MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

ABB

CI840A 3BSE041882R1

CI840A PROFIBUS DP-V1 COMMUNICATION INTERFACE

Used with the applicable ABB S800 I/O configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Complete official manufacturer PDF follows this cover.

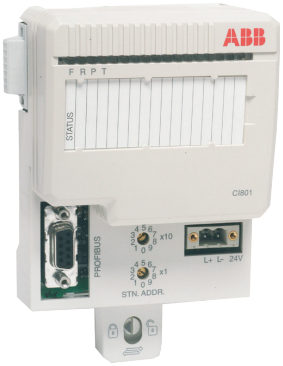
Source: ABB official technical documentation for CI840A 3BSE041882R1

DATA SHEET

S800 I/O Communication interfaces Compact Product Suite

Outline of all modules

S800 I/O is a comprehensive, distributed and modular process I/O system that communicates with parent controllers and PLCs over industry-standard field buses.



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CI801



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CI845



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TC810

Thanks to its broad connectivity it fits a wide range of process controllers and PLCs from ABB and others. By permitting installation in the field, close to sensors and actuators, S800 I/O reduces the installation cost by reducing the cost of cabling. And thanks to features such as “hot swap” of modules, on-line reconfiguration and redundancy options, it contributes to keeping production – and thereby profits – up.

For updated information regarding System 800xA hardware please visit our Compact Hardware Selector. In the selector you can compare different communication modules, AC 800M controllers, S800 I/O modules, module termination units, networks equipment, panels, power supplies and voters and also print your own PDF files.

www.compacthardwareselector.com

Feature	CI801	CI840A	CI845	TC810
Article number	3BSE022366R1	3BSE041882R1	3BSE075853R1	3BSE076220R1
Function	PROFIBUS-DPV1 fieldbus communication interface. Supervisory functions of I/O ModuleBus. Isolated power supply to I/O modules. OSP handling and configuration. Input power fused. Hot Configuration In Run. HART pass-through.	PROFIBUS-DPV1 fieldbus communication interface. Supervisory functions of I/O ModuleBus. Isolated power supply to I/O modules. OSP handling and configuration. Input power fused. Power supply supervision. Hot Configuration In Run. HART pass-through.	Ethernet fieldbus communication interface. Supervisory functions of I/O ModuleBus. Isolated power supply to I/O modules. OSP handling and configuration. Single/redundant 24V power supply with built-in voting and power supply supervision. Hot Configuration In Run. HART pass-through and Sequence of Events. Use as single or redundant, together with TC810 and TU860.	Ethernet Adapter for copper media with built in 2-port switch. Hosts two RJ45 ports. Use as single or redundant, together with CI845 and TU860.
Redundant	No	Yes	Yes	Yes
Power Input	24 V d.c. (19.2 - 30)	24 V d.c. (19.2 - 30)	24 V d.c. (19.2 - 30)	24 V d.c. (19.2 - 30)
Power Input Fuse	2 AF	2 AF	2 AF	2 AF
Power Consumption at 24 V d.c.	140 mA	190 mA	150 mA	60 mA
Power Supply Monitoring Inputs	N/A	Max. input voltage: 30 V Min. input voltage for high level: 15 V Max. input voltage for low level: 8 V		
Power Dissipation	5.4 W	7.7 W	5 W	1.1 W
Maximum Ambient Temperature	55°C (131°F) Horizontal mounted 40°C (104°F) Vertical mounted	55°C (131°F) Horizontal mounted 40°C (104°F) Vertical mounted	-40°C (-40°F) to +70°C (158°F)	-40°C (-40°F) to +70°C (158°F)

Feature	CI801	CI840A	CI845	TC810
Electrical ModuleBus	Maximum of 12 I/O modules	Maximum of 12 single I/O modules or 6 pairs of redundant I/O modules	Maximum of 12 single I/O modules or 12 pairs of redundant I/O modules	N/A
Optical ModuleBus	Maximum of 7 I/O clusters via TB842	Maximum of 7 I/O clusters via TB842	N/A	N/A
Max optical cable length	N/A	N/A	N/A	N/A
Power Output - ModuleBus	24 V max. = 1.5 A fused (1). 5 V max. = 1.5 A current lim.	24 V max. = 1.5 A current lim. 5 V max. = 1.5 A current lim.	24 V max. = 2x 1.5 A current lim. 5 V max. = 2x 1.5 A current lim.	N/A
Module termination units	N/A	TU846 or TU847	TU860 or TU865	TU860 or TU865
MTU Keying code	N/A	AA	A	A
Dielectric test voltage	500 V a.c.	500 V a.c.	500 V a.c.	500 V a.c.
Rated insulation voltage	50 V	50 V	50 V	50 V
Width	85.8 mm (3.38 in.)	54 mm (2.13 in.)	33 mm (1.18 in.)	110 mm (4.33 in.)
Depth	58.5 mm (2.30 in.)	96 mm (3.78 in.)	121.7 mm (4.79 in.)	76.3 mm (3.0 in.)
Height	136 mm (5.35 in.)	119 mm (4.69 in.)	135 mm (5.31 in.)	24.5 mm (0.96 in.)
Weight	300 g (0.66 lbs.)	200 g (0.44 lbs.)	225 g (0.49 lbs.)	105 g (0.23 lbs.)
Climatic operating conditions	0 to +55 °C (Storage -25 to +70 °C), RH=5 to 95 % no condensation, IEC/EN 61131-2 (2)		-40 to +70 °C (Storage -40 to +85 °C), RH=5 to 95 % no condensation, IEC/EN 61131-2	
Certificates and standards (3)	CE mark: Yes Electrical safety: IEC 61131-2, UL 508 Hazardous Location: C1 Div 2 cULus, C1 Zone 2 cULus, ATEX Zone 2(*) Marine certification: ABS,BV,DNV-GL,LR,RS,CCS(*) Corrosive atmosphere ISA-S71.04: G3 Pollution degree: Degree 2, IEC 60664-1 Mechanical operating conditions: IEC/EN 61131-2 EMC: EN 61000-6-4 and EN 61000-6-2 Overvoltage categories: IEC/EN 60664-1, EN 50178 Equipment class: Class I according to IEC 61140; (earth protected) RoHS compliance: DIRECTIVE/2011/65/EU (EN 50581:2012) WEEE compliance: DIRECTIVE/2012/19/EU			

(1) Fuse type: Subminiature fuse 3.15 A
- LT-5 Fast-Acting 622 series according to Littelfuse
- TR5-F Fuse-link No. 370 according to Wickmann
- MSF 250 according to Schurter

(2) 0 to +40 °C compact MTUs on vertical DIN-rail. Approvals are issued for +5 to +55 °C.
(3) For detailed information on each module, please visit: **www.compacthardwareselector.com**
(*)Pending for CI845/TC810

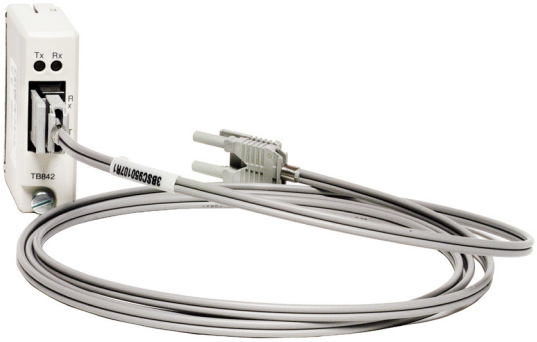
Feature	TB820V2	TB825	TB826	TB840A	TB842
Article number	3BSE013208R1	3BSE036634R1	3BSE061637R1	3BSE037760R1	3BSE022464R1
Function	2 fiber optic ports to optical ModuleBus. ModuleBus (electrical) to the I/O Modules. Supervisory functions of I/O ModuleBus and power supply. Isolated power supply to I/O modules. Input power fused.	ModuleBus optical media converter from plastic or HCS fibre with versatile link connector to glass fibre with ST connector. Allows distribution of the optical ModuleBus up to 1000 m per cluster in star configurations.	ModuleBus optical media converter from plastic or HCS fibre with versatile link connector to glass fibre with SC connector. Allows distribution of the optical ModuleBus up to 5000 m per cluster in star configurations.	2 fiber optic ports to optical ModuleBus. ModuleBus (electrical) to the I/O Modules. Supervisory functions of I/O ModuleBus and power supply. Isolated power supply to I/O modules. Input power fused.	Communication interface between the CI801 or CI840/CI840A FCI and the TB820/TB820V2/TB840/TB840A ModuleBus Modem of an I/O cluster or ABB drives units via the Optical ModuleBus. TB842 connects to CI801 via TB806 and to CI840/CI840A via TU847 and TB806 for single I/O or via TU846 and TB846 for redundant I/O.
Redundant	No	No	No	Yes	Yes
Power Input	24 V d.c. (19.2 - 30)	24 V d.c. (19.2 - 30)	24 V d.c. (19.2 - 30)	24 V d.c. (19.2 - 30)	N/A
Power Input Fuse	2 AF	2 AF	2 AF	2 AF	
Power Consumption at 24 V d.c.	100 mA	96 mA	96 mA	120 mA	20 mA
Power Supply Monitoring Inputs	Max. input voltage: 30 V Min. input voltage for high level: 15 V Max. input voltage for low level: 8 V	N/A	N/A	Max. input voltage: 30 V Min. input voltage for high level: 15 V Max. input voltage for low level: 8 V	N/A
Power Dissipation	6 W	2.3 W	2.3 W	6 W	0.5 W



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TB820



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TB840



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TB842

Feature	TB820V2	TB825	TB826	TB840A	TB842
Maximum Ambient Temperature	55°C (131°F) Horizontal mounted 40°C (104°F) Vertical mounted	55°C (131°F) Horizontal mounted 40°C (104°F) Vertical mounted	55°C (131°F) Horizontal mounted 40°C (104°F) Vertical mounted	55°C (131°F) Horizontal mounted 40°C (104°F) Vertical mounted	55° C (131° F) Horizontal mounted 40° C (104° F) Vertical mounted
Electrical ModuleBus	Maximum of 12 I/O modules	N/A	N/A	Maximum of 12 single I/O modules or 6 pairs of redundant I/O modules	N/A
Optical ModuleBus	Maximum of 7 I/O clusters. Wavelength 650 nm	Local optical ModuleBus 1 and 2 with versatile link contacts, plastic or HCS. Field optical ModuleBus with ST bayonet contacts.	Local optical ModuleBus 1 and 2 with versatile link contacts, plastic or HCS. Field optical ModuleBus with SC contacts.	Maximum of 7 I/O clusters. Wavelength 650 nm	Fiber optic interface, one transmit and one receive connection for max. 10 Mbit/s. Wavelength 650 nm
Max optical cable length	Local cable: Plastic Optical Fiber (POF): Max 15 m. Hard Clad Silica (HCS): Max 200 m.	Local cable: Plastic Optical Fiber (POF): Max 15 m. Hard Clad Silica (HCS): Max 200 m. Field cable: Glass Optical fiber, multimode, 62.5/125 µm: Max 1 000 m. Glass Optical fiber, multimode, 50/125 µm: Max 100 m.	Local cable: Plastic Optical Fiber (POF): Max 15 m. Hard Clad Silica (HCS): Max 200 m. Field cable: Glass Optical fiber, single mode, 9/125 µm: Max 5 000 m.	Local cable: Plastic Optical Fiber (POF): Max 15 m. Hard Clad Silica (HCS): Max 200 m.	The module is equipped with Transmitter/Receiver for up to 10 Mbit/s. Both plastic and HCS (Hard Clad Silica) optic fiber with connectors (Agilent's, former Hewlett-Packard, Versatile Link) can be used with the TB842.
Power Output - ModuleBus	24 V max. = 1.4 A 5 V max. = 1.5 A	N/A	N/A	24 V max. = 1.4 A 5 V max. = 1.5 A	
Module termination units	N/A	N/A	N/A	TU807, TU840, TU841, TU847, TU848 or TU849	TB806, TU846 and TU847
MTU Keying code	N/A	N/A	N/A	AB	N/A
Dielectric test voltage	500 V a.c.	500 V a.c.	500 V a.c.	500 V a.c.	N/A
Rated insulation voltage	50 V	50 V	50 V	50 V	N/A
Width	58 mm (2.39 in.)	85.6 mm (3.37 in.)	85.6 mm (3.37 in.)	54 mm (2.13 in.)	17.6 mm (0.69 in.)
Depth	122 mm (4.8 in.)	58.5 mm (2.30 in.)	58.5 mm (2.30 in.)	96 mm (3.78 in.)	42.3 mm (1.67 in.)
Height	170 mm (6.7 in.)	136 mm (5.35 in.)	136 mm (5.35 in.)	119 mm (4.69 in.)	56.7 mm (2.23 in.)
Weight	300 g (0.66 lbs.)	210 g (0.46 lbs.)	210 g (0.46 lbs.)	200 g (0.44 lbs.)	90 g (0.20 lbs.)
Climatic operating conditions	0 to +55 °C (Storage -25 to +70 °C), RH=5 to 95 % no condensation, IEC/EN 61131-2 (2)				
Certificates and standards (3)	CE mark: Yes Electrical safety: IEC 61131-2, UL 508 Hazardous Location: C1 Div 2 cULus, C1 Zone 2 cULus, ATEX Zone 2 Marine certification: ABS,BV,DNV-GL,LR,RS,CCS(*) Corrosive atmosphere ISA-S71.04: G3 Pollution degree: Degree 2, IEC 60664-1 Mechanical operating conditions: IEC/EN 61131-2 EMC: EN 61000-6-4 and EN 61000-6-2 Overvoltage categories: IEC/EN 60664-1, EN 50178 Equipment class: Class I according to IEC 61140; (earth protected) RoHS compliance: DIRECTIVE/2011/65/EU (EN 50581:2012) WEEE compliance: DIRECTIVE/2012/19/EU				

(2) 0 to +40 °C compact MTUs on vertical DIN-rail. Approvals are issued for +5 to +55 °C.
(3) For detailed information on each module, please visit: **www.compacthardwareselector.com**
(*)No Marine cert. for TB826



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TU807



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TU840



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TU860

Feature	TU807	TU840	TU841	TU846
Article number	3BSE039025R1	3BSE020846R1	3BSE020848R11	3BSE022460R1
Function	Module termination unit (MTU) for single configuration of Optical ModuleBus Modem TB840/TB840A. The MTU is a passive unit having connections for power supply, a single electrical ModuleBus, one TB840/TB840A and a rotary switch for cluster address (1 to 7) setting.	Module termination unit (MTU) for redundant configuration of Optical ModuleBus Modem TB840/TB840A. The MTU is a passive unit having connections for power supply, double electrical ModuleBus, two TB840/TB840A and a rotary switch for cluster address (1 to 7) setting.	Module termination unit (MTU) for redundant configuration of Optical ModuleBus Modem TB840/TB840A, for use with non-redundant I/O. The MTU is a passive unit having connections for power supply, a single electrical ModuleBus, two TB840/TB840A and a rotary switch for cluster address (1 to 7) setting.	Module termination unit (MTU) for redundant configuration of the field communication interface CI840/CI840A and redundant I/O. The MTU is a passive unit having connections for power supply, two electrical ModuleBuses, two CI840/ CI840A and two rotary switches for station address (0 to 99) settings.
Cable redundancy	No	No	No	No
Module redundancy	No	Yes	Yes	Yes
Type	Single TB810/TB840A, Single I/O, Single Power	Redundant TB840/TB840A, Redundant I/O, Single Power	Redundant TB840/TB840A, Single I/O, Single Power	Redundant CI840/CI840A, Redundant I/O
Power Input	24 V d.c. (19.2 - 30 V)	24 V d.c (19.2 -30 V)	24 V d.c (19.2 - 30 V)	24 V d.c. (19.2 - 30 V)
Hot Swap	No	No	No	No
Mounting	Vertical or Horizontal			
Power Consumption at 24 V d.c.	N/A	N/A	N/A	N/A
Connector	N/A	N/A	N/A	PROFIBUS: DSUB9 connector Service ports: RJ45 connector
Acceptable wire sizes	Solid: 0.2 - 2.5 mm^2 Stranded: 0.2 - 2.5 mm^2, 24 - 12 AWG Recommended torque: 0.5 Nm	Solid: 0.2 - 2.5 mm^2 Stranded: 0.2 -2.5 mm^2, 24 -12 AWG Recomended torque: 0.5 Nm	Solid: 0.2 - 2.5 mm^2 Stranded: 0.2 -2.5 mm^2, 24 -12 AWG Recomended torque: 0.5 Nm	Solid: 0.2 - 2.5 mm^2 Stranded: 0.2 -2.5 mm^2, 24 -12 AWG Recomended torque: 0.5 Nm
Dielectric test voltage	500 V a.c.	500 V a.c	500 V a.c	500 V a.c
Rated insulation voltage	50 V	50 V	50 V	50 V
Power Dissipation	N/A	N/A	N/A	N/A
Width	59 mm (1.57 in.)	124 mm (4.88 in.)	124 mm (4.88 in.)	124 mm (4.88 in.)
Depth	47 mm (1.85 in.)	47 mm (1.85 in.)	47 mm (1.85 in.)	47 mm (1.85 in.)
Height	186.5 mm (7.34 in.)	186.5 mm (7.34 in.)	186.5 mm (7.34 in.)	186.5 mm (7.34 in.)
Weight	450 g (0.99 lbs.)	450 g (0.99 lbs.)	450 g (0.99 lbs.)	500 g (1.1 lbs.)
Climatic operating conditions	0 to +55 °C (Storage -25 to +70 °C), RH=5 to 95 % no condensation, IEC/EN 61131-2 (2)			
Certificates and standards (3)				
Equipment class	Class I according to IEC 60536; (earth protected)	Class 1 according to IEC 60536; (earth protected)	Class 1 according to IEC 60536; (earth protected)	Class 1 according to IEC 60536; (earth protected)
Protection rating	IP20 according to IEC 60529	IP20 according to IEC 60529	IP20 according to IEC 60529	IP20 according to IEC 60529
CE- marking	Yes			
Electrical Safety	cULus	cULus	cULus	cULus
Hazardous location	cULus Hazardous Location Class 1 Zone 2, ATEX Zone 2	cULus Hazardous Location Class 1 Zone 2, ATEX Zone 2	cULus Hazardous Location Class 1 Zone 2, ATEX Zone 2	cULus Hazardous Location Class 1 Zone 2, ATEX Zone 2
Marine certificates	N/A	ABS, BV, DNV-GL, LR, RS	ABS, BV, DNV-GL, LR, RS, CCS	N/A
RoHS compliance	DIRECTIVE/2011/65/EU (EN 50581:2012)			
WEEE compliance	DIRECTIVE/2012/19/EU			

(3) For detailed information on each module, please visit: **www.compacthardwareselector.com**

Feature	TU847	TU848	TU849	TU860
Article number	3BSE022462R1	3BSE042558R1	3BSE042560R1	3BSE078710R1
Function	Module termination unit (MTU) for redundant configuration of the field communication interface CI840/CI840A. The MTU is a passive unit having connections for power supply, electrical ModuleBus, two CI840/CI840A and two rotary switches for station address (0 to 99) settings. A ModuleBus Optical Port TB842 can be connected to TU847 via TB806.	Module termination unit (MTU) for redundant configuration of Optical ModuleBus Modem TB840/TB840A. The MTU is a passive unit having connections for two power supply (one for each modem), double electrical ModuleBus, two TB840/TB840A and a rotary switch for cluster address (1 to 7) setting.	Module termination unit (MTU) for redundant configuration of Optical ModuleBus Modem TB840/TB840A. The MTU is a passive unit having connections for two power supply, one for each modem, a single electrical ModuleBus, two TB840/TB840A and a rotary switch for cluster address (1 to 7) setting.	Module termination unit (MTU) only for connecting S800 I/O modules to the Modulebus connector. Two mounting slots for redundant CI845 Ethernet FCI modules. Two mounting slots for redundant Ethernet Adapters. Not intended for functional safety applications. Intended for vertical mounting. Also suitable for installation in hazardous areas classified as Zone 2 or Class I, Division 2.
Cable redundancy	No	Yes	Yes	
Module redundancy	Yes	Yes	Yes	
Type	Redundant CI840/CI840A, Single I/O	Redundant TB840/TB840A, Redundant I/O, Dual Power	Redundant TB840/TB840A, Single I/O, Dual Power	Redundant MTU for CI845, TC810 and S800 I/O Modules
Power Input	24 V d.c. (19.2 - 30 V)	24 V d.c (19.2 -30 V)	24 V d.c (19.2 -30 V)	24 V d.c (19.2 -30 V)
Hot Swap	No	No	No	No
Mounting	Vertical or Horizontal			Vertical mounting
Power Consumption at 24 V d.c.	N/A	N/A	N/A	N/A
Connector	PROFIBUS: DSUB9 connector Service ports: RJ45 connector	N/A	N/A	Maximum 2 FCI modules. Maximum 2 Ethernet Adapters. Inlet and connector for I/O cluster.
Acceptable wire sizes	Solid: 0.2 - 2.5 mm^2 Stranded: 0.2 -2.5 mm^2, 24 -12 AWG Recomended torque: 0.5 Nm	Solid: 0.2 - 2.5 mm^2 Stranded: 0.2 -2.5 mm^2, 24 -12 AWG Recomended torque: 0.5 Nm	Solid: 0.2 - 2.5 mm^2 Stranded: 0.2 -2.5 mm^2, 24 -12 AWG Recomended torque: 0.5 Nm	
Dielectric test voltage	500 V a.c	500 V a.c	500 V a.c	
Rated insulation voltage	50 V	50 V	50 V	
Power Dissipation	N/A	N/A	N/A	N/A
Width	124 mm (4.88 in.)	124 mm (4.88 in.)	124 mm (4.88 in.)	135 mm (5.31 in.)
Depth	47 mm (1.85 in.)	47 mm (1.85 in.)	47 mm (1.85 in.)	95.5 mm (3.76 in.)
Height	186.5 mm (7.34 in.)	186.5 mm (7.34 in.)	186.5 mm (7.34 in.)	210 mm (8.26 in.)
Weight	500 g (1.1 lbs.)	450 g (0.99 lbs.)	450 g (0.99 lbs.)	500 g (1.1 lbs.)
Climatic operating conditions	0 to +55 °C (Storage -25 to +70 °C), RH=5 to 95 % no condensation, IEC/EN 61131-2 (2)			-40°C (-40°F) to +70°C (158°F) (Storage -40°C (-40°F) to +85°C (185°F)) RH=5 to 95 % no condensation
Certificates and standards (3)				
Equipment class	Class 1 according to IEC 60536; (earth protected)	Class 1 according to IEC 60536; (earth protected)	Class 1 according to IEC 60536; (earth protected)	
Protection rating	IP20 according to IEC 60529	IP20 according to IEC 60529	IP20 according to IEC 60529	IP20 according to IEC 60529
CE- marking	Yes			
Electrical Safety	cULus	cULus	cULus	IEC/EN 61010-1, IEC 61010-2-201, UL 61010-2-201, CSA C22.2 No. 61010-2-201
Hazardous location	cULus Hazardous Location Class 1 Zone 2, ATEX Zone 2	cULus Hazardous Location Class 1 Zone 2, ATEX Zone 2	cULus Hazardous Location Class 1 Zone 2, ATEX Zone 2	EN 60079-0, EN60079-7, EN60079-15, UL 12.12.01/CSA C22.2 No. 213-17
Marine certificates	ABS, BV, DNV-GL, LR, RS, CCS	ABS, BV, DNV-GL, LR, RS	ABS, BV, DNV-GL, LR, RS	–
RoHS compliance	DIRECTIVE/2011/65/EU (EN 50581:2012)			
WEEE compliance	DIRECTIVE/2012/19/EU			

(3) For detailed information on each module, please visit: **www.compacthardwareselector.com**

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