FIXZ PRO Landscape

INSTALLATION MANUAL V1.0

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1.0 Introduction

1.1 Short Description of the system

Schletter Australia offers a wide array of solutions for tilt mount photovoltaic (PV) applications suitable for nearly any environmental condition. The solar mounting systems are designed for strength and ease of installation using high-quality products to meet or exceed applicable local and international standards.

The system consists of fastening frames securing Proline rails which support PV modules. The pre-assembled components, slide-in rail joiners without the use of screws and click-in module clamps, account for ease of installation and industry leading installation times.

The components are made from Aluminium and High-Grade Steel allowing durability in adverse site conditions. The system comes with a 25-year warranty that is compliant with Australian Standards: AS/NZS 1170.2:2021 for wind actions, AS/NZS 1170.1:2002 (R2016) for imposed loadings, and AS/NZS 1170.0:2002 for general principles.

1.2 Scope of the Installation Manual

The manual aims to provide information on safety warnings, mounting system setup and components for the installation of PV modules in flat metal roofs.

Section 1 and 2 focuses on an introduction and an overall overview of the mounting system. Section 3 and 4 focuses on installation instructions on the appropriate methods for assembling the mounting system.

Please refer to the installation manual and bill of materials carefully before commencing any installation or maintenance work. All necessary information regarding installation and maintenance should be provided. For further questions, please contact Schletter Australia.

The content of this manual should be followed to comply with the product warranty.

1.3 Appropriate Use/Warnings

The mounting system acts as a support structure for the installation of photovoltaic modules. Any other and/or additional use or incorrect assembly (for example: use of third-party components) or non-observance of tolerance specifications are considered improper use and exclude any liability of the manufacturer. Any use under conditions other than those assumed in the planning is also considered improper use and leads to the loss of any liability claims against the manufacturer.

This applies if the system is used under other load, climatic and/or corrosion conditions than originally assumed. Schletter Australia is in no case responsible for damages to the product itself or consequential damages caused by the product which are the result of an inappropriate handling of the product.

Schletter Australia is not responsible for outages or faults resulting from modifications made by the customer or other individuals. There is no entitlement to the availability of previous versions or the re-fitting of delivered components to the current series status.

1.4 Safety Instructions

Read and understand these safety instructions carefully before starting the assembly and keep them safely at hand. Comply with all regional and national valid standards, building regulations and accident prevention regulations.

Break hazard! PV modules may be damaged if stepped on.

Planning, installation and commissioning of the solar power system must only be performed by qualified technical personnel. Improper execution can result in damage to the system and endanger individuals.

Electrical current hazard! Installation and maintenance of the PV modules must only be performed by qualified technical personnel. Observe the safety instructions issued by the PV module manufacturer!

Falling hazard! Working on the roof as well as ascending and descending poses a risk of falling. It is vital to observe accident prevention regulations and use appropriate fall protection equipment. PV mounting systems are not suitable as climbing aids or fall protection.

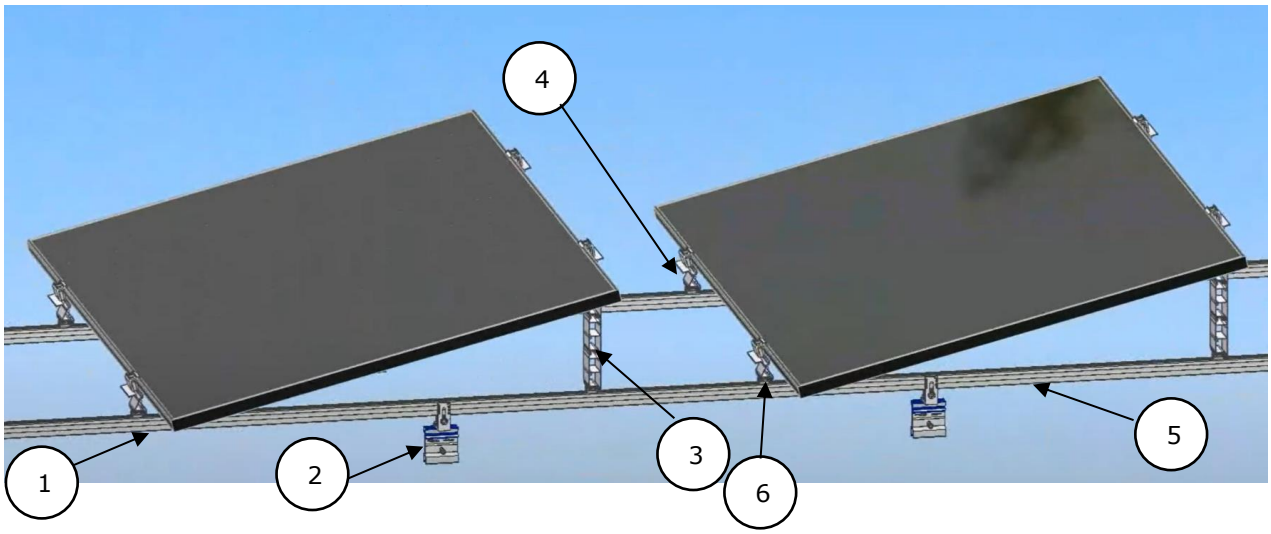
Injury hazard! Falling objects pose a risk of injury to people. Prior to installation, set up barriers in the hazard area to warn people nearby.

It is the obligation of the operator to ensure that all parts of the mounting instructions are kept within easy reach on the PV-plant for the fitters at any time.

As personnel, only persons who can be expected to carry out their work reliably can be admitted. Persons whose responsiveness is affected, e.g., by narcotics, alcohol, or medication, are NOT permitted.

2.0 System Overview

2.1 System Setup – FixZ Pro Landscape



Key Components

1	Proline Rails	2	Fastener	3	Elevation Element
4	Module Support Pro	5	Rail Joiner Proline	6	Rapid Con 90

Accessories

- Module Cable Clips
- Optimiser Kit
- Earthing Lugs
- Earthing Shims

2.2 Components Details

ITEM CODE	ITEM DESCRIPTION	IMAGE	
120020-04400	Rail Pro35 4400mm		RAILS
120021-04400	Rail Pro50 4400mm		
129200-000	Rail Joiner Proline		JOINERS
119026-102	Rapid2+ Pro SML		FASTENERS - DIRECT TO PURLIN
119033-006	Universal Adapter		
129063-010	Cross Connector		

FASTENERS - DIRECT TO SHEET

111013-204	Corrugated EMU Proline	
113002-226	KingFix EMU Proline	
113002-223	TrimFix EMU Proline	
SRDCN-5007	SingleFix-HU preassembled with RapidPro L	

KLIPLOK CLAMPS

112012-117	KlipLok Classic EMU	
112012-127	KlipLok Hi Strength EMU	

MODULE CLAMPS

131020-001	Mid Clamp 30-47mm Proline	
131020-000	End Clamp 30-47mm Proline	

FIX Z PRO

165005-003	Pro Heightening Element	
165005-004	Module Support Pro	
129063-002	Rapid Con 90	

900000-080	Universal Screw, Purlin 80mm	
900000-065	Universal Screw, Purlin 65mm	
900000-360	Screw, Direct to Sheet	
129065-009	Module Cable Clip	
129065-100	Cable Clip Pro	
129200-010	Plastic End Cap Proline	
135003-002P	Earthing Clamp Proline	
135004-002P	Earthing Shim Proline	
149120-004P	Micro/Optimiser Kit Proline	

3.0 Installation Tools

Tape Measure

Chalk Line

Marker

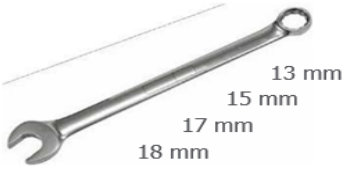
Pliers

Angle Grinder

Carpenter's Square

Rubber Mallet

Torque Wrench



Wrench

Rechargeable Power Drill

Torx® bit (TX 40)

Screwdriver

4.0 Mounting Instructions

4.1 Brackets and Proline Rail

The brackets (Rapid 2+ Pro SML, Seam Clamps, KingFix, TrimFix, SingleFix and Corrugated EMU) are selected based on the roofing sheet at site. The brackets and rails are positioned based on the certified spans from our standard or issued site-specific racking certificates for the project.

Please observe the guidelines in the Flush Mount Installation Manual to lay down the respective bracket and rails as shown in Figure 4.1:

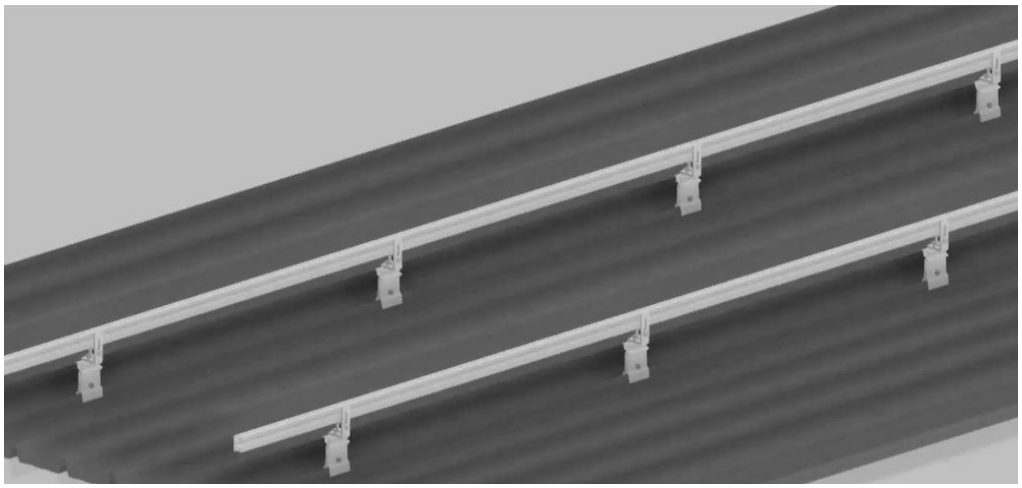


Figure 4.1: Seam Clamp + Proline Rail secured to the roofing sheet

4.2 Rapid Con 90 + Pro Heightening Element + Module Support Pro

Rapid Con 90 Installation

I. The Rapid Con 90 is placed on top of the rail. The connector is turned 90 degrees with the help of a screwdriver inserted into the hollow channel.

   This ensures that the Module Support and Pro Heightening Element are all oriented for landscape panel installation.

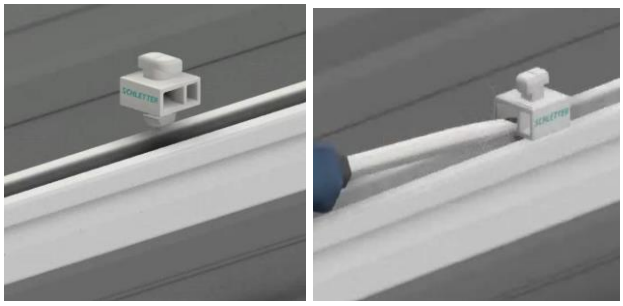


Figure 4.2A: Installation of Rapid Con 90

II. The Rapid Con 90 is placed parallel to each other along both the rails spaced based on the panel width and tilt orientation. Between 2 panels, the connector is spaced based on the shading distance calculated for the site.

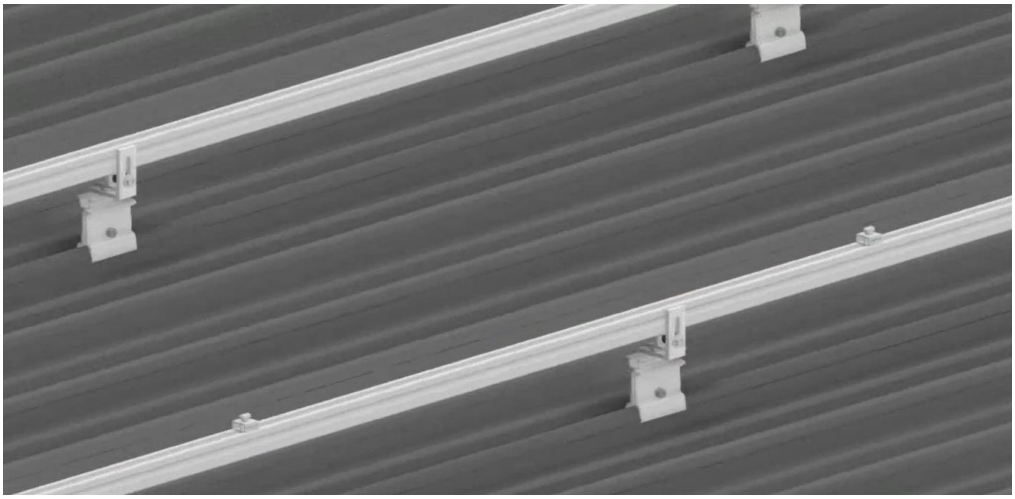


Figure 4.2A: Planning spacing between Rapid Connectors

Rapid Con 90 + Module Support Pro (Front Legs) Installation

I. The Module Support Pro is placed on top of the Rapid Con 90 and turned 90 degrees to orient the base plate running perpendicular to the rails. This can be achieved with the help of 2 screwdrivers inserted into the hollow channels of the Rapid Con 90 and Module Support, as shown in Figure 4.2C.

II. Repeat the process for other locations where required.

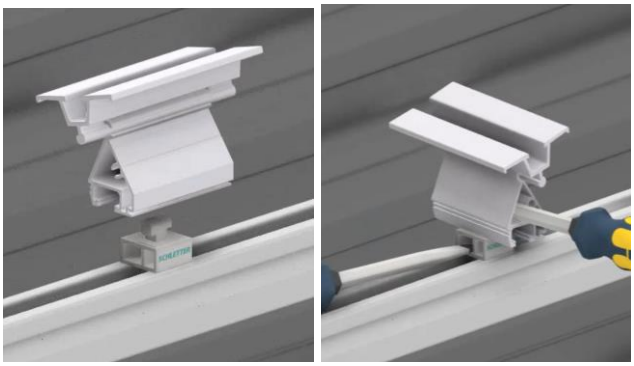


Figure 4.2C: Fixing Module Support to Rapic Con 90

Proline Rail + Module Support Pro (Rear Legs) Installation

I. Add Pro Heightening Elements on top of the rear pair of Rapid Con 90. These components are modular and interconnect by locking in, once inserted from the top at an angle, as shown in Figure 4.2D.

The number of Pro Heightening Element varies on the required tilt of the panels.

II. Add the Module Support on top of the last elevation element which is secured by inserting it from the top at an angle following the same process as Pro Heightening Element, as shown in Figure 4.2D.

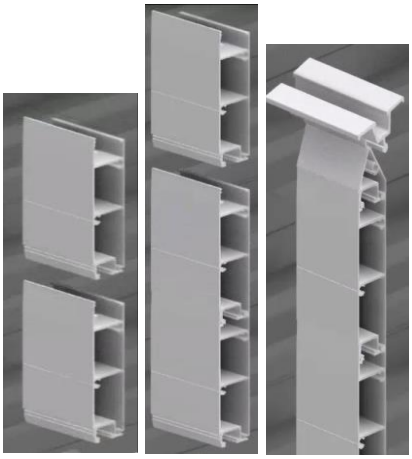


Figure 4.2D: Click in and secure Pro Heightening Element and Module Support

III. Secure the Pro Heightening Element and Module Support to the rail by turning 90 degrees with the help of screwdrivers and it locks in as shown in Figure 4.2E.

IV. Repeat this to complete the rear pair of rear legs (Pro Heightening Element + Module Support) secured firmly on top of the rails.

V. This combination of the front leg and rear leg elevates the panel to the required tilt working with the front pair of Module Supports.

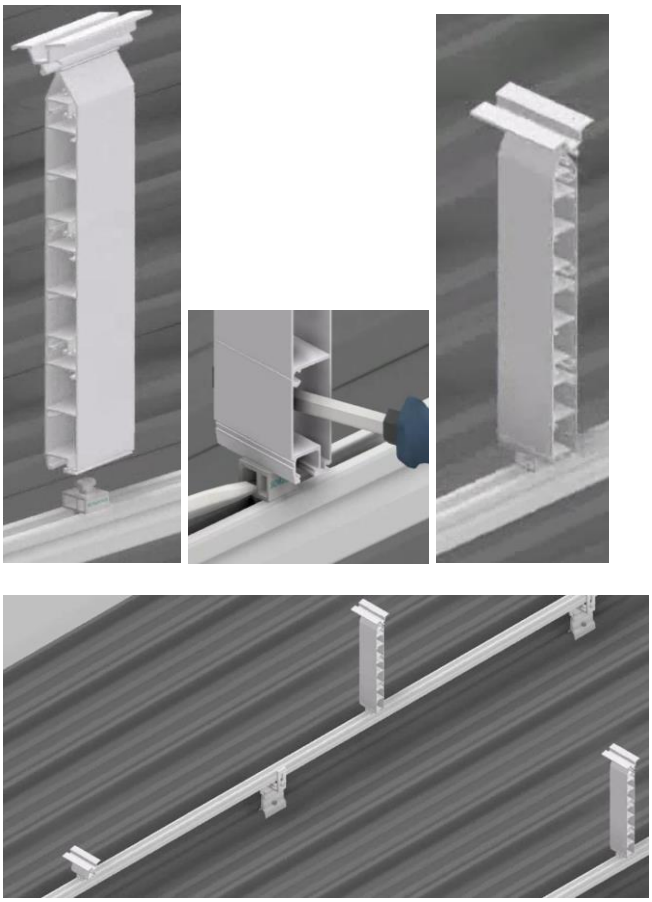


Figure 4.2E: Click in and secure Pro Heightening Element and Module Support

4.3 Module Mounting

4.3.1 Position Modules

I. Position end clamps on the Module Support attached to the Pro Heightening Element, do not tighten [Figure 4.3.1A].

II. Adjust the Module Support base plate to be horizontal, for ease of positioning the panels on top of the Module Support [Figure 4.3.1B].

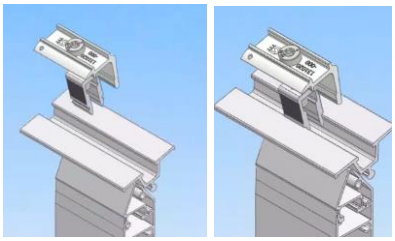


Figure 4.3.1A: Positioning end clamp

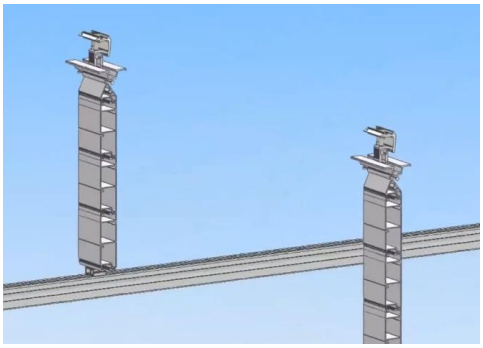


Figure 4.3.1B: Module Support base plate adjustment

III. Slide the panel in until it is in position, aligned with the end clamps on top of the Module Supports on the rear legs [4.3.1C].

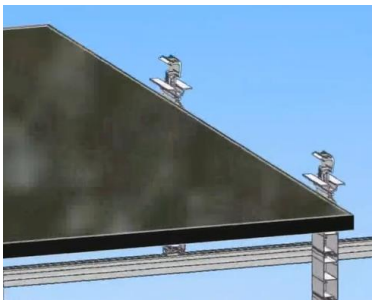


Figure 4.3.1C: Positioning the top end of the panel

IV. The panel is tilted to rest on the front pair of Module Supports, held in position by the end clamps, as shown in Figure 4.3.1D.

V. Secure the end clamps as shown with the recommended torque [15Nm].

VI. Repeat until end of the row.

Figure 4.3.1D: Positioning top end of the panel

4.4 Accessories

4.4.1 Micro-Inverter/Optimiser Kit Proline

The optimiser kits enable the mounting of optimisers and micro-inverters on top of FixZ Pro rails:

I. Add Module Support Pro to either the top or bottom row of the PV array, as shown in [Fig 4.4.1].
II. Loosely connect the bolts and washer to the mounting holes of the micro-inverter.
III. The microinverter/optimiser can be positioned by top entry or sliding in top of the rail [V-channel] using the hammerhead nuts on top of the Module Support Pro, as shown by the left image in [Fig 4.4.1].
IV. Secure the bolt using recommended torque settings [15Nm].

Fig 4.4.1: Optimiser Kit Installation

4.4.2 Earthing Lug

The earthing lug can be used as a potential equalization within the mounting racks.

I. The lug can be positioned by top entry or sliding in top of the rail [V-channel] using the hammerhead nuts.
II. Place the earthing wires inside the lug chamber.
III. Use a calibrated torque wrench to apply the recommended 14 Nm torque for a secure connection.
IV. Inspect the connection to ensure the earthing wire is properly seated and there are no loose strands.
V. The advisable positioning of the earthing lug on the rails is as follows:
    a. Lug distance to the edge of rail: 8-10 mm.
    b. Connection (single/multi-wired): 4-50 mm^2.

The earthing of the PV system can be achieved with one earthing lug per array as the entire system is bonded via integrated earthing pins on the mid and end clamps.

However, additional lugs can be provided upon request, as the final responsibility to ensure earthing at the site is upon the installers in order to maintain compliance with AS/NZS 3000.

4.4.3 Rail Cable Clip

Schletter provides cable management options with the Proline rails via the rail cable clips. They come in silver and black options.

- Insert cable clip into the top of the Proline rail channel. Once pressed this should click in and be firmly attached to the side of the rail as shown in Figure 4.4.3B.
- Insert cable clip by pushing firmly into the channel, until it snaps in, as shown in Fig 4.4.3A.
- The cables are then run through the retainer and the clip holds the cables firmly in place.
- Can hold 4mm or 6mm cables.

Figure 4.4.3A: Cable Clip Pro in silver and black

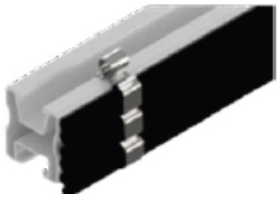


Figure 4.4.3B: Cable Clip Pro with cables running parallel to rail

4.5 Torque Specifications and Tolerances

The various bolt sizes of the mounting system and their recommended torques in the mounting system is listed in Table 4.5:

Bolt Size	Recommended Torques
Torx Bolt for RapidPro Module Clamps	15 N-M
M6 and 1/4" Bolt	6 N-M
M8 and 5/16" Bolt	15 N-M
M10 and 3/8" Bolt	40 N-M
M12 and 1/2" Bolt	70 N-M
Note: Recommended speed for installation of self-drilling 1/4" diameter is 1200-1800 RPMS	

Table 4.5: Size of bolt and recommended torques

For project specific system design, please refer to project specific drawings for recommended torque for each size of bolt used in the system and allowable tolerances. In the event of deviation from approved drawings, contact Schletter Australia immediately.

5.0 Maintenance

In general, once correctly assembled, the roof-top systems should operate reliably with minimal maintenance. However, Schletter Australia recommends yearly inspection of system should be conducted to maintain optimal performance. This ensures the system's long-term durability and reliability.

The following best practises and inspection guidelines are advised for roof-top mounting systems:

I. Prior to installation, it is advisable to store products free from contamination by contact with items that may contain rust, dirt and chemicals. If contamination occurs, affected products has to be cleaned using appropriate methods such as using galvanised zinc spray on affected areas.

II. Clean any visible contamination from soil, and other particles.
Further guidelines on this can be found in:

Standards	**Material**	**Country**
Standards Association of Australia	Aluminium	Australia
Galvanizers Association of Australia (GAA)	Steel	Australia
Galvanizers Association of New Zealand (GANZ)	Steel	New Zealand

III. Visually inspect for signs of damage, wear, corrosion, or movement.
Replace any affected components immediately.

Aluminium components may undergo surface oxidation, forming a thin and hard film of Aluminium oxide which looks like powdery white or dull grey finish. This is standard ageing process for Aluminium and is beneficial for long-term durability of the product. The oxide layer acts as a barrier against atmospheric corrosion.

IV. Check torque values of fastening bolts in the structure as per recommended torques in section 6.5. The following inspection process can be followed:

a) At least 2% of bolted connections must be checked using a calibrated torque wrench. The torque wrench must have a display or be a click type torque wrench.
b) Torque wrench should be set at 50% of intended tightening torque. Check is successful if bolt cannot be loosened.
c) If more than 10% of checked bolted connections are loose, a re-check has to be done. The re-check should be increased to 10% of all bolted connections.
d) If more than 10% of connections are still loose, all bolted connections much be checked.
e) Tighten all non-conforming bolts to specified torques as per section 6.5.

V. Check for loose wiring.

The maintenance guidelines above apply only to the components of the mounting structure that are manufactured from Schletter. For external components, maintenance should be carried out respective to relevant manufacturer's guidelines.

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