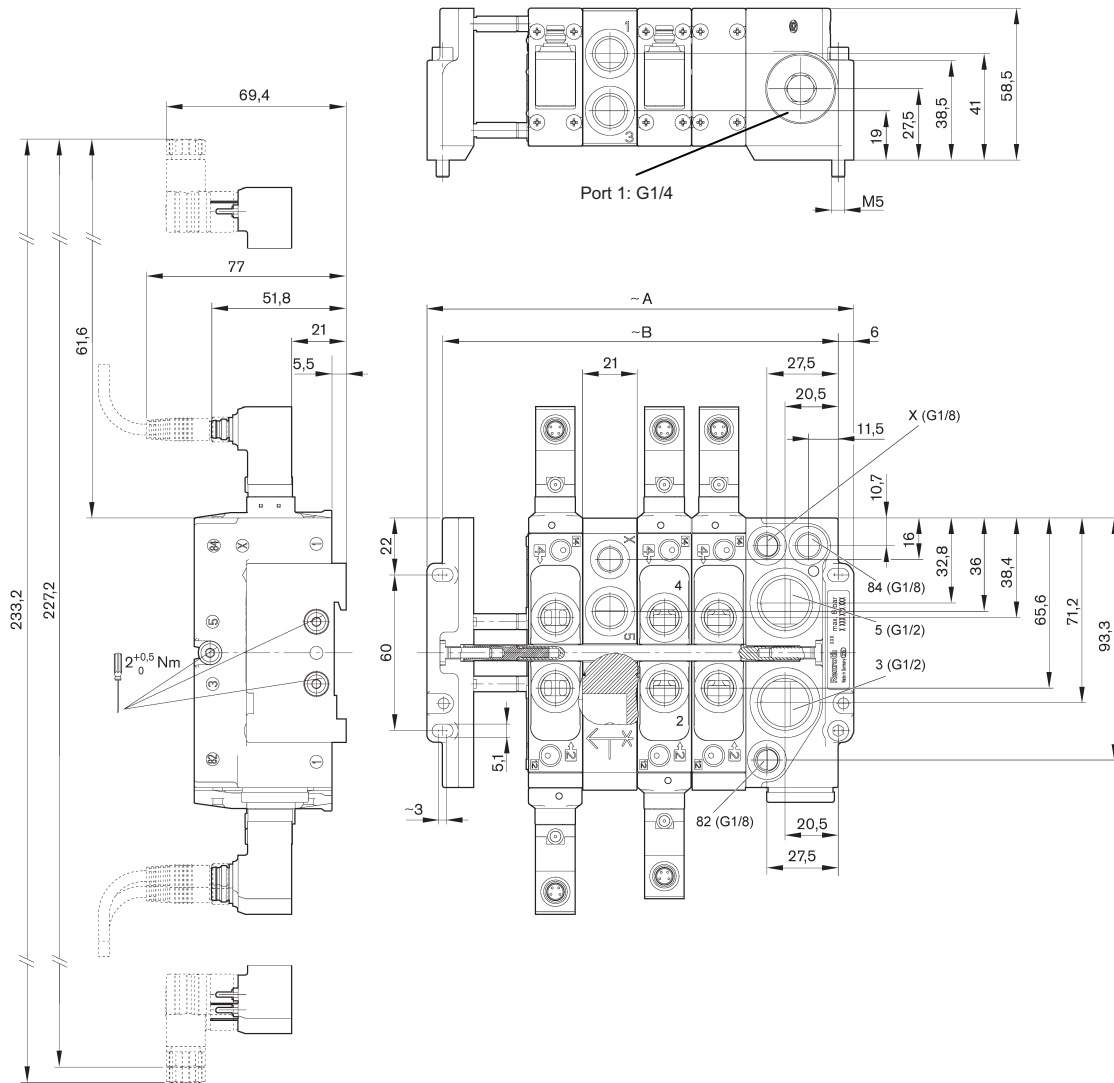


This product is configurable. Please use our configurator at www.boschrexroth.com/pneumatics or contact the nearest Bosch Rexroth sales office.

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★ Valve terminal system, series TC15, G1/4
2 - 12 valves

dimensions



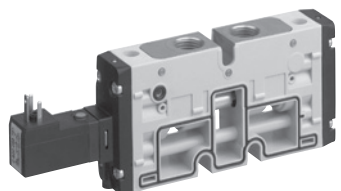
An example configuration is illustrated. The delivered product may thus deviate from the illustration.

00112053_a

n	2	3	4	5	6	7	8	9	10	11	12			
~ A	101.5	122.5	143.5	164.5	185.5	206.5	227.5	248.5	269.5	290.5	311.5			
~ B	89.5	110.5	131.5	152.5	173.5	194.5	215.5	236.5	257.5	278.5	299.5			

n = number of valve positions

★ Valves, series TC15, G1/4, for manifolds
electrical connector form C, ISO 15217



00120260

Version	spool valve, zero overlap
Working pressure min/max	-0.9/10 bar (-13/145 psi)
Ambient temperature min./max.	-10°C/+50°C (+14°F/+122°F)
Medium	compressed air acc. to ISO 8573-1: 2001
Compressed air class	class 6-4-3, class 5-4-4
Medium temperature	-10°C/+50°C (+14°F/+122°F)
Duty cycle ED	100%
Protection class according to EN 60529:2000, when mounted	IP65
materials:	
Housing	polyamide
Seal	acrylonitrile butadiene caoutchouc

Operating voltage	Voltage tolerance	Voltage tolerance	Voltage tolerance	Power consumption at 24 V DC	Switch-on power at 230V 50 Hz AC	Switch-on power at 110V 60 Hz AC	Switch-on power at 24V 50 Hz AC	Holding power at 230V 50 Hz AC	Holding power at 110V 60 Hz AC	Holding power at 24V 50 Hz AC
V	DC	AC 50 Hz	AC 60 Hz	W	VA	VA	VA	VA	VA	VA
24 V AC	-	-10% / +10%	-	-	-	-	3,1	-	-	3,1
24 V DC	-10% / +10%	-	-	1,9	-	-	-	-	-	-
110 V AC	-	-	-10% / +10%	-	-	3,1	-	-	3,1	-
230 V AC	-	-10% / +10%	-	-	3,1	-	-	3,1	-	-

		Operating voltage	Qn [l/min]	Control pressure min/max [bar]	Flow conductance b-value	Flow conductance C [l/s*bar]	Weight [kg]	Part No.
		24 V DC	1500	2.5 / 10	0,36	3,5	0,203	0820058751
		24 V AC						R422000104
		110 V AC						0820058752
		230 V AC						0820058753
		24 V DC	1500	3 / 10	0,36	3,5	0,195	0820058761
		24 V AC						R422000106
		110 V AC						0820058762
		230 V AC						0820058763
		24 V DC	1500	2 / 10	0,36	3,5	0,231	0820058771
		24 V AC						R422000108
		110 V AC						0820058772
		230 V AC						0820058773
		24 V DC	1500	2.5 / 10	0,36	3,5	0,203	0820058851
		24 V AC						R422000105
		110 V AC						0820058852
		230 V AC						0820058853

Nominal flow Qn at 6 bar and Δp = 1 bar

★ Valves, series TC15, G1/4 for manifolds
electrical connector form C, ISO 15217

		Operating voltage	Qn [l/min]	Control pressure min/max [bar]	Flow conductance b-value	Flow conductance C [l/s*bar]	Weight [kg]	Part No.
		24 V DC 24 V AC 110 V AC 230 V AC	1500	3 / 10	0,36	3,5	0,198	0820058861 R422000107 0820058862 0820058863
		24 V DC 24 V AC 110 V AC 230 V AC	1500	2 / 10	0,36	3,5	0,231	0820058871 R422000109 0820058872 0820058873
		24 V DC 24 V AC 110 V AC 230 V AC	1500	3 / 10	0,31	6,3	0,246	0820059751 R422000110 0820059752 0820059753
		24 V DC 24 V AC 110 V AC 230 V AC	1500	3 / 10	0,31	6,3	0,246	0820059761 R422000112 0820059762 0820059763
		24 V DC 24 V AC 110 V AC 230 V AC	1500	3 / 10	0,31	6,3	0,246	0820059771 R422000114 0820059772 0820059773
		24 V DC 24 V AC 110 V AC 230 V AC	1500	3 / 10	0,31	6,3	0,246	0820059851 R422000111 0820059852 0820059853
		24 V DC 24 V AC 110 V AC 230 V AC	1500	3 / 10	0,31	6,3	0,246	0820059861 R422000113 0820059862 0820059863
		24 V DC 24 V AC 110 V AC 230 V AC	1500	3 / 10	0,31	6,3	0,246	0820059871 R422000115 0820059872 0820059873

Nominal flow Qn at 6 bar and $\Delta p = 1$ bar

NOTICES TO PRODUCT USERS

1. WARNING: FLUID MEDIA

Bosch Rexroth pneumatic devices are designed and tested for use with filtered, clean, dry, chemical free air at pressures and temperatures within the specified limits of the device. For use with media other than air or for human life support systems, Bosch Rexroth must be consulted. Hydraulic cylinders are designed for operation with filtered, clean, petroleum based hydraulic fluid; operation using fire-resistant or other special types of fluids may require special packing and seals. Consult the factory.

2. WARNING: MATERIAL COMPATIBILITY

Damage to product seals or other parts caused by the use of non-compatible lubricants, oil additives or synthetic lubricants in the air system compressor or line lubrication devices voids Bosch Rexroth's warranty and can result in product failure or other malfunction. See lubrication recommendations below.

AIR LINE LUBRICANTS! In service higher than 18 cycles per minute or with continuous flow of air through the device, an air line lubricator is recommended. * (Do not use line lubrication with vacuum products.) However, the lubricator must be maintained since the oil will wash out the grease, and lack of lubrication will greatly shorten the life expectancy. The oils used in the lubricator must be compatible with the elastomers in the device. The elastomers are normally BUNA-N, NEOPRENE, VITON, SILICONE and HYTREL. Bosch Rexroth recommends the use of only petroleum-based oils without synthetic additives, and with an aniline point between 180° and 210° F.

COMPRESSOR LUBRICANTS! All compressors (with the exception of special "oil free" units) pass oil mist or vapor from the internal crankcase lubricating system through to the compressed air. Since even small amounts of non-compatible lubricants can cause severe seal deterioration (which could result in component and system failure) special care should be taken in selecting compatible compressor lubricants. It is recommended that users review the National Fluid Power Association "Recommended Guide Lines For Use Of Synthetic Lubricants In Pneumatic Fluid Power Systems" (NFPA T1-1978).

3. WARNING: INSTALLATION AND MOUNTING

The user of these devices must conform to all applicable electrical, mechanical, piping and other codes in the installation, operation or repair of these devices.

INSTALLATION! Do not attempt to install, operate or repair these devices without proper training in the technique of working on pneumatic or hydraulic systems and devices, unless under trained supervision. Compressed air and hydraulic systems contain high levels of stored energy. Do not attempt to connect, disconnect or repair these products when system is under pressure. Always exhaust or drain the pressure from system before performing any service work. Failure to do so can result in serious personal injury.

MOUNTING! Devices should be mounted and positioned in such manner that they cannot be accidentally operated.

4. WARNING: APPLICATION AND USE OF PRODUCTS

The possibility does exist for any device or accessory to fail to operate properly through misuse, wear or malfunction. The user must consider these possibilities and should provide appropriate safe guards in the application or system design to prevent personal injury or property damage in the event of malfunction.

5. WARNING: CONVERSION, MAINTENANCE AND REPAIR

When a device is disassembled for conversion to a different configuration, maintenance or repair, the device must be tested for leakage and proper operation after being reassembled and prior to installation.

MAINTENANCE AND REPAIR! Maintenance periods should be scheduled in accordance with frequency of use and working conditions. All Bosch Rexroth products should provide minimum of 1,000,000 cycles of maintenance free service when used and lubricated as recommended. However, these products should be visually inspected for defects and given an "in system" operating performance and leakage test once a year. Where devices require major repair as result of the one million cycles, one year, or routine inspection, the device must be disassembled, cleaned, inspected, parts replaced as required, rebuilt and tested for leakage and proper operation prior to installation. See individual catalogs for specific cycle life estimates.

6. PRODUCT CHANGES

Product changes including specifications, features, designs and availability are subject to change at any time without notice. For critical dimensions or specifications, contact factory.

*Many Bosch Rexroth pneumatic components can operate with or without air line lubrication; see individual sales catalogs for details.

--Refer to the appropriate service catalog for parts and service information.

LIMITATIONS OF WARRANTIES & REMEDIES

Bosch Rexroth warrants its products sold by it to be free from defects in material and workmanship to the following:

For twelve months after shipment Bosch Rexroth will repair or replace (F.O.B. our works), at its option, any equipment which under normal conditions of use and service proves to be defective in material or workmanship at no charge to the purchaser. No charge will be made for labor with respect to defects covered by this Warranty, provided that the work is done by Bosch Rexroth or any of its authorized service facilities. However, this Warranty does not cover expenses incurred in the removal and reinstallation of any product, nor any downtime incurred, whether or not proved defective.

All repairs and replacement parts provided under this Warranty policy will assume the identity, for warranty purposes, of the part replaced, and the warranty on such replacement parts will expire when the warranty on the original part would have expired. Claims must be submitted within thirty days of the failure or be subject to rejection.

This Warranty is not transferable beyond the first using purchaser. Specifically, excluded from this Warranty are failures caused by misuse, neglect, abuse, improper operation or filtration, extreme temperatures, or unauthorized service or parts. This Warranty also excludes the use of lubricants, fluids or air line additives that are not compatible with seals or diaphragms used in the products. This Warranty sets out the purchaser's exclusive remedies with respect to products covered by it, whether for negligence or otherwise. Neither, Bosch Rexroth nor any of its affiliates will be liable for consequential or incidental damages or other losses or expenses incurred by reason of the use or sale of such products. Our liability (except as to title) arising out of the sale, use or operation of any product or parts, whether on warranty, contract or negligence (including claims for consequential or incidental damage) shall not in any event exceed the cost of replacing the defective products and, upon expiration of the warranted period as herein provided, all such liability is terminated. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, WHETHER FOR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE. No attempt to alter, amend or extend this Warranty shall be effective unless authorized in writing by an officer of Bosch Rexroth Corporation.

Bosch Rexroth reserves the right to discontinue manufacture of any product, or change product materials, design or specifications without notice.